Document of
The World Bank

Report No: PAD976

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT
AND
INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED GRANT
FROM THE CENTRAL AMERICA AND CARIBBEAN CATASTROPHE RISK INSURANCE PROGRAM MULTI-DONOR TRUST FUND

IN THE AMOUNT OF US$ 19.5 MILLION

TO CCRIF SPC

FOR A

CENTRAL AMERICA AND CARIBBEAN CATASTROPHE RISK INSURANCE PROJECT

June 23, 2015

Social, Urban, Rural and Resilience Global Practice
Latin America and the Caribbean Region

CURRENCY EQUIVALENTS

Currency Unit = U.S. Dollar

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

CA SP	Central America Segregated Portfolio
CARICOM	Caribbean Community
CAT DDO	Catastrophe Deferred Drawdown Option
CCCCC	Caribbean Community Climate Change Centre
CCRIF	CCRIF SPC (formerly the Caribbean Catastrophe Risk Insurance Facility)
CIMA	Cayman Islands Monetary Authority
COSEFIN	Council of Ministers of Finance of Central America and the Dominican Republic
CPF	Country Partnership Framework
CPS	Country Partnership Strategy
DRFI	Disaster Risk Financing and Insurance
DRM	Disaster Risk Management
DPL	Development Policy Loan
FSSP	Free-standing Single Purpose Trust Fund
GA	Grant Agreement
GDP	Gross Domestic Product
GFDRR	Global Facility for Disaster Reduction and Recovery
GRS	Grievance Redress Service
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IDB	Inter-American Development Bank
IEG	Independent Evaluation Group
IRM	Immediate Response Mechanism
LCR	Latin America and the Caribbean Region
MDTF	Multi Donor Trust Fund
OECS	Organization of Eastern Caribbean States
PCGIR	Comprehensive Central American Disaster Risk Management Policy
PCRAFI	Pacific Catastrophe Risk Assessment and Financing Initiative
PDO	Program/Project Development Objective
SICA	Central America Integration System
SP	Segregated Portfolio
SPC	Segregated Portfolio Company
RTP	Risk Transfer Provider
UST	United States Department of the Treasury
WBG	World Bank Group

Regional Vice President:	Jorge Familiar
Country Director:	J. Humberto Lopez / Sophie Sirtaine
Senior Global Practice Director:	Ede Jorge Ijjasz-Vasquez
Practice Manager:	Anna Wellenstein
Task Team Leader:	Ana Campos Garcia / Nancy Chaarani Meza

CENTRAL AMERICA AND CARIBBEAN
CATASTROPHE RISK INSURANCE PROJECT

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PROJECT APPRAISAL DOCUMENT

LATIN AMERICA AND CARIBBEAN
SOCIAL, URBAN, RURAN AND RESILIENCE GLOBAL PRACTICE

Report No.: PAD976

Basic Information			
Project ID P149670	EA Category C - Not Required	Team Leader(s) Ana Campos Garcia, Nancy Chaarani Meza	
Lending Instrument Investment Project Financing	Fragile and/or Capacity Constraints [ ]		
	Financial Intermediaries [ ]		
	Series of Projects [ ]		
Project Implementation Start Date 06-Jul-2015	Project Implementation End Date 30-Jun-2019		
Expected Effectiveness Date 06-Jul-2015	Expected Closing Date 30-Jun-2019		
Joint IFC No			
Practice Manager/Manager	Senior Global Practice Director	Country Director	Regional Vice President
Anna Wellenstein	Ede Jorge Ijjasz-Vasquez	J. Humberto Lopez / Sophie Sirtaine	Jorge Familiar

Approval Authority
Approval Authority RVP Decision

Borrower: CCRIF SPC			
Responsible Agency: CCRIF SPC			
Contact:	Isaac Anthony	Title:	Chief Executive Officer
Telephone No.:	7582856397	Email:	ccrif.ceo@gmail.com

Project Financing Data(in USD Million)

[ ]	Loan	[ ]	IDA Grant	[ ]	Guarantee
[ ]	Credit	[X]	Grant	[ ]	Other

Total Project Cost:	23.50	Total Bank Financing:	0.00
Financing Gap:	0.00		

Financing Source	**Amount**
Borrower	4.00
Free-standing Single Purpose Trust Fund	19.50
Total	23.50

Expected Disbursements (in USD Million)

Fiscal Year	2015	2016	2017	2018	2019	
Annual	0.00	3.00	4.50	6.00	6.00	
Cumulative	0.00	3.00	7.50	13.50	19.50	

Institutional Data

Practice Area (Lead)

Social, Urban, Rural and Resilience Global Practice

Contributing Practice Areas

Finance & Markets

Cross Cutting Topics

[X] Climate Change
[ ] Fragile, Conflict & Violence
[ ] Gender
[ ] Jobs
[ ] Public Private Partnership

Sectors / Climate Change

Sector (Maximum 5 and total % must equal 100)

Major Sector	Sector	%	Adaptation Co-benefits %	Mitigation Co-benefits %
Finance	Non-compulsory pensions and insurance	100	70	
Total		100		

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

Themes

Theme (Maximum 5 and total % must equal 100)

Major theme	Theme	%

Financial and private sector development	Other Financial Sector Development	50
Financial and private sector development	Other Private Sector Development	50
Total		100

Proposed Development Objective(s)

The Project Development Objective (PDO) is to improve affordability of high quality sovereign catastrophe risk transfer associated with earthquakes and climate-related events for CCRIF Participating Countries.

Components

Component Name	**Cost (USD Millions)**
Component 1: Finance Parametric Earthquake Risk Insurance for COSEFIN Participating Countries	7.00
Component 2: Finance Parametric Climate Risk Insurance for COSEFIN Participating Countries	12.50
Component 3: Finance Parametric Climate Risk Insurance for CARICOM Participating Countries	4.00

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 [X]	No [ ]
Have these been approved by Bank management?	Yes [X]	No [ ]
Is approval for any policy waiver sought from the Board?	Yes [ ]	No [X]

Explanation:

A waiver of paragraphs 3.13, 3.11, and 1.16(e) of the Bank's Procurement Guidelines was approved by the World Bank Managing Director on June 2, 2014.

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**

Legal Covenants

Name	**Recurrent**	**Due Date**	**Frequency**
Corporate Structure (Schedule 2, Section I, A.1.a. of the GA)	X		

Description of Covenant

The Recipient shall not change its corporate structure or ownership, as it relates to the implementation of the Project, in the opinion of the Bank, without prior written consent of the Bank.

Name	**Recurrent**	**Due Date**	**Frequency**
Basic Legal Instruments (Schedule 2, Section I, A.1.b. of the GA)	X		

Description of Covenant

The Recipient shall promptly notify the Bank in the event that the legal instruments establishing the Recipient, granting the CIMA License and/or any of the CIMA Approvals issued to the Recipient have been amended, suspended, terminated, supplemented, replace, abrogated, repealed or waived.

Name	**Recurrent**	**Due Date**	**Frequency**
Subscription Agreement (Schedule 2, Section I, B.1. of the GA)	X		

Description of Covenant

For purposes of carrying out Parts 1 and 2 of the Project, the Recipient shall maintain throughout Project implementation an agreement with the CA Trust Trustee (the Subscription Agreement) whereby the CA SP shares will be issued to the CA Trust Trustee, under terms and conditions acceptable to the Bank.

Name	**Recurrent**	**Due Date**	**Frequency**
Operating Agreement (Schedule 2, Section I, B.2. of the GA)	X		

Description of Covenant

For purposes of carrying out Parts 1 and 2 of the Project, the Recipient shall maintain throughout Project implementation, an agreement with the CA Trust Trustee (the Operating Agreement) under terms and conditions acceptable to the World Bank, including *inter alia*, the financial and operational management obligations of the Recipient and the CA Trust Trustee within the CA SP.

Name	**Recurrent**	**Due Date**	**Frequency**
Risk Transfer Provider (RTP) (Schedule 2, Section I, C.1.a. of the GA)	X		

Description of Covenant

The Recipient shall, prior to the carrying out of activities under Parts 1(a), 2(a) and 3(a) of the Project with respect to a particular RTP, select said RTP in accordance with Section III of Schedule 2 to the Grant Agreement.

Name	**Recurrent**	**Due Date**	**Frequency**
Risk Transfer Contract (RTC) (Schedule	X		

2, Section I, C.1.b. of the GA)			
Description of Covenant			
The Recipient shall enter into a RTC with each RTP under terms and conditions acceptable to the Bank including the obligation of each party to: declare that it has not engaged in any Prohibited Practice (PP); refrain from engaging in PP; report PP; cooperate in any investigation of PP including allowing inspection; take all measures to prevent any PP; and terminate the RTC for compliance failure.			
Name	**Recurrent**	**Due Date**	**Frequency**
Operations Manual (Schedule 2, Section I, D. of the GA)	X		
Description of Covenant			
The Recipient shall adopt and carry out the Project in accordance with the provisions of a manual (the Operations Manual) acceptable to the Bank.			
Name	**Recurrent**	**Due Date**	**Frequency**
Anti-Corruption (Schedule 2, Section I, E. of the GA).	X		
Description of Covenant			
By exercising its rights under the RTC, the Recipient shall: inform Bank of any allegation of a PP; enable the Bank to inspect books and records of any RTP; have said books audited by or on behalf of the Bank; suspend or terminate any RTP's right to process Bank proceeds if the Bank declares it ineligible; and terminate any RTC and obtain restitution of any amount affected by fraud and corruption.			
Name	**Recurrent**	**Due Date**	**Frequency**
Governance Review (Schedule 2, Section I, A.1.c. of the GA)		30-Jun-2017	
Description of Covenant			
By June 30, 2017, or other date acceptable to the Bank, the Recipient shall start carrying out with COSEFIN and the Bank a review of the implementation of activities under the Project and of the Recipient's governance structure. Following the review, to be completed by December 31, 2017, the Recipient shall take any action agreed between the Recipient and COSEFIN, discussed and verified by the Bank.			
Name	**Recurrent**	**Due Date**	**Frequency**
Other Undertakings (Schedule 2, Section IV, C.1. of the GA)	X		
Description of Covenant			
Before the Recipient provides an Insurance Payout to a CCRIF Participating Country: the Recipient shall enter into a Parametric Insurance Contract with said CCRIF Participating Country, under terms and conditions acceptable to the Bank and set forth in the Operations Manual; and an Insured Event must occur.			

Conditions		
Source Of Fund	**Name**	**Type**
Free-standing Single Purpose Trust Fund	Execution, delivery, authorization by all necessary corporate action of the Grant Agreement (GA)	Effectiveness

(FSSP)		
Description of Condition Execution, delivery and authorization by all necessary corporate action of the Grant Agreement, as will be evidenced by the legal opinion of counsel acceptable to the World Bank that CCRIF SPC shall furnish to the World Bank (articles 5.01 and 5.02 of the GA).		
Source Of Fund	**Name**	**Type**
FSSP	Retroactive Financing	Disbursement
Description of Condition No withdrawal shall be made for payments made prior to the date of the Grant Agreement, except that withdrawals up to an aggregate amount not to exceed $3,900,000 equivalent may be made for payments made prior to this date but on or after January 1, 2015, for Eligible Expenditures under the Project (Schedule 2, Section IV. B.1. of GA).		

Team Composition

Bank Staff

Name	Role	Title	Specialization	Unit
Ana Campos Garcia	Team Leader (ADM Responsible)	Senior Disaster Risk Management Specialist	Disaster Risk Management	GSURR
Nancy Chaarani Meza	Team Leader	Operations Officer	Operations	GSURR
Daniel Jorge Arguindegui	Procurement Specialist	Senior Procurement Specialist	Procurement	GGODR
Lourdes Consuelo Linares Loza	Financial Management Specialist	Sr Financial Management Specialist	Financial Management	GGODR
Andres Mac Gaul	Team Member	Senior Procurement Specialist	Procurement	GGODR
Bontje Marie Zangerling	Team Member	Consultant	Operations	GSURR
Carolina Diaz Giraldo	Team Member	E T Consultant	Disaster Risk Management	GSURR
Christopher J. Chung	Team Member	E T Consultant	Operations	GSURR
Concepcion Aisa Otin	Team Member	Senior Financial Officer	Treasury	FABBK
Fernando Viana Braganca	Team Member	Temporary	Team Assistant	GSURR
Gabriela Grinsteins	Counsel	E T Consultant	Legal	LEGLE
Guillermo A. Siercke	Team Member	Consultant	Operations	GSURR
Jimena Garrote	Counsel	Senior Counsel	Legal	LEGLE
Jose Angel Villalobos	Team Member	Senior Insurance Specialist	Insurance	GFMDR
Keren Carla Charles	Team Member	E T Consultant	Disaster Risk	GSURR

			Management	
Oscar Anil Ishizawa Escudero	Team Member	Senior Disaster Risk Management Specialist	Disaster Risk Management	GSURR
Ramiro Ignacio Jauregui-Zabalaga	Counsel	Senior Counsel	Legal	LEGLE
Tatiana Cristina O. de Abreu Souza	Team Member	Finance Officer	Disbursements	WFALN
Victor Manuel Ordonez Conde	Team Member	Senior Finance Officer	Disbursements	WFALN

Extended Team

Name	Title	Office Phone	Location

Locations

Country	First Administrative Division	Location	Planned	Actual	Comments

Consultants (Will be disclosed in the Monthly Operational Summary)

Consultants Required? Consultants will be required

I. STRATEGIC CONTEXT

A. Regional Context

1. **Countries in Central America and the Caribbean are highly vulnerable to the adverse effects associated with earthquakes, tropical cyclones, and other major hydro-meteorological events such as excessive rainfall.** Without adequate fiscal management strategies, major catastrophic events can jeopardize efforts to end extreme poverty and boost shared prosperity and reverse hard-won development gains. Experience has shown that in the immediate aftermath of a disaster, countries experience significant macroeconomic instability and major public sector budget variability[1], leading to reduced coverage and quality of public services (for the poorest in particular) and higher debt levels transferred onto future generations.

2. **Since 1980, nine countries in Central America and the Caribbean have experienced a disaster event with an economic impact above 50 percent of their annual GDP (for the year of the impact).**[2] Public and private assets in the agriculture, education, health, housing, infrastructure, transport, and water sectors often incur the majority of damages associated with catastrophic events – subsequently contributing to large fiscal deficits and debt accumulation requiring public debt restructuring. World Bank research has also shown that catastrophic events have led to significant drops in household consumption per capita, compelling individuals to decrease calorie consumption, sell vital assets, work longer hours and pull children out of school.[3] The adverse impacts of disasters can also be disproportionate by gender. Women often experience higher rates than men of mortality, morbidity, and diminishment in livelihoods post-disaster.[4]

3. **In the Caribbean, between 1990 and 2008, the damages and losses associated with large-scale catastrophic events (e.g. earthquakes and hurricanes) have been estimated to total at least US$23 billion; in the same period, the comparable figure for Central American countries is close to US$21 billion[5].** While earthquakes are associated with the highest probable maximum loss per event in Central American and some Caribbean states, extreme rainfall events caused the greatest accumulated losses to countries in both sub-regions. Hydro-meteorological disasters are the most frequent, with associated damages and losses

[1] Central American and Caribbean countries experience fragile macroeconomic situations. Both regions have seen rising external debt levels in the wake of the global economic crisis of 2007-08, with total external debt in Central America reaching an average value of 48 percent of GDP in 2012, and overall public sector debt in the Caribbean estimated at roughly 79 percent of regional GDP in 2012.

[2] Saint Lucia (1980, 69% of GDP), Jamaica (1988, 65% of GDP), Antigua and Barbuda (1995, 71% of GDP), Dominica (1995, 78% of GDP), St. Kitts and Nevis (1995, 85% of GDP; 1998, 139% of GDP), Honduras (1998, 81% of GDP), Grenada (2004, 212% of GDP), Guyana (200, 56% of GDP), and Haiti (2010, 120% of GDP). Source: Charles, Keren Carla. 2013. Fiscal Risks Related to Catastrophes in LAC. The World Bank Group (*in press*)

[3] See for instance: Baez, Genoni, Lucchetti and Salazar, 2013: *Quantifying the value of risk management for poverty reduction and boosting shared prosperity*, World Bank.

[4] EAP DRM Knowledge Notes No. 24: Making women's voices count in natural disaster programs in EAP.

[5] EM-DAT

equivalent to more than one percent of national GDP per year for 14 countries in Central America and the Caribbean.[6]

B. Sectoral and Institutional Context

4. **Governments throughout Central America and the Caribbean have made significant institutional advances to improve their disaster risk management (DRM) capacities but remain fiscally vulnerable to disasters.** Most countries have passed legislation, developed policies, and created institutions to enable more efficient emergency management and early warning systems. As a result, fewer lives are lost today per hazard event than in past decades[7]. However, the economic value of damages to property and livelihoods continues to rise in both sub-regions due to the high level of vulnerability and increasing exposure.

5. **The limited ability to absorb fiscal shocks associated with natural hazard impacts is often related to a restricted capacity for external borrowing and budget reallocation.** In the Caribbean, economies are too small to absorb the shock effect of many catastrophic events and high levels of government debt partly stem from recovery costs associated with past disasters. Consequently, borrowing to finance reconstruction efforts has proven too costly or impossible for many Caribbean governments. In Central America, while countries are able to distribute disaster risk over a wider geographic area and maintain greater borrowing capacity for reconstruction purposes, some catastrophic shocks still exceed the capacity of national economies. Disaster response frameworks continue to rely heavily on *ad hoc* budget reallocations, emergency calls for donor assistance, and simply not replacing or repairing damaged capital stock[8].

6. **Catastrophe risk pooling at the regional level is a cost-efficient means to enable Central American and Caribbean countries access to quick liquidity following a catastrophic event.** Insurance would mobilize additional capital from outside the country and contribute to the overall reduction of the gap between a government's contingent liability to catastrophic events and the amount of readily available resources that can be mobilized. Effectively transferring part of their disaster risk to capital and reinsurance markets can help solve a significant portion of countries' immediate liquidity needs in the aftermath of a disaster. Engaging these markets would also influence wider decision-making involving national emergency budget allocation and fiscal planning systems so as to be more disaster resilient.

