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Report No: ICR00001864

IMPLEMENTATION COMPLETION AND RESULTS REPORT
(IDA-42690 IDA-42700 IDA-42710 IDA-42720)

ON

CREDITS (4)

IN THE AMOUNT OF

SDR 3.0 MILLION (US$4.5 MILLION EQUIVALENT)
TO THE COMMONWEALTH OF DOMINICA

SDR 3.0 MILLION (US$4.5 MILLION EQUIVALENT)
TO GRENADA

SDR 3.0 MILLION (US$4.5 MILLION EQUIVALENT)
TO ST. LUCIA

SDR 0.47 MILLION (US$0.7 MILLION EQUIVALENT)
TO ST. VINCENT AND THE GRENADINES

FOR

FOUR CATASTROPHE INSURANCE PROJECTS

FOR THE ORGANIZATION OF EASTERN CARIBBEAN STATES

May 13, 2011

Sustainable Development Department
Caribbean Country Management Unit
Latin America and the Caribbean Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective February 2011)

Currency Unit = Eastern Caribbean Dollar (EC$)
US$1.00 = EC$2.68

FISCAL YEAR

January 1 to December 31

ABBREVIATIONS AND ACRONYMS

AFD	*Agence Française de Développement*
ART	Alternative Risk Transfer
CARICOM	Caribbean Community and Common Market
CAS	Country Assistance Strategy
CCRIF	Caribbean Catastrophe Risk Insurance Facility
CDB	Caribbean Development Bank
CIDA	Canadian International Development Agency
CRO	Country Risk Officer
DFA	Dynamic Financial Analysis
DFID	Department for International Development (United Kingdom)
EC	European Commission
ERR	Economic Rate of Return
GFDRR	Global Facility for Disaster Reduction
GIRF	Global Indexed Reinsurance Facility
IBLIP	Index-Based Livestock Insurance Project (Mongolia)
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IFC	International Finance Corporation
IFI	International Financial Institutions
IMF	International Monetary Fund
ISDS	Integrated Safeguards Data Sheet
ISR	Implementation Status and Results Report
JSDF	Jamaican Social Development Fund
MDTF	Multi-donor Trust Fund
MIGA	Multilateral Investment Guarantee Agency
OECS	Organization of Eastern Caribbean States
PAD	Project Appraisal Document
PCN	Project Concept Note
PHRD	Policy and Human Resources Development (Japan)
PIC	Public Information Center
PID	Project Information Document
PML	Probable Maximum Loss
SPV	Special Purpose Vehicle
SVG	St. Vincent & the Grenadines

TCIP	Turkish Catastrophe Insurance Pool
TORs	Terms of reference
TRE-FDP	Treasurer's Central Vice Presidency for Finance and Private Sector Development
USAID	United States Agency for International Development
WB	World Bank
XL	Excess-of-loss

Vice President: Pamela Cox
Country Director: Francoise Clottes
Sector Manager: Guang Zhe Chen
Project Team Leader: Francis Ghesquiere
ICR Team Leader: Olivier Mahul

COMMONWEALTH OF DOMINICA, GRENADA, ST. LUCIA, AND ST. VINCENT AND THE GRENADINES
Four Catastrophe Insurance Projects
For the Organization of Eastern Caribbean States

CONTENTS

A. Basic Information

Country:	OECS Countries	Project Name:	OECS-Catastrophe Insurance
Project ID:	P094539	L/C/TF Number(s):	IDA-42690,IDA-42700,IDA-42710,IDA-42720
ICR Date:	05/20/2011	ICR Type:	Core ICR
Lending Instrument:	SIL	Borrower:	OECS MEMBER STATES
Original Total Commitment:	XDR 9.5M	Disbursed Amount:	XDR 9.1M
Revised Amount:	XDR 9.5M		

Environmental Category: C

Implementing Agencies:
Sagicor

Cofinanciers and Other External Partners:

B. Key Dates

Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	11/01/2006	Effectiveness:	05/24/2007	05/24/2007
Appraisal:	01/25/2007	Restructuring(s):		
Approval:	03/08/2007	Mid-term Review:	07/31/2008	12/01/2008
		Closing:	12/31/2010	12/31/2010

C. Ratings Summary

C.1 Performance Rating by ICR

Outcomes:	Satisfactory
Risk to Development Outcome:	Moderate
Bank Performance:	Satisfactory
Borrower Performance:	Satisfactory

C.2 Detailed Ratings of Bank and Borrower Performance (by ICR)

Bank	Ratings	Borrower	Ratings
Quality at Entry:	Satisfactory	Government:	Satisfactory
Quality of Supervision:	Highly Satisfactory	Implementing Agency/Agencies:	Satisfactory
Overall Bank Performance:	Satisfactory	**Overall Borrower Performance:**	Satisfactory

C.3 Quality at Entry and Implementation Performance Indicators			
Implementation Performance	Indicators	QAG Assessments (if any)	Rating
Potential Problem Project at any time (Yes/No):	No	Quality at Entry (QEA):	None
Problem Project at any time (Yes/No):	No	Quality of Supervision (QSA):	None
DO rating before Closing/Inactive status:	Satisfactory		

D. Sector and Theme Codes

	Original	Actual
Sector Code (as % of total Bank financing)		
Non-compulsory pensions, insurance and contractual savings	100	100
Theme Code (as % of total Bank financing)		
Natural disaster management	100	100

E. Bank Staff

Positions	At ICR	At Approval
Vice President:	Pamela Cox	Pamela Cox
Country Director:	Francoise Clottes	Caroline D. Anstey
Sector Manager:	Guang Zhe Chen	John Henry Stein
Project Team Leader:	Francis Ghesquiere	Francis Ghesquiere
ICR Team Leader:	Olivier Mahul	
ICR Primary Author:	Olivier Mahul	

F. Results Framework Analysis

Project Development Objectives (from Project Appraisal Document)
The development objective of the project is to reduce the participating country's financial vulnerability to natural disasters (earthquakes and hurricanes). This is being achieved through the provision of financing to allow these countries to join the Caribbean Catastrophe Risk Insurance Facility and the purchase of financial protection against catastrophic hurricane and/or earthquake losses.