7. **CCRIF SPC (CCRIF Segregated Portfolio Company, formerly the Caribbean Catastrophe Risk Insurance Facility) is the world's first multi-country catastrophe risk pooling mechanism and has covered 16 Caribbean Community (CARICOM) states with tropical cyclone (wind and storm surge) and earthquake (ground shaking) risk insurance**

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[6] According to the Global Climate Risk Index 2013 compiled by S. Harmeling and D. Eckstein for Germanwatch, the average annual economic losses due to weather related disasters as a percent of GDP in the period from 1990 to 2012 were: Grenada (9), Dominica (7), St. Kitts (5), Belize (4), Antigua and Barbuda (4), Honduras (3), Saint Lucia (2), Nicaragua (2), Guyana (1), Haiti (1), El Salvador (1), Jamaica (1), Guatemala (1), and Saint Vincent (1).
[7] UNISDR Global Assessment Report 2011.
[8] Refer to Annex 2 for an overview of Caribbean and Central American countries' use of risk financing tools and strategies.

since 2007. The CCRIF is the first multi-country facility that transfers sovereign disaster risk to the international reinsurance market and provides governments with liquidity immediately after disaster events[9]. The CCRIF enables the aggregation of national risk into larger, more diversified portfolios, collectively building up risk retention capacity, and cheaper access to international reinsurance markets, resulting in more affordable premiums.[10] Expanding CCRIF membership to Central America and the Dominican Republic (members of COSEFIN) would further diversify the CCRIF's risk pool, improve the sustainability of the CCRIF, lead to cheaper premiums for existing CCRIF members, and allow new members access to the same benefits.

8. **The Council of Ministers of Finance of Central America and the Dominican Republic (COSEFIN) and current CARICOM members of the CCRIF have agreed to explore mutually beneficial ways to transfer disaster risk across sub-regions and have sought World Bank support to implement such an effort.** In Central America, while fiscal protection against catastrophic events has received significant political support – as highlighted in the Comprehensive Central American Disaster Risk Management Policy (PCGIR)[11] – the cost of individually transferring sovereign disaster risk is prohibitive. COSEFIN and CCRIF have therefore requested the World Bank, in partnership with the United States Department of Treasury (UST) and in coordination with the Inter-American Development Bank (IDB) and the Central American Bank for Economic Integration, to analyze various options for transferring the catastrophe risk of COSEFIN countries to reinsurance markets. The analysis concluded that joining the CCRIF was the best option in terms of costs and time.

9. **The World Bank can play a catalytic role in supporting fiscal resilience to disaster across the two sub-regions, given its lead in the successful establishment of the CCRIF,[12] a reputation of impartiality in international financial markets, and an in-depth knowledge of Central American and Caribbean DRM needs.** The World Bank is a global leader in advising on sovereign disaster risk financing and insurance (DRFI)[13] and supported the establishment of other regional risk pools in the Pacific and Eastern Europe. In addition, the CCRIF has used the intermediation services of the IBRD Treasury for the past several years to diversify their credit exposure as well as access non-traditional sources of risk capital. The World Bank therefore has a wide spectrum of expertise to support legal, fiduciary, catastrophe risk modeling and financing aspects of the initiative, which can help the CCRIF improve affordability and sustainability of its services in the longer term.

10. **In this context, the World Bank has prepared a parallel IDA project, the Honduras and Nicaragua Catastrophe Risk Insurance Project (P149895), and has established a Multi Donor Trust Fund (MDTF) (TF072264) to channel donor resources in support of the**

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[9] See Box 2.1 in Annex 2 for a detailed description of the CCRIF.

[10] A typical CCRIF policy in the Caribbean will cover 10-15 percent of expected government losses for disaster events that occur less than once every 10 to 20 years and provide the cheapest possible option for quick liquidity immediately after an eligible disaster.

[11] Política Centroamericana de Gestión Integral del Riesgo, PCGIR.

[12] In 2007, the World Bank helped 16 Caribbean countries through a Multi Donor Trust Fund (MDTF) to establish the CCRIF. As part of this assistance, 5 countries received direct financial support from IDA to join the CCRIF.

[13] To date, the World Bank has supported the development of DRFI strategies at the national level in countries such as Brazil, Colombia, India, Indonesia, Pakistan, Peru, Mexico, the Philippines and Vietnam.

CCRIF expansion. The IDA project will finance the entrance fee and initial insurance premiums for Honduras and Nicaragua, enabling them to join and benefit from CCRIF membership. The MDTF will channel resources from various donors to the CCRIF and finance this proposed Project. The MDTF will also finance non-reimbursable technical assistance on DRFI to Ministries of Finance of CCRIF member countries to strengthen transparency and accountability related to post-disaster budgetary management and damage evaluation.

C. Higher Level Objectives to which the Project Contributes

11. **The proposed Project will support the World Bank Group's dual goals of ending extreme poverty and promoting shared prosperity.** In providing affordable and high quality catastrophe risk coverage, CARICOM and COSEFIN countries will be better able to achieve a key priority of managing macro-economic shocks and budget volatility arising from natural hazards. Mitigating such impacts will enable governments to continue services in the aftermath of a disaster as well as to prevent increased public debt levels being transferred onto future generations. Typically, the poor are disproportionately affected by these impacts– as they are most dependent on social and public service delivery. The Project is also consistent with the individual Country Partnership Strategies (CPS)[14] for Central American and Caribbean countries, in which the World Bank Group commits to strengthening the governments' capacities to utilize financial instruments to protect against the adverse fiscal impacts of catastrophic events.

12. **In addition, the proposed Project will contribute to the achievement of the Hyogo Framework for Action and to the regional priorities set out by SICA and CARICOM**. In 2010, the XXXV Council of Presidents of the Central America Integration System (SICA) approved the PCGIR, an ambitious program that calls for the integration of DRM and climate adaptation into economic, social, and environmental policy frameworks. This policy further commits SICA to invest in fiscal protection against disasters through insurance mechanisms. Similarly, the CARICOM heads of government endorsed the *Regional Framework for Achieving Development Resilient to Climate Change* in 2010 promoted by the Caribbean Community Climate Change Centre (CCCCC) as a policy initiative intended to facilitate a comprehensive and strategic approach to climate change adaptation across the Caribbean. An action identified within this framework is to better integrate climate change adaptation and risk management in country planning and resource allocation processes.

[14] CPS for Belize for the period FY12-FY15 (Report#63504-BZ) discussed by the Executive Directors on July 29, 2011, Country Partnership Framework (CPF) for Costa Rica for the period FY16-FY20 (Report# 94686-CR) discussed on May 18, 2015, CPS for the Dominican Republic for the period FY15-FY18 (Report#89551-DO) discussed on September 3, 2014, CPF for El Salvador for the period FY16-FY22 (Report#95185-SV) discussed on June 23, 2015, CPS for Guatemala for the period FY13-FY16 (Report#69229-GT) discussed on August 17, 2012, Interim Strategy Note for Haiti for the period FY13-FY14 (Report#71885-HT) discussed on September 27, 2012, CPS for Honduras for the period FY12-FY14 (Report#63370-HN) discussed on November 1, 2011, CPS for Jamaica for the period FY14-FY17 (Report#85158-JM) discussed on April 2, 2014, CPS for Nicaragua for the period FY13-FY17 (Report#69231-NI) discussed on October 3, 2012, Country Assistance Strategy/Regional Partnership Strategy for the Organization of Eastern Caribbean States (OECS) (Antigua and Barbuda, Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines) for the period FY15-FY19 (Report#85156-LAC) discussed on October 17, 2014, CPF for Panama for the period FY15-FY21 (Report#93425-PA) discussed on April 7, 2015.

II. PROJECT DEVELOPMENT OBJECTIVES

A. PDO

13. **The Project Development Objective (PDO) is to improve affordability of high quality sovereign catastrophe risk transfer associated with earthquakes and climate-related events for CCRIF Participating Countries.** This objective will be achieved through expanding the services and membership of the CCRIF and will contribute to increasing the fiscal resilience of participating countries to insured catastrophic events. Financing CCRIF expenditures associated with retention and transfer of its pooled catastrophe risk for a period of four years will allow the CCRIF to offer cheaper catastrophe coverage options to its members than it could otherwise do, and at the same time build its capital for the sustainable continuation of its operations after Project close.

B. Project Beneficiaries

14. **Direct Project beneficiaries include current and new CCRIF member countries, which will be better able to respond to the initial needs of populations affected by adverse catastrophic events.** Natural hazard impacts have historically caused significant macro-economic instability and posed major challenges to public sector budgets in the Caribbean and Central America alike. The proposed Project will therefore reduce the likelihood of governments having to interrupt or cancel public and social services in order to finance their disaster response. Indirect Project beneficiaries include the citizens of participating countries who will benefit from their government's enhanced resilience to withstand catastrophic fiscal shocks, thereby better enabling appropriate response and continued service delivery in the aftermath of a disaster.

C. PDO Level Results Indicators

15. **The PDO level results indicators are as follows:**

(i) CCRIF premiums are lower than the simulated price for a comparable coverage that any member country could purchase individually in the market; and

(ii) Any CCRIF member country with catastrophe risk coverage has received payment within a month of the occurrence of an event which triggers an eligible loss.

III. PROJECT DESCRIPTION

A. Project Components

16. **The proposed Project has three components that have been identified in collaboration with COSEFIN and CARICOM countries and partners**. As experience has shown with CCRIF's tropical cyclone and earthquake insurance products, the structure provides standardization (increasingly requested by the market), limits operating costs, and takes advantage of risk pooling benefits, which contributes to lower premium rates for all participating countries. Importantly, all products offered are expected to be self-sustaining by the time of Project close, as fully-capitalized risk retention ability within CCRIF will have been developed.

Component 1: Finance Parametric Earthquake Risk Insurance for COSEFIN Participating Countries (US$ 7.0 million)

17. **By funding the main costs associated with providing COSEFIN countries with earthquake risk coverage, Component 1 will enable the CCRIF to retain more of the capital it generates from premium payments.** This, in turn, will help building its reserves to underwrite such coverage more quickly. As the CCRIF builds its risk-bearing capacity for the COSEFIN portfolio during Project implementation, lower per-risk premiums for the earthquake product will be offered at Project close.

18. **Component 1 will finance the following activities (until donor contributions to Part 1 of Recipient-Executed activities of the MDTF have been exhausted):** (a) Payment of Reinsurance *Premia* and/or Swap *Premia* to cover part of the earthquake risk of COSEFIN Participating Countries insured by the Recipient; and, (b) Payment to COSEFIN Participating Countries of Insurance Payouts[15] not covered by the reinsurance in the event an earthquake occurs, and such occurrence constitutes an Insured Event.

Component 2: Finance Parametric Climate Risk Insurance for COSEFIN Participating Countries (US$ 12.5 million)

19. **Component 2 will enable the CCRIF to provide tropical cyclone (hazards related to wind speed and storm surge) and / or excess rainfall coverage to COSEFIN members as a measure to adapt to climate change.** Specifically, this component will cover the main costs of the CCRIF's risk retention and transfer with regards to the tropical cyclone, excess rainfall and other climate-related events of participating COSEFIN countries. While the corresponding tropical cyclone models for COSEFIN countries are already available and the insurance coverage is ready to be offered for the 2015 hurricane season, technical design work needs to be completed for the excess rainfall product, including: (i) preparation of a country-risk assessment model; (ii) calibration of this model; (iii) actuarial analyses; and (iv) design of country-specific insurance based on these parameters. The CCRIF would lead and finance the technical and insurance design work to underwrite the potential excess rainfall losses in close collaboration with the interested countries.

20. **Component 2 will finance the following activities (until donor contributions to Part 2 of Recipient-Executed activities of the MDTF have been exhausted):** (a) Payment of Reinsurance *Premia* and/or Swap *Premia* to cover part of the risk related to climate-related events of COSEFIN Participating Countries insured by the Recipient; (b) Payment to COSEFIN

[15] Payouts paid by this Grant would depend on individual country decisions regarding the level of premium, the amount of risk transferred to the reinsurance/capital market. Payouts for earthquakes will depend also on the source magnitude and hypocenter (location and depth) of the earthquake using data obtained from the USGS. This is translated into a ground shaking intensity across each affected country which in turn drives generation of a modeled loss. The payout increases as the level of losses increases, and losses are directly calculated from the amount of ground shaking in the affected country and what assets are exposed to what level of shaking. The specific payout totals are based on the level of coverage a country has. Each individual country chooses its own coverage options in terms of the attachment point (deductible), exhaustion point (which determines the coverage limit), the ceding percentage and premium.

Participating Countries of Insurance Payouts not covered by the reinsurance in the event a tropical cyclone[16] or excess rainfall or other climate-related events occur, and the occurrence of such climate event constitutes an Insured Event; and, (c) Technical assistance (including consultancy services and training) for the development of an excess rainfall insurance product to be provided to COSEFIN Participating Countries. By funding the main costs associated with providing COSEFIN countries with tropical cyclone and excess rainfall coverage, this component will enable the CCRIF to retain more of the capital generated from premium payments, thereby building its reserves to underwrite such coverage more quickly.

Component 3: Finance Parametric Climate Risk Insurance for CARICOM Participating Countries (US$ 4.0 million in counterpart financing from CCRIF SPC)[17]

21. **Component 3 will enable the CCRIF to provide excess rainfall coverage to CARICOM member countries as a measure to better adapt to climate change.** Specifically, this component will cover the main costs of the CCRIF's risk retention and transfer with regards to excess rainfall or other climate-related events of participating CARICOM countries. The current tropical cyclone policy for CARICOM countries is linked to wind and storm surge damage caused by an eligible hurricane. In response to strong interest expressed by CARICOM stakeholders, the CCRIF has been working on the design of an insurance product to cover disasters caused by excess rainfall, both due to hurricanes and non-hurricane systems. This product functions as a hedge rather than aim to replicate actual losses from the various hazards related to heavy rainfall. As of April 2015, the CCRIF has generated country-risk assessment models for excess rainfall and has advanced work on model calibration in collaboration with interested governments. Eight CARICOM countries purchased excess rainfall coverage for the 2014-2015 policy year. Since this is a new product, CCRIF continues to develop a more sophisticated rainfall model to provide quality climate risk coverage, with the following technical preconditions required for a country, including: (i) refinement of country-risk assessment model; (ii) calibration of each model; (iii) actuarial analyses; and (iv) design of country-specific insurance based on these parameters.

22. **Component 3 will finance the following activities:** (a) Payment of Reinsurance *Premia* and/or Swap *Premia* to cover part of the risk related to climate-related events of CARICOM Participating Countries insured by the Recipient; (b) Payment to CARICOM Participating Countries of Insurance Payouts not covered by the reinsurance in the event excess rainfall or other climate-related events occur, and such occurrence constitutes an Insured Event; and (c) Technical assistance (including consultancy services and training) for the development of an excess rainfall insurance product to be provided to CARICOM Participating Countries. By funding the main costs associated with providing CARICOM countries with excess rainfall coverage, this component will enable the CCRIF to retain more of the capital generated from

[16] The payouts for hurricanes are determined based on government losses calculated using storm data from the National Hurricane Center and parameters fixed within the loss estimation model used to underpin CCRIF's policies. The model calculates the level of wind and ocean hazards, such as storm surge, encountered across the affected area and use the pre-fixed value and distribution of government exposures to those hazards to calculate a government loss.

[17] Component 3 will initially be financed by counterpart financing from CCRIF SPC, and includes the provision of support to CARICOM countries upon the availability of donor funds through the MDTF.

premium payments, thereby generating a strong reserve base, which contributes to the goal of providing participating countries with efficient access to catastrophe insurance.

B. Project Financing

23. The financing for the proposed Project will be provided through the Central America and Caribbean Catastrophe Risk Insurance Program MDTF (TF072264) established for the same purpose. The MDTF will also fund World Bank-executed Technical Assistance for COSEFIN and CARICOM countries in relation with their DRFI needs. The proposed Project includes a provision for retroactive financing up to US$ 3,900,000 equivalent, which may be made for payments made within one year prior to the signing date of the Grant Agreement (but in no case before January 1, 2015) for eligible expenditures.

Table 1: Project Cost and Financing in US$ million

Project Components	**Project cost**	**Central America and Caribbean Catastrophe Risk Insurance Program MDTF Financing**	**% Financing**
1. Finance Parametric Earthquake Risk Insurance for COSEFIN Participating Countries	US$ 7.0 million	US$ 7.0 million	100%
2. Finance Parametric Climate Risk Insurance for COSEFIN Participating Countries	US$ 12.50 million	US$ 12.50 million	100%
3. Finance Parametric Climate Risk Insurance for CARICOM Participating Countries	US$ 4.0 million	(Counterpart financing)	0%
Total Project Costs and Financing Required	**US$ 23.5 million**	**US$ 19.5 million**	**83%**

C. Lessons Learned and Reflected in the Project Design

24. **Lessons learned from recent experiences with the Caribbean Catastrophe Risk Insurance Project (P108058), the Organization of Eastern Caribbean States (OECS) and Haiti Catastrophe Risk Insurance Projects (P094539 and P104690), and the Pacific Disaster Risk Financing and Insurance Pilot (P130347) have been accounted for in Project design (See Annex 7 for additional details on lessons learned).** The Caribbean Catastrophe Risk Insurance Project closed in January 2012 and was subsequently assessed by both World Bank Management and the Independent Evaluation Group (IEG) to have been Highly Satisfactory. The following lessons from the previous projects and the ongoing Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI) project (P132449) have been incorporated in the design of the proposed Project:

(i) Constant communication and regular consultations with experts and stakeholders are critical in developing a successful instrument that continues beyond project closing. Experience from CCRIF's establishment demonstrated the importance of early consultations with Caribbean decision-makers to ensure understanding and ownership of the initiative, which contributed to 16 countries joining the CCRIF from the outset.

(ii) Affordability and quality of CCRIF products is a key concern of new and current members. Building on this experience, the CCRIF has made efforts to reduce premium prices by securing the most competitive pricing from the reinsurance market, while maintaining the high quality of its products as well as sufficient reserves to guarantee its financial stability.
(iii) Donor support and financing are essential in establishing a facility such as the CCRIF. Generous donor support helped the CCRIF build up its own reserves at an accelerated pace while financing initial operating expenditures and paying claims within its risk retention.
(iv) Local knowledge and private sector expertise is vital to project success, especially in guiding geographical and product expansion, specifically in aspects related to client relations, selection of service providers, insurance policy terms and conditions as well as pricing.
(v) The virtual organization of CCRIF helps ensure that services are delivered at a low cost.
(vi) New and innovative projects require flexible World Bank oversight to enhance experimentation and feedback of results into implementation.

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

25. **The proposed Project will be implemented over four years as donor contributions to the MDTF permit, with CCRIF as Recipient of grant funds**. CCRIF is a Segregated Portfolio Company (SPC) domiciled in the Cayman Islands wholly owned by the Trustee of a Cayman STAR Trust[18] established for the benefit of CCRIF members. It is regulated by the Cayman Islands Monetary Authority (CIMA) and governed by a Board of Directors. Reinforcing this governance structure are five Board Committees: Audit and Risk Management, Risk Transfer and Underwriting, Investment, Budget, and Technical Assistance.

26. **As a SPC, CCRIF will be able to establish a segregated portfolio (SP) for each business line.** Initially, CCRIF will work with three SPs, two for the Caribbean (including one for earthquake and tropical cyclone coverage, and one for excess rainfall), and one SP for COSEFIN countries (for all three perils). CCRIF will allocate a portion of its capital to underwrite risk in each SP, while also retaining a portion of its capital in the “core” SPC. Implementation of the proposed Project will proceed under the leadership of CCRIF’s Board of Directors, which will govern all of the SPs within the same legal entity. CCRIF conducts its operations in line with a detailed Operations Manual, which is subject to annual review and amendment by the CCRIF Board as necessary, and review and approval by the World Bank. Updates to the Manual have been made to reflect the entrance of new members and the activities under the proposed Project.

27. **COSEFIN representation in the CCRIF governance structure will be increased gradually over time as this process will require time to consolidate according to the number**

[18] A Cayman STAR Trust is a special Trust created under the Special Trusts - Alternative Regime section of the British Overseas Territory of the Cayman Islands’ Trusts Law (2011 Revision) dated November 21, 2011.

of participating countries and reserves accumulated. A Memorandum of Understanding (MoU) laying out the agreed governance and operational aspects of the arrangement between the CCRIF and the COSEFIN for the provision of catastrophe risk insurance was signed on March 11, 2015. Following the signing of the MoU, COSEFIN requested the establishment of the Central America STAR Trust (CA Trust) and also requested the CCRIF to establish a specific Central America Segregated Portfolio (CA SP) (which is a separate underwriting entity for COSEFIN countries) within the CCRIF. The relevant governance and operational arrangements outlined in the MoU have been reflected in the Operating Agreement that was signed between the CA Trust Trustee and CCRIF. As of May 2015, the CA Trust and CA SP have been established, thereby enabling individual COSEFIN countries to join CCRIF and to purchase insurance policies to help cover catastrophic risk. Nicaragua became the first COSEFIN country to join CCRIF after signing the Participation Agreement with CCRIF on April 18, 2015.

28. **Initially, a Management Committee is envisioned to make decisions independently, but within broad parameters established by the Board, on matters pertaining to the CA SP, such as strategic direction, policy parameters and pricing, and risk transfer strategy.** Members of this Committee could be appointed by the Trustee of the CA Trust or by the CCRIF Board of Directors upon advice from an entity such as COSEFIN. It would be advisable for CCRIF's CEO, Facility Supervisor and, possibly, one of the CCRIF Directors also to be members of the Committee, as one of the objectives of COSEFIN countries in associating themselves with CCRIF is to be able to benefit from CCRIF's accumulated knowledge, expertise, as well as market and stakeholder relationships. To provide new and existing members with an additional safeguard, a review of these governance arrangements will be conducted by the CCRIF Board of Directors during the third year, counting from the starting date of the first CCRIF policy purchased by a COSEFIN country. The review will be conducted by an independent external entity and will provide its conclusions and recommendations to CARICOM and COSEFIN ministers.

29. **CCRIF will be the Recipient and will receive monies from the proposed Central America and Caribbean Catastrophe Risk Insurance Program MDTF to implement the Project.** Contractually, the client countries will be required to pay their entrance fee to CCRIF and sign Participation Agreements to join CCRIF. Countries will subscribe to insurance policies annually for each peril they wish to have coverage for and pay the corresponding premiums. According to the countries' desired coverage and the percentage of risk transferred to the markets, the cost of reinsurance will be quoted and the needed amounts requested from the MDTF to be paid. To obtain funds, CCRIF will submit withdrawal applications for advances and documentation of eligible expenditures. Eligible expenditures shall include: (a) non-consulting services (Reinsurance *Premia* and Swap *Premia*); (b) payouts within its risk retention that are associated with the catastrophe risk insurance policies issued under Components 1 and 2 of the Project; as well as (c) consultancy services, and (d) training required for the technical work needed for the development of the climate risk products under Component 2.

30. **The World Bank's Anti-Corruption Guidelines (ACG) will be complied with by all entities involved in the implementation of the Project**, including the Risk Transfer Providers (RTP) which CCRIF will enter into risk transfer contracts with, given that the relevant ACG's obligations between CCRIF and the RTP will be included in the risk transfer contracts. This will

be complemented with CCRIF's obligations vis-a-vis the Bank, such as: (i) sharing all relevant information on fraud and corruption allegations, and access to RTP's records to the Bank for inspection or audit by itself or by an independent auditor satisfactory to the Bank; and (ii) in case of fraud and corruption, terminate the Risk Transfer Agreement and request restitution.

B. Results Monitoring and Evaluation

31. **The CCRIF will be responsible for monitoring and evaluation (M&E).** Accordingly, CCRIF will collect all necessary data and report on a semi-annual basis to the World Bank on the use of grant proceeds and Project performance, including information on intermediate project results and progress toward higher level outcomes. CCRIF will also provide its unaudited quarterly financial statements and externally audited annual financial statements to the World Bank. In accordance with World Bank policy, the Bank will complete periodic Implementation Status and Results Reports (ISRs) as well as an Implementation Completion Report (ICR) within six months following the end of the Project.

C. Sustainability

32. **Project sustainability relies on both CCRIF's continuous operation and on the participating countries' ability to afford insurance coverage annually.** CCRIF's financial stability depends on its capacity to cover payouts to its members for eligible disasters without depleting its financial reserves and its ability to attract and sustain business. Additionally, the countries' willingness to continue purchasing insurance coverage annually after Project closing depends on their respective understanding of the parametric insurance instrument, the added value it provides for their DRFI strategy as well as the value for money of offered products. An outreach strategy will be pursued, as a major part of the CCRIF's annual renewal effort.

33. **CCRIF has proven to be robust with 8 years of demonstrated experience in successfully securing reinsurance contracts and making timely payouts to participating countries in the event of an eligible catastrophe.** At the end of the financial year ending May 31, 2014, the CCRIF's externally audited financial statements showed assets of US$132.2 million, and confirmed that the CCRIF followed standard commercial practices and provided transparent audit reports. For its financial year 2013-2014 (beginning June 1, 2013), the CCRIF retained US$27.5 million of risk and reinsured an additional US$107.5 million, giving it the capacity to make payouts arising from a series of catastrophic events having a modeled probability of occurring only once in every 536 years without drawing on more than US$27.5 million of its own assets.

34. **On the demand side, CCRIF has established trust and loyalty among its current members as a result of its consistent track record of rapidly disbursing payouts in the wake of catastrophic events.** Although some of the original CCRIF members countries in the Caribbean initially required concessional finance to pay their entrance fee and annual premiums, all 16 original members have annually renewed their insurance policies since the close of the previous MDTF and even gradually increased their respective amounts of coverage since 2007. This is largely a result of their positive experience and the added value seen in participating in

CCRIF. CCRIF's focus on enhancing value for money has played an important part in the success of the annual renewals.[19] In addition, while donor finance was also initially utilized to establish CCRIF, it has since then become self-sufficient and operates based purely on its net underwriting and investment income.

35. **The likelihood the proposed Project will continue beyond project close is demonstrated in increasing demand for CCRIF products, particularly for the excess rainfall coverage on the part of both interested COSEFIN countries and current Caribbean members.** Excess rainfall events have proven to occur more frequently and cumulatively account for greater damages and losses in the region than earthquakes and hurricane winds. Developing this new product at a price which is affordable will therefore strengthen CCRIF's relevance for its member countries, thereby minimizing the possibility of countries withdrawing.

36. **Given the cost and diversification benefits of increased membership in CCRIF, current members have expressed their strong commitment to including Central American states within a joint CCRIF.** As early analysis has shown that pooling risk amongst Central American and Caribbean states will not only result in lower premiums and cost-savings associated with efficiency gains, but also improve access to international reinsurance markets and increase regional cooperation and collaboration between members, significant monetary incentives exist to maintain CCRIF membership. In parallel, COSEFIN member states have formalized strong support by approving the signing of the MOU between COSEFIN and CCRIF.

37. **Lastly, project sustainability will also be ensured through the implementation of complementary technical assistance activities – to be financed by the MDTF and meant to enhance government capacity to pursue more comprehensive DRFI initiatives.** The MDTF technical assistance will be strategically used to enhance DRFI capacities among CCRIF Participating Countries as well as to improve public financial management of disasters caused by natural events, from budget mobilization to budget execution. The corresponding Honduras and Nicaragua Catastrophe Risk Insurance Project (P149895) will also contribute towards CCRIF's reserves and capitalization of the CA SP, which will work towards more competitively, priced coverage options and reduced premiums for all members.

V. KEY RISKS AND MITIGATION MEASURES

A. Risk Ratings Summary Table

	Rating
Stakeholder Risk	Substantial
Implementing Agency Risk	
- Capacity	Low
- Governance	Moderate
Project Risk	
- Design	Moderate

[19] From its inception in 2007, CCRIF reduced its pricing multiple three times by a total of 30 percent, reduced its participation deposit requirement by 50 percent, and twice provided further premium discounts equal to 25 percent in years following those in which no claims had been paid.

	Rating
- Social and Environmental	Low
- Program and Donor	Low
- Delivery Monitoring and Sustainability	Substantial
- Basis Risk	Moderate
Overall Implementation Risk	**Substantial**

B. Overall Risk Rating Explanation

38. **The overall implementation risk of the Project is Substantial**, mainly due to challenges that may derive from the inter-institutional arrangements and the high number of partners. A detailed summary of risks and mitigation measures is included in Annex 4.

39. **Substantial stakeholder risks are largely related to delayed decisions on the part of the COSEFIN countries to join CCRIF due to fiscal constraints and potential changes in political leadership.** Political considerations and fiscal pressures could result in reduced political and/ or financial support among COSEFIN countries to join CCRIF and maintain their membership by purchasing insurance annually. To mitigate this risk, the WBG, UST and CCRIF have maintained a close high-level dialogue with COSEFIN countries to continue building their understanding of the vital role of insurance as part of a broader DRM strategy.

40. **In addition, the risk that an unexpectedly high occurrence of infrequent, high-severity covered events could make CCRIF's lines of business in those areas unsustainable is considered substantial.** This risk will be mitigated by the donor resources that will be provided through the proposed Project to enable CCRIF to hedge this risk by limiting its own risk retention during the initial years of the Project, through the purchase of larger amounts of reinsurance than will be necessary once it has built its capital to a sustainable level.

41. **Moderate risks also exist in relation to governance arrangements during implementation, as there is a risk that differences between the two regions arise in relation to representation and institutional arrangements.** CCRIF's legal and institutional arrangements were reviewed specifically to establish the necessary corporate structure to enable COSEFIN countries to join CCRIF, and the MOU that was signed between COSEFIN and CCRIF in March 2015 clearly outlines the agreed governance and operational aspects of the arrangements for the provision of catastrophe risk insurance. Additionally, to mitigate this risk during implementation, a review of governance arrangements will be conducted by the CCRIF Board of Directors during the third year, counting from the starting date of the first CCRIF policy purchased by a COSEFIN country.

VI. APPRAISAL SUMMARY

A. Economic and Financial Analyses

42. **Disasters resulting from natural events represent a significant contingent liability (both explicit and implicit) to governments and are often associated with large fiscal consequences**. As country legal frameworks often fail to define the fiscal responsibility of the government in case of a disaster, its contingent liability is usually implicit. A government

therefore serves as a (re)insurer of last resort, with limited knowledge of its exact level of disaster risk exposure. The ability to quantify potential losses from disasters as well as the cost associated with public interventions for recovery and reconstruction activities can help a government ascertain its contingent liabilities. Sovereign DRFI can prevent sudden macroeconomic shocks that negatively impact fiscal performance and a country's long-term economic development.

43. **Liquidity for relief and recovery efforts in the aftermath of disasters is a key concern in governments in the sub-regions with significant fiscal constraints.** If the individual risks of countries are pooled at the regional or national levels, aggregating risk into larger, more diversified portfolios, the participants will benefit from cost savings and access to international markets. The cost of risk transfer to international markets depends on many factors, including the riskiness of the portfolio as a fraction of the scope of the entire portfolio. Subsequent diversification benefits are reflected in reduced insurance premiums.

44. **The analysis of five options for COSEFIN countries' catastrophe risk transfer concluded that the cost of catastrophe risk insurance could be reduced by 27 percent when pooling the risk among their members compared to approaching the reinsurance market individually.** In addition, placing the portfolio of catastrophe risk insurance policies of the COSEFIN countries through CCRIF could result in a premium reduction equal to 40-45 percent of the indicative commercial premium for COSEFIN countries compared to transferring catastrophe risk individually. Following the same rationale, pooling excess rainfall risk amongst COSEFIN and CARICOM countries would provide significant additional economic benefits. For the full Economic and Financial Analyses, refer to Annex 6.

B. Technical

45. **The proposed Project builds upon CCRIF's extensive experience working as a regional insurance entity to guarantee the quality of service required for new members**. CCRIF is licensed and operating, with institutional arrangements established, service providers in place, and parametric risk transfer instruments already active, meaning that new members will benefit from time-efficiency gains by joining a mechanism that is successfully tried and tested. The legal and regulatory process for changing CCRIF's corporate structure to accommodate segregated portfolios (and requiring a renaming to CCRIF SPC) was completed end May 2014.

46. **The CCRIF is an efficient means for its members to reduce their fiscal vulnerability to disasters.** Technical strengths of the Project include the uniqueness and attractive pricing of the insurance products that CCRIF is able to offer as a diversified risk pool, the importance of those products as a component of the broader DRM strategies of its member countries, and the rapidity of its payouts. In addition, its emphasis on capacity building and professional development, and its partnerships with regional organizations are valuable for its members.

47. **Through its products, services, and contacts, CCRIF contributes to an increased awareness of the importance of DRM among key government officials in the region.** Through their involvement with CCRIF, finance, economy and planning, disaster management, environment, and meteorological officials in the sub-regions will gain a common understanding

of the role that financial risk transfer can play in broader DRM strategies, and also benefit from greater interaction on these matters.

C. Financial Management

48. **As part of Project preparation, the Bank has carried out a review of CCRIF's financial management arrangements to support project implementation.** As a regulated entity, CCRIF has to comply with reporting and audit requirements established by the Cayman Island Monetary Authority (CIMA) and it has developed an Operations Manual that governs its different functions, including those related to financial planning, payment procedures, accounting, and reporting for internal, statutory and regulatory purposes. Those arrangements were followed for the implementation of TF Agreement 58302 for the period 2007-2012 and proved to be acceptable to the Bank. As part of those arrangements, CCRIF will report to the World Bank on the use of funds through its unaudited quarterly and externally audited annual entity financial statements. For project purposes, annual financial statements will include a schedule (as part of the notes to financial statements) detailing the costs incurred and paid under MDTF classified by project component and eligible expenditures (non-consulting services – such as Reinsurance *Premia* and Swap *Premia*, consultancy services, training and payouts). For further details on fiduciary aspects of the Project, refer to Annex 3.

D. Procurement

49. **The proposed Project will finance the procurement of Reinsurance *Premia* and/or Swap *Premia* from reinsurance or capital markets as well as parametric insurance payouts, within CCRIF's risk retention, to members of CCRIF, in the event of catastrophic events that trigger such payouts.** More specifically, the proposed Project will finance CCRIF's reinsurance premiums for tropical cyclone, earthquake, and excess rainfall risk in COSEFIN participating countries and excess rainfall risk in Caribbean member countries. The Project will also finance insurance payouts within CCRIF's risk retention to COSEFIN participating countries whose parametric insurance policy is triggered by a covered event, while financing insurance payouts to Caribbean members of CCRIF for eligible excess rainfall events only. Consultancy services will be procured under Components 2 and 3 of the Project to conduct necessary preparatory and analytical work to implement the excess rainfall product.

50. Procurement of Reinsurance *Premia* and Swap *Premia* from reinsurance and/or capital markets will follow commercial practices acceptable to the World Bank outlined in Annex 3 of the PAD and to be defined in the Operations Manual. To make this possible, a waiver of paragraphs 1.16(e), 3.11 and 3.13, of the Bank's Procurement Guidelines was approved by the World Bank on June 2, 2014.

51. With regards to parametric insurance payouts for eligible tropical cyclone, earthquake and/or excess rainfall events, this expenditure is considered non-procurable and therefore does not trigger the application of Bank Procurement Guidelines. The services necessary for preparatory and analytical work to implement the excess rainfall product are low cost and will be procured in accordance with Bank Consultant Guidelines, under the Single Source Selection Method (SSS).

52. The agreed risk-mitigation measures are the following: (a) having a broker with qualifications and under TORs acceptable to the World Bank, for the purchase of Reinsurance *Premia* and/or Swap *Premia*, (b) amendment of CCRIF's Operations Manual in a manner acceptable to the World Bank and (c) having an external auditor acceptable to the Bank, with TORs acceptable to the Bank. Should grant proceeds be used to finance the contract of the external auditor, Bank procurement methods should be followed during the hiring process.