Revised Project Development Objectives (as approved by original approving authority)

(a) PDO Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1 :	To reduce the country financial vulnerability to natural disasters (earthquakes and hurricanes).			
Value quantitative or Qualitative)				
Date achieved				
Comments (incl. % achievement)				

(b) Intermediate Outcome Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1 :	The total claims paying capacity of the CCRIF.			
Value (quantitative or Qualitative)	0			$111.1 million
Date achieved	02/06/2007			12/31/2010
Comments (incl. % achievement)				
Indicator 2 :	The total sum insured for each country.			
Value (quantitative or Qualitative)	0			$108 million
Date achieved	02/06/2007			12/31/2010
Comments (incl. % achievement)				

G. Ratings of Project Performance in ISRs

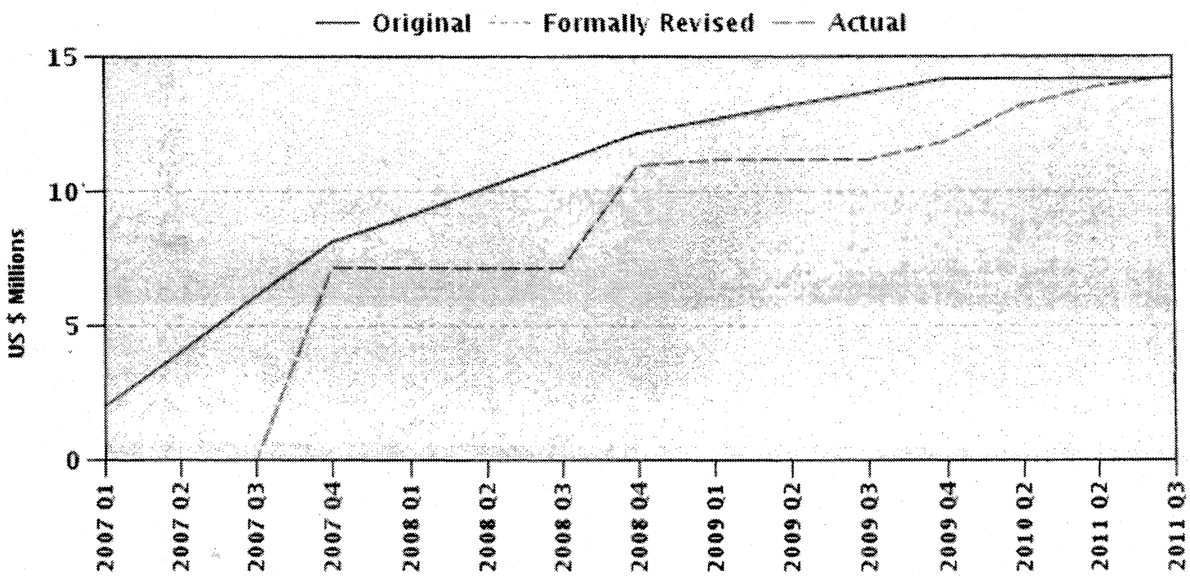
No.	Date ISR Archived	DO	IP	Actual Disbursements (USD millions)
1	04/20/2007	Satisfactory	Satisfactory	0.00
2	10/26/2007	Satisfactory	Satisfactory	7.15
3	03/15/2008	Satisfactory	Satisfactory	7.15
4	06/12/2008	Satisfactory	Satisfactory	9.40

5	11/05/2008	Satisfactory	Satisfactory	11.13
6	03/31/2009	Satisfactory	Satisfactory	11.13
7	10/12/2009	Satisfactory	Satisfactory	11.79
8	05/21/2010	Satisfactory	Satisfactory	13.16
9	02/12/2011	Moderately Satisfactory	Satisfactory	14.18

H. Restructuring (if any)

Not Applicable

I. Disbursement Profile



1. Project Context, Development Objectives and Design

1.1 Context at Appraisal

1. Caribbean countries are highly exposed to adverse natural events (including hurricanes, earthquakes, volcanic eruptions, and tidal waves), which can result in disasters affecting their entire economic, human, and physical environment. Based on the experience since 1970, a natural disaster inflicting damage equivalent to more than 2 percent of the affected country's GDP can be expected to hit the Caribbean basin once every two and half years.

2. Larger countries can generally absorb the impact of these events by subsidizing an affected region with revenues from unaffected parts of the country. This type of geographic diversification of risk is limited in the small island states of the Caribbean. Similarly, Caribbean countries have limited borrowing capacity, preventing them from spreading risk over time by accessing credit. Finally, Caribbean island states have limited access to international insurance markets. High transaction costs, and the relatively small business brought to the market keep insurance penetration in the region to a minimum. Constrained by their size, limited borrowing capacity and poor access to insurance, these countries are less able to cope with losses from adverse natural events and lack resilience to the onset of disasters.

3. A critical need of the governments of small states in the aftermath of a disaster is for short-term liquidity to maintain essential government services until additional resources become available. With low level of financial reserves and limited access to credit and insurance, mobilizing resources after a major disaster will often take months and absorb energy that would be better used elsewhere. This translates into delayed response, financial stress, and additional hardship for the affected population.

4. Following the devastation caused by hurricanes in the Caribbean in 2004, the CARICOM Heads of State requested World Bank assistance to gain access to affordable and effective disaster risk financing instruments. In January 2006, with grant funding from the Government of Japan and support from the Jamaican Social Development Fund (JSDF), the World Bank initiated the preparatory studies for the establishment of the CCRIF. The Facility was established in May 2007 and started operations one month later, providing coverage to 16 Caribbean countries, including Dominica, Grenada, St. Lucia, St. Vincent & the Grenadines, Anguilla, Antigua and Barbuda, Belize, the Bahamas, Barbados, Bermuda, the Cayman Islands, Haiti, Jamaica, St. Kitts and Nevis, Trinidad and Tobago, and the Turks and Caicos Islands. The CCRIF receives support from a Multi-donor Trust Fund (MDTF) established with contributions from Bermuda, Canada, France, Ireland, the United Kingdom, the Caribbean Development Bank, the European Union, and IBRD.

5. The Caribbean Catastrophe Risk Insurance Facility (CCRIF) provides participating countries with catastrophe insurance coverage against major earthquakes

and/or hurricanes (see Box 1). The Facility enables governments to purchase liquidity coverage that helps protect their budget against the shock of natural disasters. The CCRIF provides a cash payout within weeks of an insured event (to date, within three weeks) to help the affected country address immediate financial needs. The 16 countries that joined CCRIF at inception are still members of the Facility today.