E. Social (including Safeguards)

53. **The proposed Project is expected to have positive indirect poverty reduction and social impacts by enhancing the ability of the countries participating in CCRIF to meet the needs of their most vulnerable populations in the aftermath of major disasters.** Quick access to liquidity following a catastrophic event will enable governments to start recovery efforts quickly and reduce the risk of having to interrupt or cancel delivery of social services. The security of post-disaster financing provided will support better contingency planning, and hence better targeting of affected populations after a disaster event.

54. **The proposed Project draws from extended engagements and consultations with national governments, donors and development partners, local and municipal governments involved in emergency response.** As the proposed Project involves engagement between CCRIF and national governments and centers on parametric insurance payouts to states, it will not trigger any social safeguards policies. No physical works or other activities which could have adverse social impacts will be financed by the proposed Project.

F. Environmental (including Safeguards)

55. **The proposed Project does not have any safeguards implications as it will finance parametric insurance payouts as well as coverage of costs associated with access to reinsurance and/or capital markets and will not be tied to any specific investments, works or other activities which could have adverse environmental impacts.** The proposed Project is therefore categorized as Category C.

G. World Bank Grievance Redress

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

Annex 1: Results Framework and Monitoring
Central America and Caribbean
Project Name: Catastrophe Risk Insurance Project (P149670)

Program Development Objective (PDO): To improve affordability of high quality sovereign catastrophe risk transfer associated with earthquakes and climate-related events for CCRIF Participating Countries.

PDO Level Results Indicators	Core	Unit of Measure	Baseline	Cumulative Target Values				Frequency	Data Source/ Methodology	Responsibility for Data Collection	Description (indicator definition etc.)
				YR1	YR2	YR3	YR4				
CCRIF premiums are lower than the simulated price for a comparable coverage that any member country could purchase individually in the market		Yes/No	Y	Y	Y	Y	Y	Annual	CCRIF progress reports	CCRIF	Percentage savings, defined as (Simulated individual market price - CCRIF price)/ Simulated individual market price*100, are at least x% (TBD)
Any CCRIF member country with catastrophe risk coverage has received payment within a month of the occurrence of an event which triggers an eligible loss		Percentage	No catastrophe risk coverage	100	100	100	100	Annual	CCRIF progress reports	CCRIF	Percentage of policy-triggering disaster events for which CCRIF has provided payouts within a month of the occurrence in accordance with policy terms every year (by peril)
INTERMEDIATE RESULTS											
Intermediate Result (Component One): Finance Parametric Earthquake Risk Insurance for COSEFIN Participating Countries											
Earthquake risk policies for COSEFIN member countries provide increasing insurance coverage and/or a lower attachment point (insurance deductible) for a given premium amount		Yes/No	YR1	Base line	Y	Y	Y	Annual	CCRIF progress reports	CCRIF	Increased coverage and/or decreased deductible. The attachment point (insurance deductible) is the value at which an insurance payout is triggered and the coverage is the maximum payout for a given peril during the policy period
Pricing of the earthquake risk policies purchased by COSEFIN member countries has actuarial consistency with CCRIF's survivability and long-term sustainability		Yes/No	No reserves for COSEFIN countries	Y	Y	Y	Y	Annual	CCRIF progress reports	CCRIF	Capitalization amount for earthquakes for COSEFIN countries. Reserves to back up claims are equivalent to or larger than payouts arising from a series of

											catastrophic events having a modeled frequency of at least 1/200 years
Intermediate Result (Component Two): Finance Parametric Climate Risk Insurance for COSEFIN Participating Countries											
Fulfillment of technical preconditions to offer excess rainfall products that are credible to the reinsurance market (per COSEFIN country)		Number	No countries with technical design work completed.	0	0	1	3	Annual	CCRIF progress reports	CCRIF	Number of countries for which technical design work of risk model that is credible to the reinsurance market has been completed. Complete technical design work includes: (i) country - risk assessment models (ii) model calibration (national government engagement and verification) (iii) actuarial analyses; and (iv) country-specific insurance designs
Climate risk related policies for COSEFIN member countries provide increasing insurance coverage and/or a lower attachment point (insurance deductible) for a given premium amount		Yes/No	YR1	Base line	Y	Y	Y	Annual	CCRIF progress reports	CCRIF	Increased coverage and/or decreased deductible. The attachment point (insurance deductible) is the value at which an insurance payout is triggered and the coverage is the maximum payout for a given peril during the policy period.
Pricing of the climate risk related policies purchased by COSEFIN member countries has actuarial consistency with CCRIF's survivability and long-term sustainability		Yes/No	No track record	Y	Y	Y	Y	Annual	CCRIF progress reports	CCRIF	Capitalization amount for tropical cyclone and excess rainfall. Reserves to back up claims are equivalent to or larger than payouts arising from a series of catastrophic events having a modeled frequency of at least 1/200 years
Intermediate Result (Component Three): Finance Parametric Climate Risk Insurance for CARICOM Participating Countries											
Fulfillment of technical preconditions for improved models for CARICOM countries with excess rainfall coverage and/or development of new		Number	8 CARICOM countries with country-risk excess rainfall models calibrated	0	2	3	4	Annual	CCRIF progress reports	CCRIF	Number of additional countries for which technical design work of climate risk models that is credible to the reinsurance

models to offer climate risk products to CARICOM countries			and with coverage for the 2014-2015 season.								market has been completed or improved. Complete technical design work includes: (i) country-risk assessment models; (ii) model calibration (national government engagement and verification) (iii) actuarial analyses; and (iv) country-specific insurance designs
Climate risk related policies for CARICOM member countries provide increasing insurance coverage and/or a lower attachment point (insurance deductible) for a given premium amount		Yes/No	YR1	Basel ine	Y	Y	Y	Annual	CCRIF progress reports	CCRIF	Increased coverage and/or decreased deductible. The attachment point (insurance deductible) is the value at which an insurance payout is triggered and the coverage is the maximum payout for a given peril during the policy period.
Pricing of the climate risk related policies purchased by CARICOM member countries has actuarial consistency with CCRIF's survivability and long-term sustainability		Yes/No	No track record	Y	Y	Y	Y	Annual	CCRIF progress reports	CCRIF	Capitalization amount for excess rainfall. Reserves to back up claims are equivalent to or larger than payouts arising from a series of catastrophic events having a modeled frequency of at least 1/200 years

ANNEX 2: Detailed Project Description

CENTRAL AMERICA AND CARIBBEAN:
CATASTROPHE RISK INSURANCE PROJECT

1. **Central American and Caribbean countries would benefit from improved budget protection strategies and financial tools that better prepare them to deal with natural hazard induced fiscal shocks.** Governments could increase their economies' disaster resilience by pursuing a more explicit risk-layering approach combining the use of a variety of available financing tools. A disaster risk financing and risk layering approach could combine the following instruments: (i) budget allocations and reserves for disaster events that occur frequently but have a minor impact (e.g. localized floods); (ii) use of contingent credits for medium-impact events that occur less frequently (e.g. tropical depressions, minor earthquakes); and (iii) risk transfer instruments like parametric risk insurance to protect against less-frequent, high-impact events (e.g. major earthquakes, tropical cyclones). Table 2.1 summarizes fiscal protection instruments currently utilized by selected Central American and Caribbean countries to safeguard against disasters.

Table 2.1: Fiscal Protection Instruments against Disasters, by Country

	Fiscal protection strategy	Contingent Budget and National Disaster Funds	World Bank Contingent Lines	IDB Contingent Credit	Catastrophe Risk Pooling
Costa Rica	√ Explicit	√	CAT -DDO[19]		No
El Salvador	No	No	CAT –DDO (closed)		No
Guatemala	No	No	CAT –DDO (closed)		No
Honduras	No	No	IRM[20]	√	No
Nicaragua	No	No	IRM	√	No
Panama	√ Implicit	√	CAT -DDO	√	No
Dominican Republic	No	No	No	√	No

[19] Development Policy Loan (DPL) with Catastrophe Deferred Drawdown Option (CAT DDO) provide immediate liquidity of up to US$500 million or 0.25 percent of GDP (whichever is less) to IBRD-member countries in the event of a disaster caused by natural phenomena.

[20] Introduced in December 2011, the Immediate Response Mechanism (IRM) is an instrument included in IDA projects, which allows borrowing countries to rapidly access up to 5 percent of their undisbursed IDA investment project balances following an emergency. The IRM complements longer-term emergency response tools available to IDA countries (e.g. Crisis Response Window), offering them financial support within weeks rather than months after an emergency. IRMs often exist as a Contingent Component with zero dollars allocated and stand ready to receive a rapid reallocation of funds – without requiring prior project restructuring. Currently, five IDA projects in Honduras (Disaster Risk Management Project, Safer Municipalities Project, Social Protection Project, Second Road Rehabilitation and Improvement Project, and Water and Sanitation Project) and three IDA projects in Nicaragua (Second Land Administration Project, Fifth Roads Rehabilitation and Maintenance Project, Second Rural Water Supply and Sanitation Project) include Contingent Components.

Jamaica	No	√	No	No	√
Other CCRIF members	No	Some	No	No	√

2. **To date, Costa Rica, Panama and Jamaica have made advances towards developing fiscal protection strategies that combine ex-ante and ex-post instruments to provide liquidity in the case of a disaster.** Although the disaster risk management (DRM) laws of several Central American and Caribbean countries explicitly mention the need to build national contingent budgets, only Costa Rica, Panama, and Jamaica have actually done so. While most Central American countries have chosen to utilize contingent lines of catastrophe credit offered by the World Bank or the Inter-American Development Bank, CARICOM members decided to spread their catastrophe risk across countries at the regional level, through insurance risk pooling. Nevertheless, most countries in Central America and the Caribbean (like most World Bank client countries) continue to lack transparent and efficient systems for post-disaster budget execution and financial targeting.

3. **Following a request by COSEFIN Ministries of Finance to identify alternatives for catastrophe risk insurance pooling, the World Bank – in partnership with the United States Department of the Treasury - has identified CCRIF SPC (formerly the Caribbean Catastrophe Risk Insurance Facility) as the best option.** CCRIF will allow COSEFIN and CARICOM governments to purchase coverage akin to consequential loss insurance that would provide them with an immediate cash payment after the occurrence of a major earthquake, the passing of a hurricane or excess rainfall (see Box 2.1 for more information on CCRIF). Because of the speed at which a claim payment will be processed, the instrument will be particularly useful in financing the immediate post-disaster recovery, giving the affected government time to mobilize additional resources for longer-term reconstruction activities.

Box 2.1: CCRIF SPC

Established in 2007, CCRIF is the world's first multi-country catastrophe risk pooling mechanism. Registered as an insurance company in the Cayman Islands, CCRIF is also the first facility to develop and successfully offer its members parametric insurance against tropical cyclones and earthquakes. Backed by both traditional reinsurance and capital markets, CCRIF functions as a joint reserve mechanism and enhances its members' fiscal resilience to disasters triggered by natural events by providing a policy payout (in cash; within two weeks) in the event of a hurricane or earthquake of sufficient impact to reach pre-agreed fiscal trigger levels.

CCRIF membership provides parametric insurance coverage, where payouts to countries are based on the modeled loss to a government from an event for which the characteristics are independently and objectively measured. The estimated government fiscal loss is derived from a catastrophe risk model developed specifically for each country and operated by CCRIF. Since 2007, CCRIF has made twelve payouts to its current members totaling over US$ 35 million, and these have proven useful to manage budget volatility in the immediate aftermath of a disaster.

The original 16 Caribbean CCRIF member states include: Anguilla, Antigua and Barbuda, the Bahamas, Barbados, Belize, Bermuda, Cayman Islands, Dominica, Grenada, Jamaica, Haiti, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Trinidad and Tobago, and Turks and Caicos Islands. Since joining, all original 16 member states have continued to pay annual premiums for tropical cyclone and earthquake coverage.

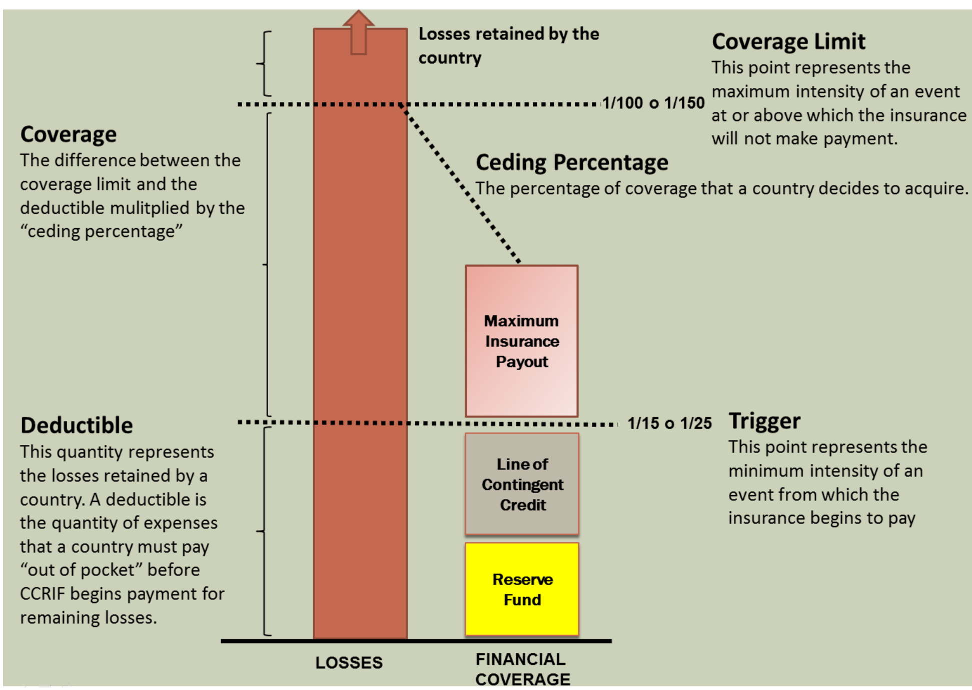
4. **As a risk aggregator, CCRIF will provide insurance coverage to participating countries at a significantly lower cost than individual governments could obtain on their own, by enabling participating countries to pool their individual risks into a single, larger**

and better diversified portfolio. CCRIF would seek to retain some of this risk through a buffer of reserve funds established with the assistance of donor partners. CCRIF will transfer the risks it cannot retain to the international financial markets. This will be done through reinsurance or through other financial coverage instruments (for example, catastrophe bonds). The accumulation of reserves over time should lessen CCRIF's dependence on outside risk transfer, and smooth the catastrophe reinsurance underwriting cycle.

Box 2.2: Details of CCRIF's Parametric Insurance Instrument

Under CCRIF's parametric insurance instrument, payouts are made on the basis of exceeding a pre-established trigger event loss which is estimated in a model in which hazard inputs are generated (e.g. wind speed and storm surge in the case of tropical cyclones or ground shaking for earthquakes) from independently-provided input data (such as a tropical cyclone track or earthquake location/magnitude). These hazard levels are then applied to the pre-defined government exposure to produce a loss estimate. Payouts above the trigger level increase with the level of modelled loss, up to a pre-defined coverage limit.

The use of parametric insurance brings important advantages. The selection of a parametric instrument as a basis for CCRIF's policies was largely driven by the fact that parametric insurance is generally less expensive than an equivalent traditional indemnity insurance product as it does not require a loss assessment procedure in case of a disaster. Parametric insurance also allows for claims to be settled quickly. This is an important feature considering the urgent need for liquidity after a catastrophe. In addition, the instrument is also less exposed to moral hazard and adverse selection problems (which are costly to monitor) because the cost of insurance can be immediately related to the probability of an event, and the payout is independent of any mitigation put in place after the policy is issued. The figure below details key concepts found under parametric insurance models.



Payouts for earthquake events would depend on the source, magnitude and hypocenter (location and depth) of the earthquake using data obtained from the USGS. This is translated into a ground shaking intensity across each affected country which in turn drives generation of a modeled loss. The payout increases as the level of losses increases, and losses are directly calculated from the amount of ground shaking in the affected country and what assets are exposed to what level of shaking.

Payouts for hurricanes are determined based on government losses calculated using storm data from the National Hurricane Center and parameters fixed within the loss estimation model used to underpin CCRIF's policies. The model calculates the level of wind and ocean hazards, such as storm surge, encountered across the affected area and uses the pre-fixed value and distribution of government exposures to those hazards to calculate a government loss.

5. **Insurance coverage will rely on parametric methods, which are a cost-effective way to finance any liquidity gap arising in the immediate aftermath of a disaster.** CCRIF offers parametric insurance, which disburses funds based on the occurrence of a pre-defined level of hazard and impact without having to wait for an on-site loss assessment. This feature is quite different from traditional indemnity-based insurance products in which claims are paid based on formal confirmation of the amount of a loss through on-site verification. Payouts will be calculated based on the modelled estimated financial impact of an adverse natural event. The estimated impact will be derived from probabilistic catastrophe risk models developed specifically for CCRIF. Individual Participating Countries will receive compensation depending on the level of coverage agreed upon in their respective insurance contracts. More information on the parametric insurance offered by CCRIF can be found in Box 2.2.

6. **The proposed Project represents a wider shift from emergency management to a more comprehensive DRM approach which includes financial protection.** The catastrophe insurance to be provided by CCRIF will complement and build off of other World Bank financial products, such as those presented in Table 2.1, including Development Policy Loans with Catastrophe Deferred Drawdown Option (DPL with CAT DDO) and the Immediate Response Mechanism (IRM). Central American countries were among the first in the world to use such instruments.

7. **The proposed Project has three components that have been identified in collaboration with COSEFIN and CARICOM countries and partners**. As experience has shown with CCRIF's tropical cyclone and earthquake insurance products, the structure provides standardization (which is increasingly requested by the market), limits operating costs, and takes advantage of the risk pooling benefits, which will contribute to lower premium rates for all participating countries. Importantly, all products offered are expected to be self-sustaining by the time of Project close, as fully-capitalized risk retention ability within CCRIF will have been developed.

Component 1: Finance Parametric Earthquake Risk Insurance for COSEFIN Participating Countries (US$ 7.0 million)

8. **By funding the main costs associated with providing COSEFIN countries with earthquake risk coverage, Component 1 will enable the CCRIF to retain more of the capital it generates from premium payments.** This, in turn, will help building its reserves to underwrite such coverage more quickly. As the CCRIF builds its risk-bearing capacity for the COSEFIN portfolio during Project implementation, lower per-risk premiums for the earthquake product will be offered at Project close.

9. **Component 1 will finance the following activities (until donor contributions to Part 1 of Recipient-Executed activities of the MDTF have been exhausted):** (a) Payment of Reinsurance *Premia* and/or Swap *Premia* to cover part of the earthquake risk of COSEFIN

Participating Countries insured by the Recipient; and, (b) Payment to COSEFIN Participating Countries of Insurance Payouts[20] not covered by the reinsurance in the event an earthquake occurs, and such occurrence constitutes an Insured Event.

Component 2: Finance Parametric Climate Risk Insurance for COSEFIN Participating Countries (US$ 12.5 million)

10. **Component 2 will enable the CCRIF to provide tropical cyclone (hazards related to wind speed and storm surge) and / or excess rainfall coverage to COSEFIN members as a measure to adapt to climate change.** Specifically, this component will cover the main costs of the CCRIF's risk retention and transfer with regards to the tropical cyclone, excess rainfall and other climate-related events of participating COSEFIN countries. While the corresponding tropical cyclone models for COSEFIN countries are already available and the insurance coverage is ready to be offered for the 2015 hurricane season, technical design work needs to be completed for the excess rainfall product, including: (i) preparation of a country-risk assessment model; (ii) calibration of this model; (iii) actuarial analyses; and (iv) design of country-specific insurance based on these parameters. The CCRIF would lead and finance the technical and insurance design work to underwrite the potential excess rainfall losses in close collaboration with the interested countries.

11. **Component 2 will finance the following activities (until donor contributions to Part 2 of Recipient-Executed activities of the MDTF have been exhausted):** (a) Payment of Reinsurance *Premia* and/or Swap *Premia* to cover part of the risk related to climate-related events of COSEFIN Participating Countries insured by the Recipient; (b) Payment to COSEFIN Participating Countries of Insurance Payouts not covered by the reinsurance in the event a tropical cyclone[21] or excess rainfall or other climate-related events occur, and the occurrence of such climate event constitutes an Insured Event; and, (c) Technical assistance (including consultancy services and training) for the development of an excess rainfall insurance product to be provided to COSEFIN Participating Countries. By funding the main costs associated with providing COSEFIN countries with tropical cyclone and excess rainfall coverage, this component will enable the CCRIF to retain more of the capital generated from premium payments, thereby building its reserves to underwrite such coverage more quickly.

[20] Payouts paid by this Grant would depend on individual country decisions regarding the level of premium, the amount of risk transferred to the reinsurance/capital market. Payouts for earthquakes will depend also on the source magnitude and hypocenter (location and depth) of the earthquake using data obtained from the USGS. This is translated into a ground shaking intensity across each affected country which in turn drives generation of a modeled loss. The payout increases as the level of losses increases, and losses are directly calculated from the amount of ground shaking in the affected country and what assets are exposed to what level of shaking. The specific payout totals are based on the level of coverage a country has. Each individual country chooses its own coverage options in terms of the attachment point (deductible), exhaustion point (which determines the coverage limit), the ceding percentage and premium.

[21] The payouts for hurricanes are determined based on government losses calculated using storm data from the National Hurricane Center and parameters fixed within the loss estimation model used to underpin CCRIF's policies. The model calculates the level of wind and ocean hazards, such as storm surge, encountered across the affected area and use the pre-fixed value and distribution of government exposures to those hazards to calculate a government loss.

Component 3: Finance Parametric Climate Risk Insurance for CARICOM Participating Countries (US$ 4.0 million in counterpart financing from CCRIF SPC)[22]

12. **Component 3 will enable the CCRIF to provide excess rainfall coverage to CARICOM member countries as a measure to better adapt to climate change.** Specifically, this component will cover the main costs of the CCRIF's risk retention and transfer with regards to excess rainfall or other climate-related events of participating CARICOM countries. The current tropical cyclone policy for CARICOM countries is linked to wind and storm surge damage caused by an eligible hurricane. In response to strong interest expressed by CARICOM stakeholders, the CCRIF has been working on the design of an insurance product to cover disasters caused by excess rainfall, both due to hurricanes and non-hurricane systems. This product functions as a hedge rather than aim to replicate actual losses from the various hazards related to heavy rainfall. As of April 2015, the CCRIF has generated country-risk assessment models for excess rainfall and has advanced work on model calibration in collaboration with interested governments. Eight CARICOM countries purchased excess rainfall coverage for the 2014-2015 policy year. Since this is a new product, CCRIF continues to develop a more sophisticated rainfall model to provide quality climate risk coverage, with the following technical preconditions required for a country, including: (i) refinement of country-risk assessment model; (ii) calibration of each model; (iii) actuarial analyses; and (iv) design of country-specific insurance based on these parameters.

13. **Component 3 will finance the following activities:** (a) Payment of Reinsurance *Premia* and/or Swap *Premia* to cover part of the risk related to climate-related events of CARICOM Participating Countries insured by the Recipient; (b) Payment to CARICOM Participating Countries of Insurance Payouts not covered by the reinsurance in the event excess rainfall or other climate-related events occur, and such occurrence constitutes an Insured Event; and (c) Technical assistance (including consultancy services and training) for the development of an excess rainfall insurance product to be provided to CARICOM Participating Countries. By funding the main costs associated with providing CARICOM countries with excess rainfall coverage, this component will enable the CCRIF to retain more of the capital generated from premium payments, thereby generating a strong reserve base, which contributes to the goal of providing participating countries with efficient access to catastrophe insurance.

Technical Assistance

14. **The proposed Project will be complemented by World Bank-executed technical assistance to be financed via a Multi-Donor Trust Fund (MDTF).** The technical capacity of governments of the COSEFIN and CARICOM countries will be strengthened in order to develop sustainable disaster risk financing and insurance (DRFI) strategies and public financial management of catastrophic events, from budget mobilization to budget execution (see Box 2.3 for details on the risk-layered approach for DRFI strategies).

[22] Component 3 will initially be financed by counterpart financing from CCRIF SPC, and includes the provision of support to CARICOM countries upon the availability of donor funds through the MDTF.

Box 2.3: Conceptual framework for the fiscal protection of the state against natural hazards

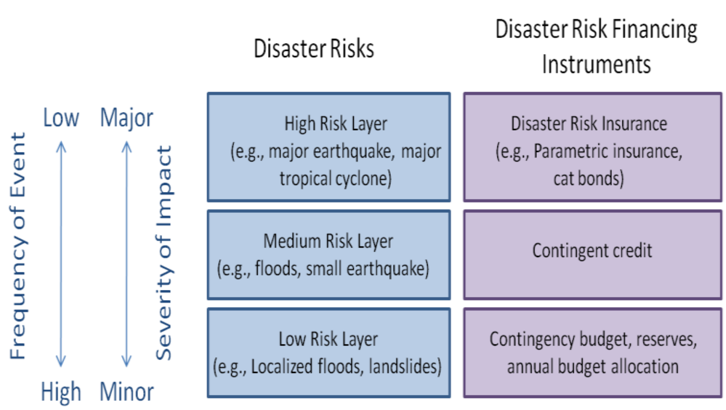
The World Bank has developed an operational framework for Ministries of Finance to develop a sustainable and effective budget protection strategy against natural hazards, as part of their broader fiscal risk management program. The World Bank's framework for disaster risk financing aims to (i) assess the contingent liabilities associated with natural hazards; (ii) manage the budget volatility caused by natural hazards; and (iii) reduce the government's contingent liability associated with natural hazards by promoting ex ante risk financing solutions.

An effective budget management strategy should allow for rapid mobilization of resources in case of a disaster, while protecting fiscal accounts. When confronted with a natural disaster, governments will have to mobilize resources quickly without jeopardizing their fiscal balance. This is generally done by building a fiscal protection strategy that combines a number of instruments in a risk-layering approach to match potential financial needs and manage volatility of the fiscal accounts. The strategy incorporates (i) budget allocations and reserves, (ii) contingent credit, and (iii) risk transfer instruments (Figure A). The proposed Project focuses on risk transfer solutions for the high risk layer that complement the instruments used in lower risk layers.

Market-based risk transfer is usually an effective but expensive proposition for governments that otherwise have access to sovereign financing. The swiftness at which risk transfer instruments can provide liquidity without requiring access to credit makes them attractive to some governments. This is particularly the case for smaller states that do not generally have sufficient capacity to build reserves and are restricted in their access to credit due to already high debt ratios. CCRIF provides an example where small island states acted together to create a regional reserve mechanism to secure access to immediate liquidity in case of a major disaster. Risk transfer instruments can also be useful to manage the budget volatility on government accounts, for example when the speed of post-disaster budget reallocation is an issue. The cat bonds issued by Mexico in 2006, 2009, and 2012 provide an example of creative use of risk transfer instruments.

Catastrophe risk pooling, at the regional or national level, aggregates risk into larger, more diversified portfolios, with participants benefitting from cost savings and access to international markets. The cost of risk transfer to international markets depends on many factors, including the riskiness of the portfolio as a fraction of the size of the portfolio and the amount of capital (if any) directed toward risk retention. Pooling risks generate diversification benefits that are reflected in reduced insurance premiums.

Figure A: Three-tiered risk layering strategy



Annex 3: Implementation Arrangements

CENTRAL AMERICA AND CARIBBEAN:
CATASTROPHE RISK INSURANCE PROJECT

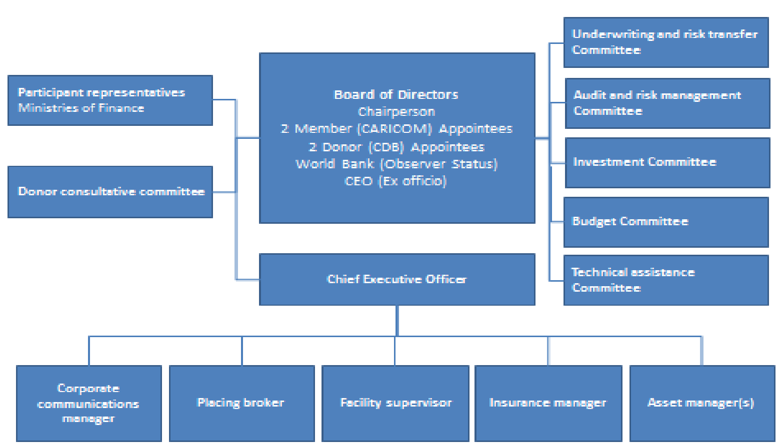
Project Institutional and Implementation Arrangements

1. **CCRIF is domiciled in the Cayman Islands as a Class B(i) insurance company wholly owned by the Trustee of a Cayman STAR Trust established for the benefit of CCRIF members. It is regulated by the Cayman Islands Monetary Authority (CIMA) and governed by a Board of Directors**. Reinforcing this governance structure are five Board Committees: Audit and Risk Management, Risk Transfer and Underwriting, Investment, Budget, and Technical Assistance. CCRIF conducts its operations in line with a detailed Operations Manual, which was approved by the World Bank and is subject to annual review and amendment by the CCRIF Board as necessary. Updates to the Manual have been made to reflect the entrance of new members and the activities under the proposed Project. Box 3.1 describes the current governance structure of CCRIF.

Box 3.1: Current governance structure of the CCRIF

CCRIF is currently governed by a Board of Directors consisting of five Directors composed of representatives from the client countries and participating donors. Two are appointed by the Trustee on instructions from CARICOM on behalf of CCRIF member states and the other two by the Caribbean Development Bank (CDB) on behalf of the donors which contributed to the first MDTF. These four Directors elect amongst themselves a Chairman of the Board. Reinforcing this governance structure are five Board Committees: Audit and Risk Management, Risk Transfer and Underwriting, Investment, Budget, and Technical Assistance. The figure below details the Management Structure of CCRIF.

The duties of the Board members are mandated under Cayman law, and additional responsibilities are set out in the Operations Manual. The Board is responsible for making strategic decisions and is supported with technical advice of a Facility Supervisor, and by other services provided by various contracted service providers - an Asset Manager and a Placement Broker. The Chief Executive Officer's duties include deciding on which matters need to receive full Board attention, subject, however, to advice on regulatory/legal aspects from the Insurance Manager. The duties of the other Board members include but are not limited to: (a) ensuring that CCRIF is operating within the mandate of the business plan as approved by the Cayman Islands Monetary Authority; and (b) reviewing and approving the annual budget, changes to CCRIF's Operations Manual, the selection of the service providers, the annual risk transfer placement and the financial structure, any changes to the coverage provided in the terms and conditions of the parametric insurance policy and annual premiums charged to member countries, annual financial statements, and annual audit results.



2. **CCRIF has undergone a restructuring as a Segregated Portfolio Company (SPC) under the laws of the Cayman Islands pertaining to captive insurance companies in order, *inter alia*, to manage COSEFIN risk effectively.** As a SPC, CCRIF will be able to establish a segregated portfolio (SP) for each of its business lines. Initially, CCRIF will work with three SPs, two for the Caribbean (including one for earthquake and tropical cyclone coverage, and one for excess rainfall), and one SP for COSEFIN countries (for all three perils). CCRIF has allocated a portion of its capital to underwrite risk in each of the Caribbean SPs, while also retaining a portion of its capital in the "core" SPC. An SPC structure has the effect of creating a "stop loss" for each business line because no SP has a legal right of automatic recourse to the capital of another, nor that of the core, in the event that payout obligations on the policies that it has written exceed its own capital and reinsurance lines. Thus, capital provided to underwrite risk in the Caribbean SPs will be shielded from losses associated with underwriting in the Central America Segregated Portfolio (CA SP) (which is a separate underwriting entity for COSEFIN countries) and *vice versa*. The various parties to the CCRIF may consider establishing another SP in the future to combine both Caribbean and COSEFIN risk which would, by virtue of the combination, have advantages in terms of securing reinsurance on better terms (although the Cayman regulatory regime does not yet allow such a vehicle to be formed). It is also considering whether excess rainfall risk should be held in SPs separate from the SPs that will hold the tropical cyclone and earthquake risk or managed within the same cells. The advantages of segregating risk in SPs must be balanced against the additional regulatory and audit fees and potentially higher reinsurance costs that would arise from such segregation.

3. **Implementation of the proposed Project will proceed under the leadership of CCRIF's Board of Directors, which will govern all of the SPs within the same legal entity.** COSEFIN representation in the CCRIF governance structure will be increased gradually over time as this process will require time to consolidate according to the number of participating countries and reserves accumulated.

4. **A Memorandum of Understanding (MOU) laying out the agreed governance and operational aspects of the arrangement between the CCRIF and the COSEFIN for the provision of catastrophe risk insurance was signed on March 11, 2015.** Following the signing of the MOU, COSEFIN requested the establishment of the Central America STAR Trust (CA Trust) and also requested the CCRIF to establish a specific Central America Segregated Portfolio (CA SP) (which is a separate underwriting entity for COSEFIN countries) within the CCRIF. The creation of the CA SP includes the signature of an Operating Agreement and Subscription Agreement, as well as the issuance of the CIMA Authorization to the CA SP Business Plan. The relevant governance and operational arrangements outlined in the MOU have been reflected in the Operating Agreement. As of May 2015, the CA Trust and CA SP have been established, thereby enabling individual COSEFIN countries to join CCRIF and to purchase insurance policies to help cover catastrophic risk. Nicaragua became the first COSEFIN country to join CCRIF after signing the Participation Agreement with CCRIF on April 18, 2015.

5. **As the assets of the CA SP will be owned by a separate trust established for the benefit of those countries, it will be important to ensure that CCRIF's COSEFIN members also have an appropriate voice in decisions pertaining to the use of those assets.** This process

will require time to consolidate according to the number of participating countries and reserves accumulated.

6. **Initially, a Management Committee is envisioned to make decisions independently, but within broad parameters established by the Board, on matters pertaining to the CA SP, such as strategic direction, policy parameters and pricing, and risk transfer strategy.** Members of this Committee could be appointed by the Trustee of the CA Trust or by the CCRIF Board of Directors upon advice from an entity such as COSEFIN. It would be advisable for CCRIF's CEO, Facility Supervisor and, possibly, one of the CCRIF Directors also to be members of the Committee, as one of the objectives of COSEFIN countries in associating themselves with CCRIF is to be able to benefit from CCRIF's accumulated knowledge, expertise, as well as market and stakeholder relationships. To provide new and existing members with an additional safeguard, a review of these governance arrangements will be conducted by the CCRIF Board of Directors during the third year, counting from the starting date of the first CCRIF policy purchased by a COSEFIN country. The review will be conducted by an independent external entity and will provide its conclusions and recommendations to CARICOM and COSEFIN ministers.

7. **CCRIF has two full-time employees**, a Chief Executive Officer appointed in January 2013 and an Analyst/Executive Assistant to the CEO appointed some months later. Additional necessary services are obtained under contracts with specific service providers. Principal among these are contracts with:

- **Sagicor Insurance Managers Ltd. (Sagicor)**, as **CCRIF's Insurance Manager**, responsible *inter alia* for ensuring the adequacy of the insurance arrangements regarding the Company's affairs and the coordination of these, supporting the Board and CEO in relations with CCRIF's regulator, the Cayman Islands Monetary Authority;
- **Caribbean Risk Managers (CaribRM), as CCRIF's Facility Supervisor**, responsible for supporting the Board and CEO with respect to: (i) all technical aspects of the Facility's operations, including modeling, policy terms, and policy payouts; (ii) supervision of out-sourced modeling and actuarial services; (iii) relations with CCRIF's members, including the dialogue on their risk profiles and marketing of policies to them; (iv) work programs with donors to the CCRIF[26] and partner institutions[23]; (v) relations with CCRIF's reinsurance broker and providers; and (vi) identification and supervision of CCRIF-funded technical assistance activities;
- **A reinsurance broker**;

[26] Donors to the 2007-2012 CCRIF MDTF were: Bermuda, Canada, European Union, France, Ireland, United Kingdom, and the World Bank. Contributions totaled US$67.4 million, including a US$10 million contribution from IBRD surplus income. With net interest earnings, it was eventually possible to transfer US$71 million to CCRIF as a Grant.