1.2 Original Project Development Objectives (PDO) and Key Indicators

6. The project development objective was to reduce the country financial vulnerability to natural disasters (earthquakes and hurricanes) of Dominica, Grenada, St. Lucia, and St. Vincent & the Grenadines (SVG). This was achieved by providing IDA credit to allow the above-mentioned island countries to join the CCRIF and purchase financial protection against catastrophic earthquake and/or hurricane perils. Given the islands' fragile economic and fiscal situation, it was unlikely that they would have joined this pilot initiative without this credit. As such, the project supported the establishment and viability of the CCRIF, which was believed to require at least eight members to become viable.

7. The key intermediate indicators for the project were: (i) The total claims paying capacity of the CCRIF and (ii) the total sum insured for each country.

1.3 Revised PDO and Key Indicators, and reasons/justification

8. N/A

1.4 Main Beneficiaries

9. The main beneficiaries were the governments (Ministry of Finance) of Dominica, Grenada, St. Lucia, and St. Vincent & the Grenadines, allowing these governments to respond more effectively to the initial needs of the affected population resulting from adverse natural events. In this regard, CCRIF was an efficient and cost-effective alternative to trying to obtain insurance in the market individually or retaining the financial risk by building own reserves.

Box 1. The Caribbean Catastrophe Risk Insurance Facility

- ***The Caribbean Catastrophe Risk Insurance Facility*** (CCRIF) allows CARICOM governments to purchase insurance coverage to finance immediate post-disaster liquidity needs. The Facility pools the country-specific risks into one, better-diversified portfolio. This diversification results in a reduction in premium cost of approximately 50 percent relative to similar products in the commercial markets.
- ***Claims payments depend on parametric triggers.*** Index-based (or parametric) insurance instruments pay claims based on the occurrence of a pre-defined event rather than an assessment of actual losses on the ground. This measurement, made remotely by an independent agency, allows for transparent, low settlement costs and quick-disbursing contracts.
- ***The Facility retains the first risk layer through its own reserves.*** Initial funding was needed to allow the Facility to retain some of the risks and access the reinsurance markets where it is most efficient. Bermuda, Canada, France, Ireland, the United Kingdom, the Caribbean Development Bank, the European Union and IBRD contributed US$67 million to the MDTF.
- ***The Facility transfers the risks it cannot retain to the international financial markets.*** This is done through reinsurance. For the 2009-10 season, the CCRIF retained US$20 million and placed US$132.5 million in the reinsurance market and in a catastrophe swap intermediated by the World Bank Treasury.
- ***The Facility*** is one of the most resilient catastrophe insurance pools worldwide. The CCRIF has developed a financial strategy and maintains sufficient risk financing capacity through reinsurance to survive a 1-in-1,000 year event without drawing on more than $20 million of its own assets to pay claims. Should the total insured losses exceed its claims-paying capacity; payouts will be prorated based on the total amount of expected claims compared to the remaining available funds.
- ***The CCRIF was established as an independent legal entity controlled by a Board of Directors representing donors and member countries.*** The Facility was created as an Insurance Captive owned by a trust. Both entities are registered in the Cayman Islands. The CCRIF is managed by an Insurance Manager with the financial and technical advice of a specialized Facility Supervisor. The CCRIF Board of Directors is composed of representatives from the donors and participating countries.
- ***The World Bank acts as fiduciary agent for funding provided by donors.*** The Bank is not a CCRIF Board member, but has participated in most of the meetings as an observer. It retains certain control over the use of donor funds as the trustee of the IDA-administrated MDTF. The Grant Agreement with CCRIF sets forth the terms and conditions under which grant funds are provided and can be used.
- ***Insured countries pay an annual premium commensurate with their own specific risk exposure.*** Parametric insurance products are priced for each country based on the individual country risk profile. Annual premiums vary from US$200,000 to US$4 million, for coverage ranging from US$5 million to US$60 million per peril.

1.5 Original Components

10. The proposed project provided the Borrowers with insurance coverage against natural disasters (earthquakes and hurricanes). The project financed the participation fee and the annual country-specific insurance premiums (100 percent of the premium for the first two years and 50 percent for the third year) necessary to join and obtain annual coverage from the CCRIF.

11. The IDA financing was provided in four installments issued to CCRIF at the request of each country's Ministry of Finance. The financing was withdrawn by the borrower from its credit account for direct payment into the Facility. The project included the following two components: (a) payment of participation fee and (b) contribution to annual insurance premium for the first three years.

Component 1: Payment of the participation fee to the CCRIF

12. This component financed the borrowers' participation fee, which needed to be at least equal to its annual premium. IDA contributions to the participation fees are summarized in Table 1.

Table 1: IDA Contribution to Estimated Participation Fees (US$m)

	Participation Fee	
	Estimated (as in the PAD)	*Actual*
Dominica	1.286	1.125
Grenada	1.286	1.425
St. Lucia	1.286	1.125
SVG	0.200	0.200
TOTAL	4.058	3.875

Component 2: Payment of annual insurance premium

13. This component financed the borrowers' annual insurance premium, up to 100 percent of the country-specific annual insurance premium for the first two years (2007-08 and 2008-09) and half of the country-specific annual insurance premium the third year (2009-10). Insurance premiums paid are detailed in Table 2.

Table 2: IDA Contribution to Annual Insurance Premium (US$m)

	2007		*2008*		*2009*		*2010*		*TOTAL*	
	Est.	*Actual*	*Est.*	*Actual*	*Est.*	*Actual*	*Est.*	*Actual*	*Est.*	*Actual*
Dominica	1.286	1.125	1.286	1.125	0.642	0.562	0	0.366	3.214	3.178
Grenada	1.286	1.125	1.286	1.325	0.642	0.712	0	0	3.214	3.162
St. Lucia	1.286	1.125	1.286	1.125	0.642	0.562	0	0.650	3.214	3.462
SVG	0.200	0.200	0.200	0.200	0.100	0.100	0	0	0.500	0.500
TOTAL	4.058	3.575	4.058	3.775	2.026	1.936	0	1.016	10.142	10.302

1.6 Revised Components

14. Component B, which is the contribution to annual insurance premium for the first three years, was revised during the project execution to process a 50 percent reimbursement of St. Lucia and Dominica's respective 2010/11 premiums. This was made possible by savings generated due to their participation fees and premiums being less than estimated in the PAD and an increase in the U.S. dollar value of the SDR.

1.7 Other significant changes

15. None

2. Key Factors Affecting Implementation and Outcomes

2.1 Project Preparation, Design and Quality at Entry

16. Lessons from earlier operations, including the Turkish Catastrophe Insurance Pool and previous attempts at designing catastrophe pools for the Caribbean region and developing parametric insurance solutions were taken into account in the preparation of this operation.