[23] Memoranda of Understanding (MOUs) pertaining to collaborative work programs are in place between CCRIF and a number of Caribbean institutions including: Caribbean Disaster Emergency Management Agency (CDEMA), Caribbean Institute for Meteorology and Hydrology (CIMH), Caribbean Community Climate Change Centre (CCCCC), Inter-American Development Bank (IDB), OECS Secretariat, Seismic Research Centre (SRC) of the University of the West Indies (UWI), and the U.N. Economic Commission for Latin America and the Caribbean (UN-ECLAC). MOUs are under discussion with other Caribbean institutions, including CARICOM and UWI.

- **London and Capital Ltd. and EFG Bank**, **as asset managers**;
- **Sustainability Managers, as corporate communications consultant**;
- **An external auditor firm**; and
- **An internal auditor**

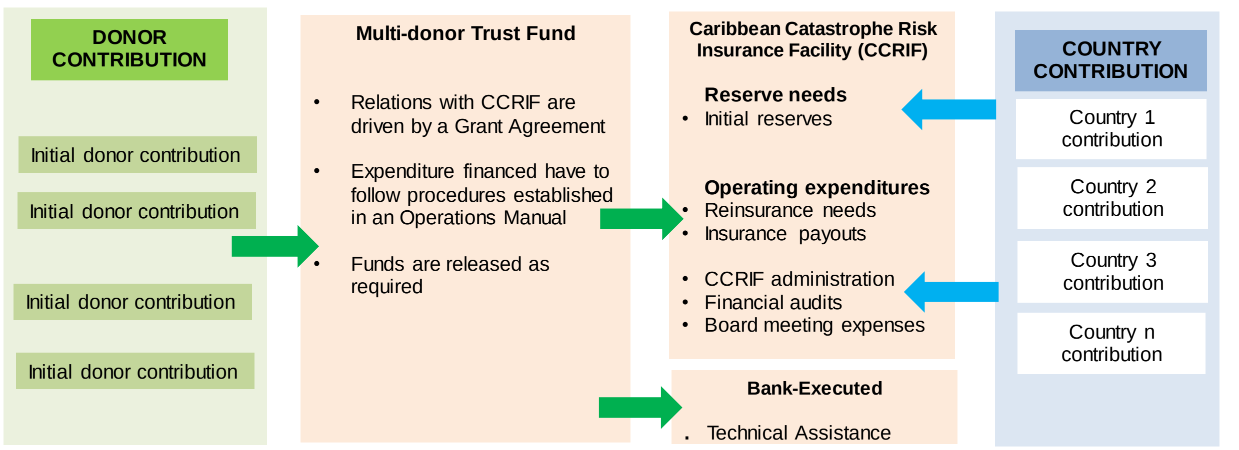
8. **For an overview of CCRIF's operational cycle see Box 3.2.**

Box 3.2: Operational Cycle of CCRIF
a. Early in the year (i.e. February), CCRIF contacts member countries to renew their insurance policy for the upcoming season. Guidance, information, and cost estimates for different insurance alternatives are provided;
b. Policies are negotiated with the members in April. Signature of the policy and payment of the premium are to be done before the end of May in order to obtain coverage during the full season (from June 1 to May 31);
c. Reinsurance negotiation starts early in the year and reinsurance agreements are finalized when CCRIF's insurance portfolio is confirmed;
d. The insured period begins on June 1;
e. On an ongoing basis, CCRIF's Facility Supervisor monitors hydro-meteorological and earthquake events as reported by the National Oceanic and Atmospheric Administration (NOAA), the United States Geological Survey (USGS), and others as necessary;
f. Any event that meets minimum event characteristics in an insured country is run through the parametric loss model. A report is sent to the affected country and a payout procedure is initiated if the index value (estimated government loss) is above the attachment point (deductible) chosen by the country;
g. Claims can also be presented by a country without having been previously detected by CCRIF. In such a case, the claim validity is confirmed using the parametric loss model, and the country is informed of the payout value;
h. When a payout procedure is initiated, the external financial auditor of CCRIF, acting as an independent party, runs the parametric loss model to confirm claim validity and payout amount;
i. The claim is settled as quickly as possible after the calculations finish (14 days after the event), and no more than a month after the event;
j. CCRIF submits a reinsurance claim to its pool of reinsurers if the event triggers any of the reinsurance agreements;
k. Policies lapse on May 31 of each year if not renewed.

9. **Insured countries pay an annual premium commensurate with their own specific risk exposure and the characteristics of the coverage that they have chosen.** These characteristics include the attachment and exhaustion points and the ceding percentage. Parametric insurance products are priced for each country based on the individual country risk profile. Annual premiums will typically vary between US$ 200,000 and US$ 5 million. A limited portion of the premiums collected from participating countries will be dedicated toward the payment of administrative costs (capped at 5% minimum), while donor contributions will reduce expenses incurred by client countries when participating in CCRIF. The combination of country premium payments and donor contributions will help build the needed reserves over the lifespan

of the Trust Fund, thereby creating a self-sustaining initiative by the time of Project closing[24] (see Figure 3.1).

Figure 3.1: Schematic of Donor and Country Contributions to the MDTF and CCRIF



10. **CCRIF will be the Recipient and will receive monies from the proposed Central America and Caribbean Catastrophe Risk Insurance Program MDTF to implement the Project.** Contractually, the client countries will be required to pay their entrance fee to CCRIF and sign Participation Agreements to join CCRIF. Countries will subscribe to insurance policies annually for each peril they wish to have coverage for and pay the corresponding premiums. According to the countries' desired coverage and the percentage of risk transferred to the markets, the cost of reinsurance will be quoted and the needed amounts requested from the MDTF to be paid. To obtain funds, CCRIF will submit withdrawal applications for advances and documentation of eligible expenditures. Eligible expenditures shall include: (a) non-consulting services (Reinsurance *Premia* and Swap *Premia*); (b) payouts within its risk retention that are associated with the catastrophe risk insurance policies issued under Components 1 and 2 of the Project; as well as (c) consultancy services and (d) training required for the technical work needed for the development of the climate risk products under Component 2.

11. **The World Bank's Anti-Corruption Guidelines (ACG) will be complied with by all entities involved in the implementation of the Project**, including the Risk Transfer Providers (RTP) which CCRIF will enter into risk transfer contracts with given that the relevant ACG's obligations between CCRIF and the RTP will be included in the risk transfer contracts. This will be complemented with CCRIF's obligations vis-a-vis the Bank, such as: (i) sharing all relevant

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[24] Reinsurers provide risk capital through proportional or excess-of-loss treaties, which require that the primary insurer (in this case, CCRIF) retains at least some of the risk. More important, a critical level of initial reserves is essential to ensure the long-term sustainability of the Facility.

information on fraud and corruption allegations, and access to RTP's records to the Bank for inspection or audit by itself or by an independent auditor satisfactory to the Bank; and (ii) in case of fraud and corruption, terminate the Risk Transfer Agreement and request restitution.

Financial Management, Disbursements and Procurement

Financial Management

12. **CCRIF is financially robust and its fiduciary performance has been fully compliant with all applicable laws and regulations during its life span.** As a regulated entity, CCRIF has to comply with reporting and audit requirements established by the Cayman Islands Monetary Authority (CIMA). As such, it has developed an Operations Manual that governs its different functions, including those related to financial planning, payment procedures, accounting, and reporting for internal, statutory and regulatory purposes. The Operations Manual provides guidance for operating procedures for CCRIF, including those of all of its SPs. Audited financial statements required under Grant Agreement TF58302 for the period 2007-2012 were submitted to the Bank in a timely manner. The CCRIF's Financial Management performance has been Moderately Satisfactory for most of its implementation time. Based on project features, and CCRIF's existing capacity and experience developed, the overall FM risk is rated as Moderate.

13. **Financial management (FM) tasks to be executed by the CCRIF will include**: (i) budget formulation and monitoring, (ii) cash flow management (including processing payments and submitting grant withdrawal applications to the World Bank), (iii) maintenance of accounting records, (iv) administration of underlying information systems, (v) arrangements for execution of external audits, and (vi) preparation of financial reports. CCRIF is led by a Chief Executive Officer (CEO) supported by a Chief Operating Officer (COO) to manage CCRIF's day-to-day operations. CCRIF is also supported by six principal separate and independent parties as service providers, including an Insurance Manager that undertakes responsibility for key financial management functions and which is also a firm registered and licensed by CIMA, and which during the last years has ensured compliance with applicable requirements. Roles and responsibilities of the Insurance Manager are clearly defined in the Operations Manual, including those related to: maintaining the accounting system, ensuring timely financial reporting and accounting, maintaining treasury management and fiscal control for CCRIF and its constituent SPs.

14. **The reports to the World Bank on the use of funds will include its unaudited quarterly and externally audited annual entity financial statements.** In accordance with the CCRIF's Operations Manual, CCRIF will submit: (i) quarterly unaudited financial reports (CCRIF Management Accounts) within 60 days of the end of the quarter; and (ii) annual audited financial statements within 180 days of the end of its financial year (end-May). The Facility's Financial Statements shall include full income statement, balance sheet and supporting schedules, for all of the SPs as well as for the SPC itself. CCRIF's financial statements are prepared in accordance with US Generally Accepted Accounting Principles. For project purposes, quarterly unaudited financial statements and annual financial statements will include a schedule (as part of the notes to financial statements) detailing the funds received and costs incurred and paid under MDTF classified by project component and eligible expenditures (Reinsurance *Premia*, Swap *Premia*, payouts, training and consultancy services).

15. **CCRIF's Financial Statements, which shall include all of the SPs, will be audited annually by an external audit firm mutually acceptable to the Board of Directors and CIMA.** The external auditor for any of CCRIF SPC's financial years during which CCRIF SPC receives financing through a Grant Agreement with the World Bank, should also be acceptable to the Bank. Current external audit firm is considered acceptable to the Bank. In case a new audit firm is appointed during the life of the Grant Agreement, a non-objection from the Bank will be obtained. In accordance with WB Access to information policy, Annual audited financial statements will be made publicly available by the World Bank and CCRIF as provided in the Operations Manual.

Disbursement arrangements

16. **MDTF proceeds will be disbursed following any of the three disbursement methods: Direct Payment, Advances to a Designated Account (DA) or Reimbursement.**

17. For the advance method, it has been agreed that the DA for the MDTF will be a pooled account in US dollars under CCRIF SPC's name into which the grant proceeds will be deposited. CCRIF SPC will maintain accounting records that clearly identify deposits received (advances made by the World Bank) and payments made for eligible expenditures and outstanding balances.

18. Advances to the DA will be made on the basis of periodic forecasts as follows:

- Semi-annual forecast for Reinsurance *Premia* and/or Swap *Premia* and Consultant Services (Category 2) based on planned project expenditures derived from reinsurance contracts and consultants' contracts and respective payment schedules.

- Special advance (when an insured event occurs) for payout based on the Preliminary Modelled Loss and Policy Payment Report.

19. Specific procedures, and supporting documentation required for different types of expenditures, including the use of Customized SOE, are specified in the Disbursement Letter and Operations Manual.

20. **Retroactive financing:** Withdrawals up to an aggregate amount not to exceed US$ 3,900,000 equivalent may be made for payments made within one year prior to the signing date of the Grant Agreement (but in no case before January 1, 2015) for Eligible Expenditures.

Procurement

A. General

21. Project Procurement would be carried out in accordance with the provisions of the Grant Agreement, the World Bank's "Guidelines: Procurement of Goods, Works, and Non-consulting services under IBRD Loans and Bank Credits & Grants" and "Guidelines: Selection and Employment of Consultants under IBRD Loans and Bank Credits & Grants by World Bank Borrowers", both dated January 2011 and Revised July 2014, and the agreed Operations Manual. Paragraphs 1.16 (e), 3.11 and 3.13 of the Procurement Guidelines will not apply to the procurement of Reinsurance *Premia* and Swap *Premia* contracts, which will be carried out following commercial practices, according to a waiver of the Bank's Procurement Guidelines approved by the World Bank Managing Director on June 2, 2014.

22. **Non-consulting services**: the Project will finance the procurement of Reinsurance *Premia* and Swap *Premia* contracts, which will be carried out following commercial practices described in the Operations Manual (Annex E in particular), in a manner acceptable to the World Bank. A draft of the Operations Manual has been reviewed and agreed with the World Bank on June 15, 2015. These procurements will be conducted with the support of a qualified broker acceptable to the World Bank and hired under TORs acceptable to the World Bank. The above referred commercial practice for the procurement of reinsurance involves the seven steps described in Box 3.3 below.

Box 3.3: CCRIF's reinsurance procurement process

CCRIF's process for the procurement of reinsurance policies and swap agreements:

(i) The package (term sheet) is produced by the placer (CCRIF) in collaboration with the reinsurance broker. The term sheet includes information on such elements as: time period for physical parameters, risk for each country, triggers for each country, disbursement terms, settlement procedures, the underwriting (or reinsurance policy) model, and who declares a loss; The term sheet is based on the best estimate of the coverage conditions that would be taken up by each of the countries (thus forming a portfolio of risk on which the necessary analytics are performed) and comprises analytical data from which reinsurers can provide a price. This is either preceded or followed up by a 'roadshow' facilitated by the reinsurance broker in which CCRIF meets with most/all of the reinsurance markets who are or who might wish to join the CCRIF program. Prior to quotes being requested, CCRIF's Board's reinsurance and risk transfer subcommittee will have discussed (and usually sought guidance from the Board) for the overall risk transfer strategy (retention, limit on reinsurance etc.).

(ii) The broker gauges universe of re-insurers, within the parameters defined by CCRIF. These parameters can include elements like credit rating and capacity of targeted reinsurance companies; The reinsurance broker will have done some background filtering and work in analyzing available capacity and appetite for parametric risk in the geographical area of interest, and separately the Facility Supervisor and the reinsurance broker will have done outreach work with the MPRES parametric model – if a new version, then with all reinsurers otherwise just with potential new markets.

(iii) The broker and CCRIF go on a road show with the underwriting model (and often accompanied by technical note) to the defined universe of re-insurers; The roadshow (which would entail either a single multilateral meeting or individual bilateral meetings or a combination of the two) comprises presentation of CCRIF's year, likely changes to model/portfolio and, where relevant, discussion of other collaborative initiatives that may be ongoing or planned. After the roadshow and package has gone out, the reinsurance broker takes on most of the work in talking with reinsurers, answering questions, updating the reinsurer analytics if estimates of the portfolio changes etc.

(iv) The Broker asks reinsurers for indicative or firm pricing for a specified validity period typically 2-3 weeks; Quotes will be requested from all markets two weeks before inception, and those will be reviewed by the Board's reinsurance and risk transfer subcommittee upon presentation by the Facility Supervisor and reinsurance broker.

(v) Companies respond with pricing and risk taking interest for the valid period;

(vi) The total placement (or award) costs are settled, commonly in accordance with a "follow the fortunes clause" – where the highest price among needed reinsurers counts for all re-insurers in the placement, and

(vii) Contract: the placer and each of the selected reinsurers enter into contracts based on standard term sheets (with financial terms and share of coverage specific to each reinsurer). The reinsurance broker's main task is then to fill the available capacity needs at the lowest cost possible while maintaining a mix of reinsurers (as per the reinsurance buying guide which forms part of CCRIF's Operations Manual) and an overall reinsurer credit rating in line with the risk management policy. This is usually an iterative process and includes numerous inputs from the reinsurance committee and Facility Supervisor, sometimes (rarely) directly with reinsurers but usually with the reinsurance broker. Then the Board's reinsurance and risk transfer subcommittee signs off on the final package the day before inception and the reinsurance broker secures the necessary verbal/email commitments and then follows up with all the paperwork. The full Board formally approves the entire reinsurance package alongside the primary underwriting package at its first meeting after 1 June.

CCRIF may seek coverage by accessing the capital markets instead of or in addition to the reinsurance market. Access to capital markets may be achieved through collateralized reinsurance or through the issuance of a Catastrophe Bond to be placed with specialized investors around the world. One alternative will be to access the capital markets through an IBRD Cat bond issuance linked to CCRIF risk. Accessing the capital markets will be a decision of CCRIF's Board's reinsurance and risk transfer committee in coordination with the broker and, possibly and as needed, in collaboration with the World Bank, and within CCRIF Board's overall discussion on the risk transfer strategy. The decision to access the capital markets would consider several factors, including pricing, the ability to extend coverage for multi-years and the (potential lack of) capacity of the reinsurance market to absorb CCRIF risk. The process will follow the same process as for the reinsurance purchase described above, with the broker leading the communication and discussions with the potential investors. However, a cat bond would additionally go through a public distribution and book-building process.

23. **Consultant Services:** The Project will finance the consultant services necessary for preparatory and analytical work to implement the excess rainfall product These services are low cost and will be procured in accordance with World Bank Consultant Guidelines, under the Single Source Selection Method (SSS), according to paragraph 3.8(e). The consultant services are the following:

Description of Assignment	*Estimated Cost*	*Selection Method*	*Review by Bank (Prior / Post)*	*Expected Proposals Submission Date*	*Fund Source*
Development of XSR model for Central America	$94,286	Sole-source	Post	Project already commenced - provision for retroactive financing included in the Grant project	Project Component 2
XSR model licensing, technical support and calculation agent services, 2015/16 Policy Year, CA	$77,500	Sole-source	Post	1-Jun-15	Project Component 2
XSR model licensing, technical support and calculation agent services, 2016/17 Policy Year, CA	$77,500	Sole-source	Post	1-Jun-16	Project Component 2
XSR model licensing, technical support and calculation agent services, 2017/18 Policy Year, CA	$77,500	Sole-source	Post	1-Jun-17	Project Component 2

24. For other consultant services, consulting firms will be selected following the QCBS method, while individuals will be selected through the comparison of 3 CVs. In addition to QCBS, the following procurement methods will be used for procurement of Consultant Services: (a) Quality-based Selection, (b) Least Cost Selection, (c) Selection based on Consultants'

Qualifications, (d) Single-source Selection, (e) Procedures set forth in paragraphs 5.2 and 5.3 of the Consultant Guidelines for the Selection of Individual Consultants, (f) Sole Source Procedures for the Selection of Individual Consultants.

25. **Non procurable items:** Throughout its lifespan, the Project will also finance insurance payouts within CCRIF's risk retention to COSEFIN members whose parametric insurance policy is triggered by a covered event, while financing insurance payouts to Caribbean members of CCRIF for eligible excess rainfall events only. These expenditures are non-procurable and therefore do not involve procurement under Bank procurement guidelines.

26. The overall Project risk for procurement is considered to be Moderate. The agreed risk-mitigation measures are the following: (a) having a broker with qualifications and under TORs acceptable to the World Bank, for the purchase of Reinsurance *Premia* and/or Swap *Premia,* (b) amendment of CCRIF's Operations Manual in a manner acceptable to the World Bank and (c) having an external auditor acceptable to the Bank, with TORs acceptable to the Bank. Should grant proceeds be used to finance the contract of the external auditor, Bank procurement methods should be followed during the hiring process.

27. In terms of procurement planning, monitoring and control, CCRIF will submit for approval to the Bank a procurement plan, which shall regularly updated by CCRIF.

28. Procurement Thresholds and Bank's reviews: All contract financed using the proceeds of the Bank's Grant will be included in a Procurement Plan approved by the Bank before implementation. Prior review thresholds will apply according to OP/BP 11. All others contracts will be subject to procurement post review unless otherwise identified in the Procurement plan.

Environmental and Social (including safeguards)

29. **The proposed Project is expected to have positive indirect poverty reduction and social impacts by enhancing the ability of the participating CCRIF governments (current and new members) to meet the needs of their most vulnerable populations in the aftermath of a major disaster.** Quick access to liquidity following a catastrophic event will enable governments to start recovery efforts quickly and reduce the governments' risk of having to interrupt or cancel delivery of social services to its population. The security of post-disaster financing provided will support better contingency planning, and hence better targeting of affected populations after an event.

30. **Project design draws from extended engagements and consultations with national governments, donors and development partners, as well as technical agencies involved in DRM and emergency response.** A number of World Bank missions have been carried out to conduct high-level dialogues with national ministries as well as to receive feedback from stakeholders to ensure critical needs and concerns have been accounted for in project design.

31. **With regards to environmental safeguards, the proposed Project is categorized as Category C.** As the proposed Project does not contemplate any direct physical investments, but rather will finance annual reinsurance payments and payouts, no environmental or social

safeguards policies will be triggered by the Project. The insurance funds will not be tied or tracked to any specific investments, and as a result would not have any safeguards implications.

Monitoring & Evaluation

32. **As the Recipient/Grantee implementing the Project, CCRIF will be responsible for monitoring and evaluation (M&E).** Accordingly, the Facility will collect all necessary data and report on a semi-annual basis to the World Bank on the use of Grant proceeds and Project performance, including information on intermediate Project results and progress toward higher level outcomes. CCRIF will also provide its unaudited quarterly financial statements and externally audited annual financial statement to the World Bank. In accordance with Bank policy, the World Bank will complete periodic Implementation Status and Results Reports (ISRs) as well as an Implementation Completion Report (ICR) within six months following the end of the Project. A mid-term review report will also be produced during the Project lifespan.

Annex 4: Operational Risk Assessment Framework (ORAF)

Central America and Caribbean: Catastrophe Risk Insurance Project (P149670)

Risks

Project Stakeholder Risks											
Stakeholder Risk	Rating	Substantial									
Risk Description: Delayed decisions on the part of Central American countries and the Dominican Republic to join CCRIF. Fiscal constraints could result in reduced political and / or financial support among Central American countries and the Dominican Republic to join CCRIF.	**Risk Management:** The WBG, UST and CCRIF itself are sustaining a close, high-level dialogue with Central American countries and the Dominican Republic to continue building their understanding of the vital role of insurance as part of a broader disaster risk management strategy. The MOU establishing the parameters of the partnership between COSEFIN and CCRIF has been signed, and Nicaragua has signed its Participation Agreement to join CCRIF. In addition, the Bank team is in advanced discussions with El Salvador to join CCRIF for the upcoming policy year 2015-2016.										
	Resp:	Both	Status:	In Progress	Stage:	Both	Recurrent:		Due Date:		Frequency:
Implementing Agency (IA) Risks (including Fiduciary Risks)											
Capacity	Rating	Low									
Risk Description: Limited capacity to include additional members within CCRIF. CCRIF's current technical and fiduciary capacity may be overwhelmed by the new memberships as well as additional products offered. Operations could consequently become more complex.	**Risk Management:** CCRIF's capacity to meet its clients' needs has proven excellent and it has reviewed its procedures and Operations Manual to ensure readiness for Project implementation given its restructuring as a SPC. In addition, the signing of the MOU between COSEFIN and CCRIF led to the creation of the CA Trust and CA SP, which were necessary steps to enable the participation of individual COSEFIN countries within CCRIF.										
	Resp:	Both	Status:	In Progress	Stage:	Both	Recurrent:		Due Date:		Frequency:
Governance	Rating	Moderate									

<table>
<tr><td rowspan="2">Risk Description:
While initial governance arrangements have been agreed upon (as outlined in the MOU signed between COSEFIN and CCRIF), during implementation, there is a risk that differences between the two regions arise in relation to representation and institutional and/or governance arrangements.</td><td colspan="6">Risk Management:
CCRIF’s legal and institutional arrangements were reviewed to establish the necessary corporate structure to enable COSEFIN countries to join CCRIF, and the MoU clearly outlines the agreed governance and operational aspects of the arrangement between the CCRIF and the COSEFIN for the provision of catastrophe risk insurance. Additionally, a review of these governance arrangements will be conducted by the CCRIF Board of Directors during the third year, counting from the starting date of the first CCRIF policy purchased by a COSEFIN country. The review will be conducted by an independent external entity and will provide its conclusions and recommendations to CARICOM and COSEFIN ministers.</td></tr>
<tr><td>Resp: Both</td><td>Status: In Progress</td><td>Stage: Both</td><td>Recurrent:</td><td>Due Date:</td><td>Frequency:</td></tr>
<tr><td colspan="7">Project Risks</td></tr>
<tr><td>Design</td><td>Rating</td><td colspan="5">Moderate</td></tr>
<tr><td rowspan="2">Risk Description:
Excess rainfall product does not become available for COSEFIN or CARICOM countries in a timely manner during the implementation of the Project. Parametric excess rainfall products are extremely difficult to calibrate. Limitations in the available information and calibration of the country-specific models could be a challenge for finalizing high quality products that are both cost-efficient and match participating countries’ expectations.</td><td colspan="6">Risk Management:
The CCRIF has generated country-risk assessment models for excess rainfall for CARICOM countries and has advanced work on model calibration in collaboration with interested governments. Eight CARICOM countries have purchased excess rainfall coverage for the 2014-2015 policy year, and 4 payouts have been made thus far. The experience gained from developing this product, coupled with donor resources provided through the MDTF, will help ensure timely development of an excess rainfall product for COSEFIN countries. The development of the excess rainfall product for COSEFIN countries is ongoing and is expected to be finalized during the second half of 2015. The World Bank will provide technical support to the process as needed.</td></tr>
<tr><td>Resp: Both</td><td>Status: In Progress</td><td>Stage: Both</td><td>Recurrent:</td><td>Due Date:</td><td>Frequency:</td></tr>
<tr><td>Social and Environmental</td><td>Rating</td><td colspan="5">Low</td></tr>
<tr><td rowspan="2">Risk Description:
No environmental or social safeguards will be triggered by the proposed Project.</td><td colspan="6">Risk Management:</td></tr>
<tr><td>Resp:</td><td>Status:</td><td>Stage:</td><td>Recurrent:</td><td>Due Date:</td><td>Frequency:</td></tr>
<tr><td>Program and Donor</td><td>Rating</td><td colspan="5">Low</td></tr>
<tr><td>Risk Description:</td><td colspan="6">Risk Management:</td></tr>
</table>

<table>
<tr><td rowspan="2">Coordination with donors and partners. Donors that are inclined to provide contributions to the MDTF to finance the Project may have diverging preferences, despite agreement with regards to the overall agenda. There is also a risk of duplicating efforts of other donors and partners that are providing technical assistance to participating countries in the area of disaster risk financing and insurance.</td><td colspan="6">The WBG, UST, and CCRIF have been exploring feasible options for the design of the proposed Project and for obtaining adequate financing from donors through the Multi-Donor Trust Fund created for this purpose. Two donors (USA and Canada) have signed Administration Agreements with the Bank and transferred contributions to the MDTF. In addition, the WBG, UST, and CCRIF maintain a close dialogue with potential future donors to ensure that they fully understand the Project.</td></tr>
<tr><td>Resp: Bank</td><td>Status: In Progress</td><td>Stage: Both</td><td>Recurrent:</td><td>Due Date:</td><td>Frequency:</td></tr>
<tr><td>Delivery Monitoring and Sustainability</td><td>Rating</td><td colspan="5">Substantial</td></tr>
<tr><td rowspan="2">Risk Description:

An unexpectedly high occurrence of infrequent, high-severity covered events in the first few years of the new products and members, i.e. after COSEFIN countries join and begin to obtain coverage from CCRIF and after CCRIF begins sales of its excess rainfall product, could make CCRIF's lines of business in those areas unsustainable.</td><td colspan="6">Risk Management:

Donor resources to be provided through the MDTF will enable CCRIF to hedge this risk by limiting its own risk retention during the initial years of the Project through the purchase of larger amounts of reinsurance than will be necessary once it has built its capital to a sustainable level.</td></tr>
<tr><td>Resp: Both</td><td>Status: Not Yet Due</td><td>Stage: Implementation</td><td>Recurrent:</td><td>Due Date:</td><td>Frequency:</td></tr>
<tr><td>Other (Optional)</td><td>Rating</td><td colspan="5">Moderate</td></tr>
<tr><td rowspan="2">Risk Description:

Basis Risk: CCRIF is considered to be a failure if countries, after sustaining heavy losses, do not receive any payouts or the insurance payout does not exactly match the actual loss (called basis risk). By definition, the index used in a parametric contract is a proxy for the real loss, and therefore it cannot be excluded that the parametric insurance indemnity may slightly underestimate (or overestimate) the</td><td colspan="6">Risk Management:

Mitigation measures will include the careful design of the terms and conditions of the parametric insurance policy as a critical element to minimize this basis risk. Technical assistance provided by CCRIF will help stakeholders understand the limitations of the policies and remember that the objective of the Facility is not to cover the entire losses faced by affected states, but to guarantee a minimum liquidity in case of a major adverse natural event. As a complement, the technical assistance provided by the World Bank will contribute to enhance governments’ capacity to address more comprehensive DRFI initiatives.</td></tr>
<tr><td>Resp: Both</td><td>Status: Not Yet Due</td><td>Stage: Implementation</td><td>Recurrent:</td><td>Due Date:</td><td>Frequency:</td></tr>
</table>

actual loss.						
Overall Risk						
Overall Implementation Risk: **Substantial**						
Risk Description: The implementation of the overall project is subject to Substantial Risks, due to challenges that may derive from the inter-institutional arrangements and the high number of necessary partners in the process.						

Annex 5: Implementation Support Plan

CENTRAL AMERICA AND CARIBBEAN: CATASTROPHE RISK INSURANCE PROJECT

Strategy and Approach for Implementation Support

1. **The strategy for World Bank implementation support is based on the nature of the proposed Project and its risk profile**. As per the ORAF, overall implementation risk is rated as Substantial, due to the challenges that may derive from the inter-institutional arrangements and the large number of necessary partners in the process. Accordingly, the implementation support will focus initially on ensuring that stakeholder engagement mechanisms are adequately implemented. At the same time, significant amounts of technical studies, analyses and reports will have to be generated in order to inform tailored discussions with stakeholders.

2. **Specialized / follow-up missions of particular team members will be scheduled**. The World Bank team will continue to coordinate with other development partners supporting catastrophe risk insurance (and DRM generally) across the Central America and Caribbean sub-regions. The World Bank Task Team will maintain a close interaction and will share mission findings promptly with relevant authorities and stakeholders.

3. **The above strategy is proposed as an indicative and flexible instrument which will be adjusted during project implementation and as part of the Implementation Status and Results Reports (ISR) and adjusted based on Project conditions**.

Implementation Support Plan

4. **Task team leadership as well as fiduciary and technical aspects will be managed from the World Bank's Washington office.** The World Bank will hire international and national consultants if necessary to round out the skills mix of its implementation support team.

5. The main focus of implementation support is summarized below.

Time	*Focus*	*Skills Needed*	*Resource Estimate*	*Partner Role*
First 24 months (SWs/year)	Technical review of documents for initial activities to ensure accelerated implementation start	Legal Specialist Actuarial Specialist Financial Specialist DRM Technical Specialists	24 SWs	*N/A*
	FM supervision	FM Specialist	1 SWs	
	Project Management / Operational Support and Communication/Information	Task Team Leader Lead Specialist ETC2 / DRM Specialist	8 SWs 9SWs 44 SWs	
25-48 months	Evaluation Reports	Evaluation STC	34 SWs	

(SWs/year) (days/year)				
	Project Management / Operational Support and Communication/Information FM Supervision	Task Team Leader Lead Specialist ETC2 / DRM Specialist FM Specialist	12 SWs 10 SWs44 SWs 3 SWs	

Skills Mix Required

Skills Needed	***Number of Staff Weeks***	***Number of Trips***	***Comments***
Task Team Leader	20 SWs	Minimum five field trips	
Lead Specialist	19 SWs	Field trips as required	
ETC2/DRM Specialist	88 SWs	Field trips as required	
FM Specialist	4 SWs	Minimum two field trips	
Technical Specialists	24 SWs	Field trips as required	
Evaluation STC	34 SWs	Field trips as required	

Annex 6: Economic and Financial Analyses

CENTRAL AMERICA AND CARIBBEAN:
CATASTROPHE RISK INSURANCE PROJECT

1. **COSEFIN and CARICOM countries have traditionally relied on ex-post financing mechanisms to fund their post-disaster needs.** Given the fiscal and macroeconomic impact of disasters, these mechanisms are extremely costly. Their possibilities for financial risk transfer through affordable catastrophe insurance in traditional international insurance and reinsurance markets are limited by the high transaction costs that result from the limited volume of business they could bring to these markets. Furthermore, most COSEFIN and CARICOM states have little to no fiscal space and leeway for ex-post budget reallocations, without adversely affecting availability of resources needed for vital social and other public services. This situation often forces them to borrow from international capital markets at high interest rates following a disaster event, further increasing their overall recovery costs.

2. **Experience in Central America and the Caribbean has demonstrated that the primary fiscal impacts of such challenges include the following:**

- *Adverse impact on public finance:* A country's fiscal balance weakens following disasters as the domestic tax base shrinks and expenditure needs escalate. This deterioration often adds to public debt, which could affect macroeconomic performance beyond the short-term and result in higher inflation and lower investment potential.
- *Deterioration in the balance of payments*: A country's account balance weakens as disasters impair export capacity due to deterioration of infrastructure and transportation services. Since 1980, nine countries in Central America and the Caribbean have experienced a disaster event with an economic impact above 50 percent of their annual GDP (for the year of the impact).[25]
- *Increase in fiscal deficit*: The adverse fiscal impacts in the wake of disasters typically entail a marked increase in public expenditures related to emergency assistance and reconstruction efforts coupled with reduced inflows of government revenues (e.g. taxes, customs duties, etc.).
- *Escalating cost of debt*: A country's fiscal flexibility is ultimately dependent on its initial fiscal position, its financing options, and its debt sustainability levels.
- *Limited donor contributions*: Underinvestment in protective risk mitigation measures is a common symptom across Central America and the Caribbean, as governments expect that others will provide support if a disaster occurs. However, concerns about this approach have become more pressing given the increasingly finite willingness of donors to provide financial support, coupled with the rising trend in the frequency and magnitude of natural disasters. Grants and concessional loans from multilateral institutions and bilateral donors designed to

[25] Saint Lucia (1980, 69% of GDP), Jamaica (1988, 65% of GDP), Antigua and Barbuda (1995, 71% of GDP), Dominica (1995, 78% of GDP), St. Kitts and Nevis (1995, 85% of GDP; 1998, 139% of GDP), Honduras (1998, 81% of GDP), Grenada (2004, 212% of GDP), Guyana (200, 56% of GDP), and Haiti (2010, 120% of GDP). Source: Charles, Keren Carla. 2013. Fiscal Risks Related to Catastrophes in LAC. The World Bank Group (*in press*)

finance post disaster mitigation and reconstruction costs are also often earmarked for specific projects and initiatives, as opposed to overall budget support.