- *Need for initial reserves*: Previous experience in setting up insurance pools shows that there is a need for a minimum level of reserves in the pool to make it financially sustainable over the long run. Insufficient reserves in the CCRIF would have lead to over-dependence on costly risk transfer instruments, reducing the capacity of the Facility to increase its reserves over time. Initial donor contributions of US$67.4 million helped put the CCRIF on a sound financial track from the beginning by reimbursing CCRIF for certain administrative, operational, and R&D costs and for claims paid within its own risk retention. The expectation was to build up its reserves to US$100 million within five years.
- *Need for state-of-the-art catastrophe risk modeling:* With support financing from the Government of Japan, support from JSDF, and specialized consultants, the team built a sophisticated catastrophe risk model for each Caribbean island country and for the region as a whole. This was essential to ensure the sound design and pricing of the parametric (earthquake and hurricane) insurance products that the CCRIF was to offer.
- *Need for transparency:* The CCRIF's country-specific catastrophe risk models allow for the transparent pricing of catastrophe insurance products. The pricing formula takes into account the specific risk profile of each country.
- *The need for early involvement of donors and extensive consultation with member countries:* The task team engaged early on in a gradual process of consultation and workshops with donors, officials, and experts from the region to ensure that the CCRIF initiative would be tailored to the needs of the client countries and well understood.

- *Critical business volume*: A minimum number of countries, estimated at eight, was required to ensure that the Facility would have the diversification in its portfolio necessary to offer competitive and affordable pricing on the coverage provided. The IDA financing under this project ensured that the poorest countries in the region could join the Facility at its inception.

2.2 Implementation

17. The credit proceeds were transferred annually from the Bank to the CCRIF account at the request of each country's Ministry of Finance. To effect the transfer, the Ministry of Finance submitted a withdrawal application for the value of the participation fee and/or premium. The value dates of the direct payments to the CCRIF of the credit proceeds for the IDA-contribution to the beneficiary countries' participation fees and annual insurance premiums are presented in Table 3.

Table 3: Value Date of Direct Payment of IDA Contribution to Participation Fee and Annual Insurance Premium

	2007*	2008	2009	2010	2011
Dominica	June 4	May 19	Nov. 11		Jan. 25
Grenada	May 30	June 6	Nov. 16		
St. Lucia	May 31	May 28	June 19	Nov. 8	
SVG	May 31	June 13	June 16		

*Includes both participation fee and first-year premium.

18. The CCRIF insurance policy period, that is the period during which the participating country is insured, is from June 1 to May 31 of the following year. Standard insurance contracts are effective once the premium is paid.

19. In close collaboration with the Facility Supervisor, the Bank liaised with the participating Ministries of Finance and the CCRIF to ensure that the premium payments were made on time and the insurance policy issued for each country by the start of the season.

20. As a result of the financial crisis of 2008, Dominica, Grenada, and St. Lucia chose to secure additional financing from the CDB to cover the 50 percent portion of their 2008-2009 premium not paid by IDA. The IDA contribution to half of the country premium that year could only be processed once the country had paid the other half of the premium. Largely because of this, the direct payment of the IDA contribution to the CCRIF for the four countries occurred after the date of June 1. To avoid lapse in coverage, CCRIF established a premium payment warranty until the premiums were collected, so that the insurance coverage started on June 1. The additional IDA direct disbursements to CCRIF in 2010 and 2011 on behalf of St. Lucia and Dominica, respectively, were made after the countries had paid their premium in full and, as a result, the CCRIF made a corresponding refund to them.

2.3 Monitoring and Evaluation (M&E) Design, Implementation and Utilization

21. Following the results monitoring framework approved in the Project Appraisal Document (PAD), the Bank conducted in-depth reviews of the CCRIF's first, second, and third years of operations, including interviews with CCRIF members, donors, other stakeholders, and CCRIF Directors and service providers. The Bank regularly reviewed the CCRIF's quarterly and annual reports, including its unaudited and audited financial statements. In addition, the Bank attended nearly all CCRIF Board meetings as an observer.

2.4 Safeguard and Fiduciary Compliance

22. The project was classified under category C.

23. Due to the specifics of the project components and implementation arrangements, most standard fiduciary requirements and procedures did not apply to the project. Because the IDA disbursements went directly to the CCRIF's account, the countries' participation in project financial management was limited to the annual submission of a withdrawal application requesting direct payment from the World Bank to the CCRIF. The Ministries of Finance of the respective countries had sufficient capacity to do so. The Bank closely monitored the project implementation process to ensure that payments were requested and processed on time. A financial supervision mission to the CCRIF Insurance Manager's office in the Cayman Islands verified his capacity to ensure that the IDA disbursements were used for their intended purposes. The project components did not finance works or consulting services and the only contracts were the participation and annual insurance contracts between the CCRIF and the four countries. Thus, there was no need for a procurement plan.

2.5 Post-completion Operation/Next Phase

24. The Bank will continue to supervise the CCRIF until the IDA-administered MDTF is fully disbursed. As of the end of January 2011, $4.1 million remained available to CCRIF under its Grant Agreement. An additional $1 million remained in the MDTF which has not yet been transferred to the Grant Agreement.

3. Assessment of Outcomes

3.1 Relevance of Objectives, Design and Implementation

25. The project was consistent with the Country Assistance Strategy (CAS) for the OECS discussed by the Board on September 6, 2005, and specifically supported the objective of reducing vulnerability to natural disasters (second pillar of the CAS).

26. The project also supported the Bank's declared objective to encourage regional integration. The CCRIF is now widely known in the Caribbean and seen as a regional institution established for its members' common benefit.

27. In the higher-level strategic context, the project contributed to the objective spelled out in Section IV of the Millennium Development Goals, underscoring the need "to intensify our collective effort to reduce the number and effects of natural and man-made disasters."

28. St. Lucia and Dominica were affected by a November 29, 2007, earthquake of sufficient magnitude to trigger a payout under their CCRIF policies. St. Lucia and St. Vincent & the Grenadines received CCRIF payouts following Hurricane Tomas in October 2010. In each case, payouts from the CCRIF achieved their objective of helping the countries to address the immediate financial impact of the disaster.

3.2 Achievement of Project Development Objectives

29. The project development objective was to reduce the financial vulnerability to natural disasters (earthquakes and hurricanes) of Dominica, Grenada, St. Lucia, and St. Vincent & the Grenadines. This objective was achieved by providing financing to allow beneficiary countries to join the CCRIF and purchase financial protection against catastrophic earthquake and/or hurricane events.