3. **Additionally, common macroeconomic impacts experienced as a result of catastrophic events include the following:**

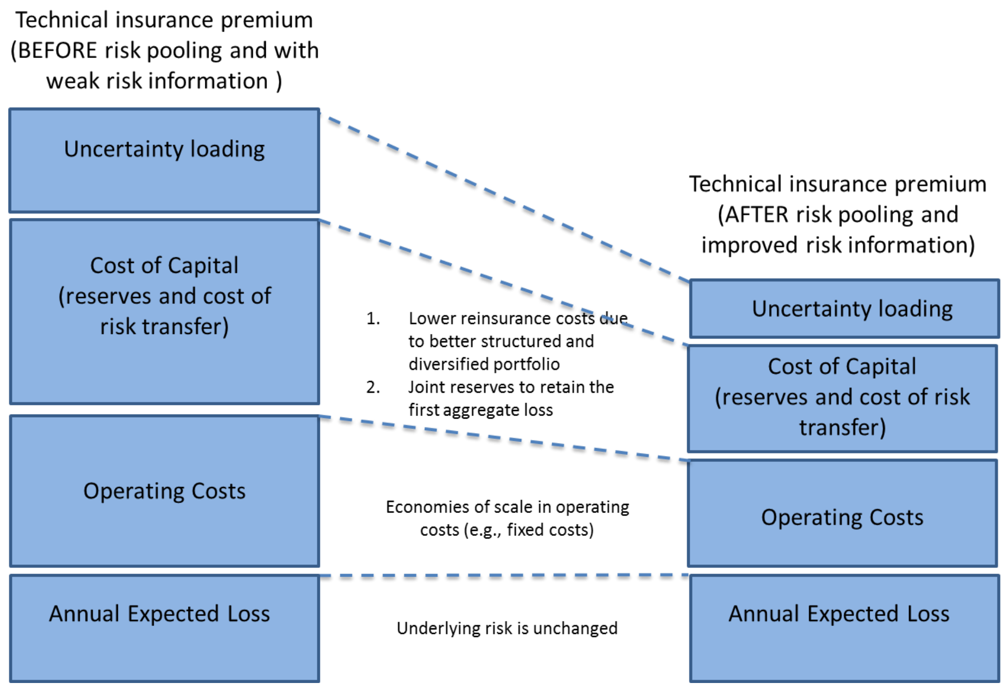
- *Declines in GDP:* The impacts of catastrophic events caused by natural phenomena have oftentimes proven to be very significant on productive and service sectors, both in terms of direct monetized losses of physical destruction and indirect losses associated with business interruption. By extension, catastrophic events tend to make output more volatile than otherwise, resulting in immediate consequences for a country's GDP figures.
- *Depreciation and inflationary pressures*: Due to the weak current account balance and investors' concerns about future losses of local companies, the exchange rate of the disaster-affected country will oftentimes face depreciation pressures. Inflationary pressures will also build due to an excess of money holdings in the face of reduced incomes and possible concerns about currency depreciation, in addition to monetization of the increased budget deficits.
- *Negative regional spillovers*: Catastrophic events generated by natural phenomena could affect countries that have not been hit directly. Typically, spill-over effects of disasters are most pronounced in terms of regional input-output networks due to damages suffered near shared ports and disruptions in cross-border supply chains. Financial linkages are also evident, as there is often a rise in sovereign credit spreads and local banks and insurance companies are exposed to cross-border fluctuations.

The Approach of the Catastrophe Coverage Using Risk Pooling

4. **Market-based risk transfer, while usually effective, can be an expensive proposition for governments that otherwise have access to sovereign financing; yet the swiftness at which risk transfer instruments can provide liquidity without requiring access to credit makes them attractive to some governments.** This is particularly the case for small states that do not generally have sufficient capacity to build reserves and are restricted in their access to credit due to already high debt ratios. CCRIF provides an example where small island states acted together to create a regional reserve mechanism to secure access to immediate liquidity in case of major disasters. Risk transfer instruments can also be useful to manage the budget volatility on government account, for example when the speed of post-disaster budget reallocation is an issue. The cat bonds issued by Mexico in 2006, 2009, and 2012 provide an example of creative use of risk transfer instruments.

5. **Catastrophe risk pooling, at the regional or national level, aggregates risk into larger, more diversified portfolios, with participants benefitting from cost savings and access to international markets.** The cost of risk transfer to international markets depends on many factors, including the riskiness of the portfolio as a fraction of the size of the portfolio. Pooling risks generates diversification benefits that are reflected in reduced insurance premiums.

Figure 6.1: Conceptual benefits from risk pooling and improved information on an insurance premium



Source: World Bank-GFDRR Disaster Risk Financing and Insurance Project.

6. **During the preparation of this Project, five options were considered for COSEFIN countries as possibilities for catastrophe risk transfer.** These options were not intended to be exhaustive or prescriptive, nor mutually exclusive. Table 6.1 below offers a description of such options.

Table 6.1: Options considered for Central America risk transfer

Option	Description
Option 1	CA countries each independently transfer catastrophe risk to the international reinsurance/capital markets;
Option 2	CA countries jointly transfer catastrophe risk to the international reinsurance/capital markets, without joint reserves;
Option 3	CA countries jointly transfer catastrophe risk to the international reinsurance/capital markets, with joint reserves;
Option 4	CA countries work with CCRIF to jointly transfer catastrophe risk to the international reinsurance/capital markets;
Option 5	CA countries work with Mexico's National Disaster Fund FONDEN, to jointly transfer catastrophe risk to the international reinsurance/capital markets[26].

[26] The underlying Mexican data used in the analysis was kindly provided by the "Secretaría de Hacienda y Crédito Público" (Unidad de Seguros, Pensiones y Seguridad Social) of Mexico

7. **Table 6.2 below presents the estimated reduction in the indicative commercial premium across the options presented in Table 6.1 above, compared to the baseline of Option 1 (independent catastrophe risk transfer).** The benefits of collaboration among countries are measured with the indicative commercial premium. Using a premium formula commonly used in the reinsurance market, parameterized to be consistent with recent sovereign parametric risk transfer deals, one can estimate how the benefits from risk diversification might translate into lower premiums.[27] In addition to the technical benefits from risk diversification, there are most likely substantial operating cost savings from jointly approaching the market with a portfolio of policies.

Table 6.2: Premium Reductions from Options 2-5, compared to baseline Option 1

	Option 1	Option 2	Option 3	Option 4	Option 5
Reduction in indicative commercial premium, prototype policy	-	27%	41%	44-45%	47-51%

Source: World Bank-Global Facility for Disaster Reduction and Recovery (GFDRR) Disaster Risk Financing and Insurance Project.

Notes: For Option 3, initial capital from donors of US$50 million is assumed. Ranges reflect uncertainty over the correlation of tropical cyclone losses between CA countries. Prototype CCRIF style policies are assumed, with partial coverage in excess of retention of annual losses equivalent to 1-in-15 years for hurricanes and 1-in-25 years for earthquakes. Option 5, although it would produce the largest savings, was not viable because of institutional restrictions and issues with the timing of implementation.

8. **The preliminary analysis finds that COSEFIN countries could reduce the cost of catastrophe risk insurance by 27 percent or 41 percent compared to acting individually if they collaborate with each other; and by close to 45 percent if they join forces with CCRIF.** Placing the portfolio of catastrophe risk insurance policies of the COSEFIN countries through CCRIF would result in a premium reduction equal to 44-45 percent of the indicative commercial premium for COSEFIN countries compared to transferring catastrophe risk individually. This premium reduction could be shared between participating COSEFIN countries and CCRIF member countries. These indicative premium reductions are due to a larger, more diversified portfolio of catastrophe risks placed on the international reinsurance markets. Table 6.2 details the estimated financial benefits of the Facility to participating countries – more specifically, the estimated coverage (with lower and upper bounds) for hurricane and earthquake insurance with an annual premium of US$ 5 million and an estimated 1-in-20 year attachment point and a 1-in-150 year exhaustion point.

9. **Further analyses considered the potential impact on CCRIF from CA countries joining and allocating the diversification saving in varying ways.** Table 6.3 presents the estimated reduction in the indicative insurance premium across the options above, compared to a baseline (independent catastrophe risk transfer). The benefits of collaboration among countries are measured with indicative insurance premium. Using a premium formula commonly used in

[27] Analysis in terms of capital at risk (taken to be the 1-in-100 year emergency loss of the country or group of countries).

the reinsurance market, parameterized to be consistent with recent sovereign parametric risk transfer deals, it is possible to estimate how the benefits from risk diversification might translate into lower premiums.

Table 6.3: Premium Reductions according with the number of COSEFIN countries joining and the amount of reserve capital available

Possible Participation Scenarios with New COSEFIN Members	COSEFIN	CARICOM
Three Central American countries join[1]	20%	Fee
Three countries join & Increased capital retention capacity of US$7.5 million[2]	22%	10%
Six countries join & Increased capital retention capacity of US$15 million[3]	27%	11%
Six countries join & Increased capital retention capacity of US$7.5 million & Access to capital market[4]	36%	25%

1. *Minimal level of partnership: the reinsurance is placed through CCRIF without sharing diversification. CCRIF will charge a service fee corresponding to the value of the use of the CCRIF brand and risk model.*
2. *Based on donor contributions of US$35 million.*
3. *Based on donor contributions of US$75 million.*
4. *Same as scenario 3, but due to its size, the CCRIF can access the capital market and reduce its cost by US$2m.*

Table 6.3: Hypothetical Portfolio of 7 COSEFIN Countries' Potential Payouts Associated with US$ 1 M Premium Payments per Peril

Country	Attachment Loss (10 years)	Exhaustion Loss (100 years)	Coverage Limit	Rate on Line
Costa Rica (EQ)	25 M	445 M	21 M	4.81%
Dominican Republic (EQ)	14 M	410 M	22 M	4.57%
El Salvador (EQ)	65 M	855 M	20 M	4.92%
Guatemala (EQ)	91 M	1,109 M	20 M	4.88%
Honduras (EQ)	5 M	105 M	21 M	4.88%
Nicaragua (EQ)	24 M	309 M	20 M	5.06%
Panama (EQ)	7 M	208 M	22 M	4.56%
Dominican Republic (TC)	64 M	2,103 M	21 M	4.75%
Guatemala (TC)	2 M	29 M	21 M	4.71%
Honduras (TC)	10 M	131 M	17 M	6.06%
Nicaragua (TC)	1 M	87 M	16 M	6.20%
Premium is US$1M per peril				

Note: Estimated insurance coverage is subject to change based on countries' participation, donors' contribution, and reinsurance costs.

10. **The benefits for COSEFIN member states of partnering with CCRIF go beyond that of lowering premiums.** Significant cost-savings are also associated with efficiency gains, increased access to reinsurance markets, relative ease associated with joining an established insurance facility with a demonstrated track record of success and enhanced regional collaboration. Benefits associated with each are further described below:

- *Cost-Savings Associated with Efficiency Gains:* While partnership agreements would first need to be finalized in order to quantify the exact cost-savings benefits, efficiency gains will nevertheless result from the nature of parametric insurance in itself, partial sharing of capital as well as sharing of specific administrative and operating costs.
- *Increased Access:* CCRIF's parametric model is a payout mechanism already accepted by reinsurance markets. Applying this model to COSEFIN states will therefore enable greater access to key reinsurance markets and at the most competitive pricing available.
- *Demonstrated Experience:* CCRIF's extensive experience in working as a regional insurance entity helps guarantee the quality of service required by new members. Importantly, the fact that CCRIF is already licensed and operating – with institutional arrangements established, service providers in place, and parametric risk transfer instruments already active – means that new members will benefit from the time-efficiency associated with joining a mechanism which is tried and tested.
- *Increased Regional Cooperation and Collaboration:* Importantly, a CCRIF partnership joining COSEFIN and CARICOM states could strengthen diplomatic and economic engagement among the countries of the region at a time when countries in Central America and the Caribbean are seeking new economic opportunities and markets in their own region. A partnership with CCRIF can further solidify an existing cooperation agreement in the field of disaster risk management between CARICOM and COSEFIN.

The Increased Economic Benefits Associated with an Excess Rainfall Product

11. **While the above analysis discusses the economic benefits associated with pooling hurricane and earthquake risk both within Central America and across the entire Caribbean basin, it is clear that significant benefits are also associated with pooling risk to safeguard against excess rainfall.** Figures demonstrate that catastrophic events associated with excess rainfall (e.g. flooding, landslides) are more frequent than hurricanes and earthquakes and can at times be just as intense. By some estimates, excess rainfall events are associated with economic damages equivalent to more than one percent of national GDP per year for 14 countries in the sub-regions and accounting for more than US$ 138 billion in damages in the Caribbean alone.[28] It is within this context that the same rationale for developing a risk pooling

[28] According to the Global Climate Risk Index 2013 compiled by S. Harmeling and D. Eckstein for Germanwatch, the average annual economic losses due to weather related disasters as a percent of GDP in the period from 1990 to 2012 were: Grenada (9), Dominica (7), St. Kitts (5), Belize (4), Antigua and Barbuda (4), Honduras (3), Saint Lucia (2), Nicaragua (2), Guyana (1), Haiti (1), El Salvador (1), Jamaica (1), Guatemala (1), and Saint Vincent (1).

mechanism for earthquakes and hurricanes applies and arguably more economic benefits could arise for participating countries in CCRIF's excess rainfall product line.

Rationale for public sector provision

12. **Disasters resulting from natural events represent a significant contingent liability (both explicit and implicit) to governments and are often associated with large fiscal consequences.** As country legal frameworks often fail to define the financial responsibility of the government in case of a disaster, its contingent liability is usually implicit. A government therefore serves as a (re)insurer of last resort, with limited knowledge of its exact level of disaster risk exposure. The ability to quantify potential losses from disasters as well as the cost associated with public interventions for recovery and reconstruction activities can help a government ascertain its contingent liabilities. Sovereign disaster risk financing and insurance can prevent sudden macroeconomic shocks that negatively impact fiscal performance and country's long-term economic development.

Value added of Bank Involvement

13. **The World Bank is well positioned to assist the COSEFIN and CARICOM countries in the design and implementation of the proposed Project given its: (a) technical expertise and past experience in establishing regional risk pooling mechanisms, (b) long engagement with Ministries of Finance, as well as (c) convening power of multiple stakeholders.** With regards to technical expertise, the highly technical and specialized nature of setting up CCRIF has necessitated the use of a wide spectrum of experts to tackle the legal, fiduciary, and catastrophe risk modeling and financing aspects of the initiative. To support the design of CCRIF, the World Bank is able to bring together first hand experiences and recent developments including the initial establishment of CCRIF, the pilot for the Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI), as well as advising client countries (e.g. Brazil, Colombia, India, Indonesia, Mexico, Pakistan, Peru, Philippines and Vietnam) on various DRFI strategies. Additionally, the proposed Project builds on a long history of Bank engagement with the Ministries of Finance – the key proponents of the proposed Project in all participating countries. The in-depth knowledge of client countries, the ability to intermediate between client and donor needs as well as a reputation of impartiality in the international financial markets further rationalizes the World Bank's involvement in the development of an efficient partnership among client countries, donors, and private markets in the financing of catastrophic risks.

Annex 7: Lessons Learned

CENTRAL AMERICA AND CARIBBEAN: CATASTROPHE RISK INSURANCE PROJECT

1. **Lessons learned from recent experiences with the Caribbean Catastrophe Risk Insurance Project (P108058), the OECS and Haiti Catastrophe Risk Insurance Projects (P094539 and P104690), and the Pacific Catastrophe Risk Insurance Project (P130347) have been accounted for in the proposed Project design.** The Caribbean Catastrophe Risk Insurance Project closed in January 2012 and was subsequently assessed by both World Bank Management and the Independent Evaluation Group (IEG) to have been Highly Satisfactory. The following lessons from the previous projects and the ongoing PCRAFI project have been incorporated in the design of the proposed Project.

2. **Constant communication and regular consultations with experts and stakeholders are critical in developing a successful instrument, which continues beyond project closing**. Experiences from establishing the CCRIF demonstrated the importance of consultations in building the needed understanding (and subsequent buy-in) of stakeholders. Understanding of the proposed themes were (and are) of particular importance: (a) the proposed facility, (b) the risk modeling that underpins its products, as well as (c) the nature of parametric insurance. Such consultations served to assure the Caribbean decision-makers that the World Bank was being responsive to client requests and significantly contributed to 16 Caribbean countries joining the Facility from the outset.

3. **Affordability and quality of CCRIF products is a key concern of new and current members.** The price of premiums and quality of insurance products was a key concern throughout the lifespan of the previous CCRIF initiative, and the affordability of CCRIF products has been considered a major factor which ensured the long-term sustainability of the Facility. Building on this experience, CCRIF has made efforts to reduce premium prices by securing the most competitive pricing from the reinsurance market, while maintaining the high quality of its products as well as sufficient reserves to guarantee its financial stability. The proposed Project has been prepared with close attention to ensuring the affordability and quality of the excess rainfall product, which has been a concern raised by Central American and Caribbean clients, as well as donors.

4. **Donor support and financing are essential in establishing such a Facility.** Generous donor support helped CCRIF build up its own reserves at an accelerated pace while financing initial operating expenditures and paying claims within its risk retention. This greatly reduced the risks associated with CCRIF achieving financial sustainability. Without such donor support, an initial year in which claims would have exceeded the modeled Average Annual Loss (AAL) would have posed a serious financial setback and potentially could have required CCRIF to go back to its members to request recapitalization through a participation fee increase.

5. **Private sector expertise is vital to project success.** In the case of CCRIF, the Chairman and two Board members appointed just prior to the Facility's launch retained extensive private sector experience in banking, asset management, indemnity insurance, catastrophe insurance, and

reinsurance in the Caribbean and elsewhere. Continuing to engage said individuals as well as retaining others with private sector experience to guide the geographical and product expansion is important, specifically in aspects related to selection of service providers, insurance policy terms and conditions, pricing, and client relations. Additionally, CCRIF's expertise has proven especially useful in guaranteeing quick disbursements in the wake of catastrophic events, which has helped convince countries to maintain their participation in CCRIF despite financial constraints.

6. **The virtual organization of CCRIF helps ensure that services are delivered at a low cost.** CCRIF achieved considerable cost savings and avoided institutional rigidities by remaining a "virtual" organization without a physical office and by contracting externally for professional services rather than acquiring a large roster of direct employees. This said, as time passes and Directors and service providers change, it is important to put in place, as CCRIF is doing, arrangements to ensure institutional memory and business continuity.

7. **New and innovative projects require flexible World Bank oversight to enhance experimentation and feedback of results into implementation**. The extent of CCRIF's partnership arrangements, the scope of its technical assistance and professional development activities (which are valued by its members), the on-going refinement of CCRIF's multi-peril loss estimation model, and its development of the excess rainfall product have largely resulted from the World Bank not imposing a static view of the project. The proposed Project has therefore been so designed that CCRIF can respond to emerging needs and opportunities as well as continue in its innovation.

8. **Monitoring and evaluation (M&E) systems should be designed to better capture project results, notably outcomes, and integrate stakeholder assessments**. Experience with the first MDTF that supported CCRIF showed the value of designing an M&E framework to better capture project results, notably outcomes, and build in stakeholder assessments.