30. The IDA credit allowed the four OECS countries to join the CCRIF from its onset, thus contributing to the Facility's viability. More specifically, the IDA credit financed the participation fee for Dominica, Grenada, St. Lucia, and St. Vincent & the Grenadines. In addition, the IDA credit financed 100 percent of their premiums for hurricane and earthquake insurance for 2007-2008 and 2008-2009, 50 percent of those premiums for 2009-2010 and, for Dominica and St. Lucia, 50 percent of those premiums again for 2010-2011. This achieved the PDO because, by joining CCRIF and purchasing insurance, the beneficiary countries reduced their financial vulnerability to hurricanes and earthquakes.

31. Multiple payouts have shown the effectiveness of CCRIF insurance in terms of reducing the country's financial vulnerability to natural disasters. St. Lucia and Dominica received CCRIF payouts of US$419,000 and US$528,000, respectively, following the November 29, 2007, earthquake. They received these payouts on December 12 and 13, 2007, respectively, only two weeks after the insured event hit the islands. After Hurricane Tomas in October 2010, St. Lucia and St. Vincent & the Grenadines received CCRIF payouts of US$3,241,613 and US$1,090,388 million, respectively, within three weeks of the passage of the hurricane.

32. The Project also achieved its intermediate outcomes.

- First, CCRIF has become a sustainable facility. The indicator for this in the PAD was its claims paying capacity. As of end-November 2010, CCRIF's unaudited financial statements indicated that it had shareholder equity of $82.6 million and total assets of $111.1 million. In contrast, the PAD seems not to have anticipated that the CCRIF's reserves would exceed $80.0 million (e.g., see Figure A.11.4, page 41). For 2010-2011 (beginning June 1, 2010), CCRIF obtained $111 million in reinsurance on top of the $20 million in risk that it retained. With this $131 million in claims paying capacity, the CCRIF is estimated to be able to withstand a series of events having a modeled probability of occurring only 1 in 1,000 years. Given its additional resources (over and above the first $20 million), the Facility is estimated to have the capacity to pay claims above the top of its reinsurance associated with a series of events having a modeled probability of occurring only 1 in 10,000 years, although it would need a recapitalization thereafter to continue operations. In contrast, the PAD did not anticipate that the Facility's claims paying capacity would go beyond a 1 in 250 year event over the first five years of its operation (see pg. 43). The CCRIF's claims paying capacity significantly exceeds that of the California Earthquake Authority – 1 in 800 years – which is considered among the safest insurance facilities in the world. Thus, the CCRIF should be able to continue to provide liquidity coverage to interested countries for the foreseeable future.
- Second, the countries are benefiting from partial coverage against hurricane and earthquake risks. The indicator for this in the PAD was the insured sum for each country (up to 20 percent of total losses). For 2010-2011, the four project beneficiaries' aggregate coverage stood at $108 million ($83.6 million for hurricanes and $24 million for earthquakes), compared with the expectation of $100 million in aggregate coverage by project end.

3.3 Efficiency

33. The Bank and the Facility Supervisor worked closely with the participating countries to design the most cost-effective coverage of the insured hazards through the selection of the terms and conditions of the insurance policies (e.g., attachment points, exhaustion points and coverage).

34. The cost of insurance (that is, the annual insurance premium) is driven by three main factors: the annual expected loss, the operating cost and the cost of capital. The annual expected loss reflects the insured risk exposure of the country.

- The CCRIF's annual expected loss rises in line with its exposure and/or the modeled frequency of its claims payments.
- The Operations Manual of the CCRIF establishes a guideline that the annual operating costs (excluding the reinsurance costs, research and development, and technical assistance and broad stakeholder outreach activities) should not exceed

5 percent of the annual premium volume and the operating costs have remained within this guideline. In comparison, it should be noted that standard operating costs in the non-life insurance market are usually close to 30 percent.

- Securing capital to cover excess losses is another cost and the CCRIF has also been efficient in this regard. Through CCRIF, its 16 members have derived the benefits of regional risk diversification. It is estimated that, for CCRIF's 2008-2009 portfolio, its aggregate probable maximum loss (PML) from a 1 in 1,500 year event is 74 percent lower than the sum of the countries' individual policy limits. This means that the amount of capital which is needed to sustain such a remote event is 74 percent lower when countries pool their risks through the CCRIF than if they were to go to the insurance market individually to cover such an event. The CCRIF is also efficient compared with the costs its members would incur if they retained the catastrophe risk themselves, i.e., built their own reserves to sustain the event – approximately 70 percent less expensive for hurricane risk and 50 percent less expensive for earthquake risk. In addition, due its transparent, well structured, and diversified portfolio, the CCRIF has been able to access the reinsurance market on very good terms. The reinsurance multiples (reinsurance premiums/annual expected reinsurance loss) were lower than two for the CCRIF's first three seasons and, although the cost rose somewhat for the CCRIF's fourth season, due to its introduction of a new hazard loss estimation model, it remained advantageous. As reinsurers are gaining familiarity with the new model, it is likely that costs will again decline.

35. In addition, the CCRIF has been able to reduce its premium rates for its members by 30 percent since its establishment, because of its growing financial strength, supported by the MDTF, low reinsurance costs, and significantly lower than expected indemnity payouts during its first three years of operation. More specifically, the premium multiples (insurance premium/annual expected insurance loss) decreased successively by 10 percent from the first to the second season, 11 percent from the second to the third season, and another 12.5 percent from the third to the fourth season. Most of the participating countries decided to take advantage of the improved pricing by increasing their insurance coverage and/or lowering their attachment point (insurance deductible), rather than by lowering their premium payment.

36. Table 4 summarizes the evolution of the catastrophe coverage of the four island countries over the first three seasons, 2007-10. Dominica, Grenada and St Lucia and have seen their hurricane and earthquake coverage limit increased while their total annual premium remained constant, as a direct consequence of the annual decrease of the insurance premium rate. The total annual insurance premium of Grenada increased from USD1.125 million to USD1.425 million as a direct consequence of a higher coverage and lower attachment points under its hurricane insurance policy. Finally, note that the attachment points of the earthquake and hurricane policies of St. Vincent & the Grenadines increased slightly.

Table 4: Evolution of the Catastrophe Coverage of the Island Countries, 2007-2010

		Hurricane policy		Earthquake policy	
	Total premium	Attachment point	Coverage	Attachment point	Coverage
Dominica	=	-	+	=	+
Grenada	+	-	+	=	+
St. Lucia	=	-	+	-	+
St. Vincent & the Grenadines	=	+	+	+	+

Note: =: unchanged; +: increase; -: decrease.
Attachment point: value at which an insurance payout is triggered.
Coverage: maximum payout for a given peril (earthquake or hurricane) during the policy period.

37. Table 5 illustrates the changes from the third season (2009-2010), which was the last year of IDA support for Grenada and St. Vincent & the Grenadines, to the fourth, 2010-2011. Perhaps influenced by the January 2010 earthquake in Haiti, Dominica, Grenada, and St. Lucia reduced their hurricane coverage and increased their earthquake coverage.

Table 5: Evolution of the Catastrophe Coverage of the Island Countries, 2009-2011

		Hurricane policy		Earthquake policy	
	Total premium	Attachment point	Coverage	Attachment point	Coverage
Dominica	-	+	-	+	+
Grenada	-	-	-	-	+
St. Lucia	+	-	-	-	+
St. Vincent & the Grenadines	=	-	+	-	+

Note: =: unchanged; +: increase; -: decrease.
Attachment point: value at which an insurance payout is triggered.
Coverage: maximum payout for a given peril (earthquake or hurricane) during the policy period.

3.4 Justification of Overall Outcome Rating

Rating: Satisfactory

38. The primary development objective of this project, i.e., the four countries are eligible for insurance payouts (and have received payouts in case of an insured event), was fully met. Dominica, Grenada, St. Lucia, and St. Vincent & the Grenadines joined the CCRIF in May 2007 and have purchased catastrophe insurance coverage for each of the CCRIF's four years of operation. St. Lucia and Dominica received an insurance

payout (US$419,000 and US$528,000, respectively) triggered by the earthquake that hit the Caribbean basin on November 29, 2007. St. Lucia and St. Vincent & the Grenadines respectively received US$3,241,613 and US$1,090,388 million following Hurricane Tomas in October 2010. These payouts are believed to be the first significant financial inflows that the countries received following the catastrophes.

3.5 Overarching Themes, Other Outcomes and Impacts

(a) Poverty Impacts, Gender Aspects, and Social Development

39. Natural disasters have a disproportional impact on poorer segments of the population. Low-income households often settle in the most vulnerable areas and live in poorly constructed housing. With low savings, the poor are also less able to cope economically with the loss of fixed assets or livelihoods that they are likely to suffer after a catastrophe. Being more vulnerable, they are also more dependent on government support and relief and recovery programs. Payouts to St. Lucia, Dominica and St. Vincent & the Grenadines ensured that an initial inflow of resources for such programs was immediately available to them at a time when their fiscal pressures were particularly acute. According to the Governments of these three countries, payouts helped to restore quickly power grids, water systems, and other basic services.

(b) Institutional Change/Strengthening

40. The project contributed to an increased awareness among the Finance Ministries about the economic and fiscal impacts of natural disasters on their countries and the role that financial risk transfer can play as part of a broader national disaster risk reduction and management strategy. It also contributed to build capacity in the area financial disaster risk management in the respective Caribbean islands. Ongoing dialogue between CCRIF and officials from the Ministries of Finance, including in some cases the insurance supervisors, particularly at the time of policy renewal, helped to inform them about their country's exposure to adverse natural events. Their participation in decision-making regarding the terms of the CCRIF insurance policies (attachment points, exhaustion points, coverage limits, ceding percentages, etc.) helped build their understanding of the products. As officials of CCRIF members, they have had opportunities to participate in workshops and events organized or co-organized by CCRIF on comprehensive disaster risk management and climate change adaptation. Officials from the four OECS countries, including officials from the national emergency management agencies and/or meteorological institutes, participated in the comprehensive disaster management conferences in 2008, 2009, and 2010. They also attended a number of CCRIF-sponsored workshops on topics such as rainfall modeling and the economics of climate adaptation.

41. The CCRIF has also been promoting the appointment/designation of a Country Risk Officer in each country. The CRO would be responsible for the overall disaster risk management strategy of the country; including the fiscal protection of the state against

natural disasters. This proposition is currently under discussion among the participating countries.

(c) Other Unintended Outcomes and Impacts (positive or negative)

42. There is anecdotal evidence from interviews conducted during the Bank's FY 2011 supervision mission that the project has helped increase interactions among finance ministry, national emergency management, and meteorological and hydrological officials regarding disaster risk exposure and disaster risk financing.

3.6 Summary of Findings of Beneficiary Survey and/or Stakeholder Workshops

43. N/A

4. Assessment of Risk to Development Outcome

Rating: Moderate

44. The beneficiary countries' continuing fiscal constraints are the principal risk to the sustainability of the PDO, but this risk is believed to be moderate. It is likely that the value of CCRIF insurance will be a topic for discussion during the countries' annual budget process; however, the recent CCRIF payouts to Haiti following January 2010 earthquake in Haiti, to Antigua and Barbuda after Hurricane Earl, and to Barbados, St. Lucia, and St. Vincent & the Grenadines in the aftermath of Hurricane Tomas provide a powerful argument in favor of the benefits of financial risk transfer through purchase of CCRIF insurance. Solidarity with other Caribbean countries, support for an increasingly visible and important Caribbean institution, and access to CCRIF-funded technical assistance and knowledge-sharing programs are additional incentives to continue membership. Thus, while the countries will likely continue to look for possible financing for their CCRIF premiums[1], it is probable that they will make every effort to continue their participation in CCRIF. It should be noted that even in the unlikely event that fiscal pressures impelled one or more of the four beneficiary countries to leave the Facility, its sustainability would not be seriously threatened. The CCRIF is estimated to need only eight countries to have a sufficiently diversified portfolio to be able to obtain reinsurance on acceptable terms and offer affordable catastrophe coverage. In addition, it should be

[1] For the third year of the project, IDA funding for the countries' premiums was reduced to 50 percent, with the expectation that they would draw on their own resources to pay the balance. Dominica, Grenada, and St. Lucia took advantage of the CDB's offer of finance to defray the 50 percent not covered by IDA. For 2010-2011, Dominica and St. Lucia unexpectedly were able to benefit from project savings and a depreciation in the US$/SDR exchange rate to obtain IDA financing again for 50 percent of their premium. In addition, with the CCRIF Board's decision to reduce the requirement for the participation deposit from 100 percent of the annual premium to 50 percent, Dominica, Grenada, and St. Lucia drew on their deposits to pay a portion of their premiums. Dominica, Grenada, and St. Vincent & the Grenadines still have participation deposits in excess of 50 percent of their premium, but St. Lucia does not.

noted that with the introduction of CCRIF's excess rainfall product, expected for 2011-2010, more countries are likely to join the Facility.

5. Assessment of Bank and Borrower Performance

5.1 Bank Performance

(a) Bank Performance in Ensuring Quality at Entry

Rating: Satisfactory

45. The Bank responded efficiently to a request from the CARICOM Heads of State to gain access to affordable and effective disaster risk financing instrument by assisting in the establishment of the CCRIF. It mobilized and coordinated highly specialized expertise to design and implement the Caribbean Catastrophe Risk Insurance Facility. This was a path-breaking effort as the Facility is the first regional parametric catastrophe risk pool in the world. One area where quality at entry could have been improved was the results framework, particularly the intermediate outcome indicators, which lacked specificity. For the first such outcome, "CCRIF is created as a sustainable Facility," the indicator was "total claims-paying capacity." The PAD might have established a target for this capacity, expressed in terms of either an absolute amount of CCRIF assets or the return period of a series of events it should be able to withstand. For the second intermediate outcome, "country benefits from partial coverage against hurricane and earthquake risks," the indicator was "total sum insured for each country (up to 20% of total losses)." It was implicit that "losses" referred to those suffered by the government, rather than physical damage in the country, and to those incurred within the return period between the attachment and exhaustion points of the country's policies. It would have been preferable for these matters to have been made explicit.

(b) Quality of Supervision

Rating: Highly satisfactory

46. The OECS Catastrophe Insurance Project itself required little direct supervision because there was no procurement and funds did not pass through institutions or accounts of the beneficiary countries, but rather went directly to the CCRIF. However, as Project success depended crucially on the CCRIF's success and as the CCRIF was highly innovative – the first regional catastrophe risk insurance pool established worldwide – the Bank supervised the Facility intensively. Accordingly, during the OECS Catastrophe Insurance Project's three-year implementation period, the Bank conducted three in-depth supervision missions and produced two mid-term review reports. These reports and their recommendations were shared and discussed with the CCRIF Board of Directors and service providers, some CCRIF members, and other stakeholders, including donors and Caribbean regional organizations. The findings and recommendations of the third supervision mission were discussed with the CCRIF Board of Directors in December

2010 and report was published in April 2011. In addition, the World Bank attended all but two of the CCRIF Board's quarterly meetings as an observer to offer guidance and technical support. A major focus of the Bank during its on-going dialogue with the CCRIF, supervision missions, and participation in the CCRIF Board meetings has been to help the CCRIF strengthen its Operations Manual, notably with respect to the Facility's governance arrangements, including financial management and procurement processes. The Bank sent financial management missions to CCRIF headquarters in the Cayman Islands to supervise the FM aspects of the project and verify the Facility's capacity to use project funds for their intended purposes. Other areas of emphasis in the Bank's supervision of the CCRIF have been on supporting the Facility's research and development activities and on advising it on pricing, risk transfer, and cash and asset management policies; strengthening its stakeholder outreach; and structuring its technical assistance program. In addition to the three in-depth mid-term evaluations, reports to management on the Board meetings and twice-yearly ISRs were, in accordance with LCR regional practice, produced, reviewed by management, and filed in IRIS.

47. In addition to the above, the Bank, the CCRIF, and CCRIF's reinsurance providers conducted a joint test of the claims payment process for a simulated hurricane to ensure that the respective roles were well understood and that the established procedures would work smoothly. The Bank has processed within 48 hours CCRIF's withdrawal applications associated with all insured events.

(c) Justification of Rating for Overall Bank Performance

Rating: Satisfactory

48. The Bank's performance was satisfactory at entry and highly satisfactory during supervision, as described above.

5.2 Borrower Performance

(a) Government Performance

Rating: Satisfactory

49. The credit proceeds were transferred annually from the Association to the CCRIF account at the request of each country's Ministry of Finance. The Ministry of Finance submitted a first withdrawal application for the value of the participation fee and the annual insurance premium in 2007; a second withdrawal application for the value of the annual insurance premium in 2008; and a third withdrawal application for 50 percent of the value of the annual insurance premium in 2009. St. Lucia and Dominica submitted a fourth withdrawal application for 50 percent of the value of the annual insurance premium in 2010[2]. Ministry of Finance officials led the countries' annual discussions with the CCRIF Facility Supervisor regarding renewal of their policies.

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[2] These countries used their project savings to reimburse 50 percent of their 2010/11 annual premium.

(b) Implementing Agency or Agencies Performance

Rating: N/A

(c) Justification of Rating for Overall Borrower Performance

Rating: Satisfactory

50. See paragraph 49.

6. Lessons Learned

51. This project offered the four Caribbean island countries the opportunity to join the first ever regional catastrophe insurance pool and thereby secure immediate liquidity in case of a covered disaster (earthquakes and hurricanes). It is part of a broader development agenda of Bank support aimed at reducing the vulnerability of the Caribbean island countries to natural disasters. After three years of operations, several lessons can be drawn from this project.

52. **Risk pooling is effective in significantly reducing the cost of individual countries' financial risk transfer through insurance.** The CCRIF's risk financing strategy relies on a strong reserve base (made of donors' initial contributions and the participating countries' participation fees and annual insurance premiums) and international reinsurance capacity. Achieving the optimum balance between reserves and reinsurance is necessary both to ensure the Facility's financial strength and to allow the participating countries to access catastrophe insurance at the lowest possible cost.

53. **Extensive communication with participants is required not only leading up to the facility's inception, but also throughout its operations to ensure that its products are well understood.** Catastrophe insurance is a new tool for many Caribbean island countries, and thus requires extensive capacity building. Aggressive, targeted and continuous communications are required to explain the instrument and what it does and does not cover. Communications need to reach beyond the decision-makers to the general public. It is important for the public to understand that even though a disaster may result in personal losses, it may not meet the policy's parameters for triggering a payout and, further, that when a payout is triggered it is made to the government for general liquidity purposes and not to indemnify individuals for their losses. In addition to Quarterly and Annual Reports and website, proactive press outreach is important to supplement information provided directly to decision-makers. Technical assistance activities and workshops for persons from the participating countries can also build understanding, as can partnering with other regional organizations.

54. **Catastrophe risk financing programs can help bridge the gap among Ministries of Finance and agencies involved in disaster risk management.** Risk modeling tools to assess financial exposure to natural disasters can provide loss estimates

in dollar terms that can help Ministries of Finance better understand and compare threats to their fiscal balance and sensitize them to the need for more pro-active disaster risk management strategies. The analytical process can help increase interaction between Ministries of Finance, national emergency management agencies, and hydrological and meteorological institutes.

55. **Even with insurance coverage, countries must continue to invest in risk reduction measures.** An important message to convey in stakeholder and public communications is that catastrophe insurance is not and should not be considered a sufficient risk management product, but has to be part of a broader risk management strategy. While such insurance provides protection against financial loss, it cannot reduce or avoid the impact of adverse natural events. With economic growth, the value of assets exposed to natural disasters and the population affected by them increase. Growth will become unsustainable – as will the cost of financial protection – without proactive policy measures and physical investments to address the causes of risks, avoid creating new risks, and mitigate existing risks and vulnerabilities.

56. **The use of IDA resources for targeted and limited subsidies can help countries test and establish insurance programs.** In the present case, IDA financing for the countries' participation fee and insurance premium during the first three to four years of the CCRIF's operation allowed the four OECS countries to join the CCRIF and test its value at lower cost and risk to themselves. The IDA finance also served as a vehicle to deepen the Bank's dialogue with the four countries on their broader and longer-term disaster risk reduction and climate change adaptation strategies. A gradual reduction in the IDA contribution can help ease provision for the annual premium cost in the country's budget appropriation process, although in a fiscally constrained environment, the country will likely take advantage of other sources of finance where available to cover the cost.

57. **Rapid claims settlement through parametric insurance is feasible and effective.** Following the occurrence of insured events, CCRIF made full insurance payouts within three weeks (that is less than the 90 days as specified in the insurance policies), providing a rapid cash injection to assist the Government with its near-term financial needs in service of the objectives for which CCRIF had been established.

58. **An efficient budget execution system is important.** The quick cash injection following a natural disaster is effective only if the country's post-disaster budget execution system allows for an immediate use of these funds. Countries should be encouraged to conduct a disbursement test for a simulated disaster and possibly further improve their post-disaster budget execution system.

7. Comments on Issues Raised by Borrower/Implementing Agencies/Partners

(a) Borrower/implementing agencies

59. Borrower representatives reviewed the ICR and had no comments.

(b) Cofinanciers

60. N/A

(c) Other partners and stakeholders

61. The CDB reviewed the ICR and had no comments.

Annex 1. Project Costs and Financing

(a) Project Cost by Component (in USD Million equivalent)

Components	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
To assist the borrowers in joining the CCRIF through the financing of the participation fee. This fee is equal to the first year's insurance premium	4.06.	3.875	95%
To assist the borrowers in purchase the catastrophe insurance coverage offered by the CCRIF during the first three years.	10.14	10.302	101%
Total Baseline Cost	14.20	14.18	
Physical Contingencies	0.00	0.00	0.00
Price Contingencies	0.00	0.00	0.00
Total Project Costs	14.20.00	14.14.18	
Front-end fee PPF	0.00	0.00	.00
Front-end fee IBRD	0.00	0.00	.00
Total Financing Required	14.20.00	14.18	

(b) Financing

Source of Funds	Type of Cofinancing	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
Borrower		2.026	1.396.00	.95%
International Development Association (IDA)		14.20	14.18	.99.9%

Annex 2. Outputs by Component

Component 1: Payment of the participation fee to the CCRIF

	Participation fee (US$ millions)
Dominica	1.125
Grenada	1.425
St. Lucia	1.125
SVG	0.200
TOTAL	3.875

Component 2: Payment of the insurance premiums to the CCRIF

		Insurance Premium (US$m)			
	2007-2008	**2008-2009**	**2009-2010**	**2010-2011**	**Total**
Dominica	1.125	1.125	0.562	0.366	3.178
Grenada	1.125	1.325	0.712	0	3.162
St. Lucia	1.125	1.125	0.562	0.650	3.462
SVG	0.200	0.200	0.100	0	0.500
Total	3.575	3.775	1.936	1.016	10.302

Annex 3. Economic and Financial Analysis

1. While no empirical data are maintained that quantify the relationship between *ex ante* risk financing instruments, such as catastrophe insurance and reduced impact of disaster losses on a country's vulnerability, previous international experience tends to confirm that *ex ante* risk financing arrangements are more effective than post-disaster mechanisms to finance immediate liquidity needs, because payments are based on predefined rules and are usually quickly disbursed in the aftermath of a disaster.

2. Given the limited fiscal flexibility of the participating countries, particularly in the aftermath of a disaster, these countries are particularly vulnerable to these events, and thus the benefits of catastrophe insurance are expected to be higher than the cost of insurance. In other words, the social cost of catastrophic risk bearing is expected to be higher than the commercial premium, making them better off with catastrophe insurance than without. Consequently, catastrophe insurance should generate, on average, a positive rate of return.

3. The financial benefits of the CCRIF can be estimated through the reduction in the estimated insurance premium compared to (a) the case where the country would have to buy the same coverage individually; and (b) the case where the country should self-retain the catastrophic risks, because insurance would not be available on the market.

4. A simple but robust economic model was developed from the portfolio risk model to illustrate the benefits of purchasing catastrophe insurance offered from the CCRIF. Precise analysis is particularly difficult for catastrophe insurance where costs (that is, insurance premiums) are definitive while benefits (that is, insurance indemnity payouts) are at best probabilistic. Hurricane insurance and earthquake insurance, when available, are assumed to be offered with a 30-year return period attachment point, a 200-year return period exhaustion point. The coverage level is the maximum payout a country could receive.

5. The price of coverage offered by the CCRIF is estimated through a portfolio risk analysis coupled with a pricing model. It builds on the catastrophe risk models developed during the preparation phase and updated by the CCRIF supervisor. It is compared with the hypothetical insurance price if it were offered individually by direct insurers. Such catastrophe insurance coverage is currently *not* available for the Caribbean countries. Hypothetical individual insurance premiums are derived through a basic pricing equation based on the estimated annual average loss, the 200-year probable maximum loss and the opportunity cost of capital (set at 12 percent).

6. The estimated CCRIF insurance premium is also compared with the cost of self-retention if the country had to retain this risk (because insurance markets were not available) through reserves. Should the country be risk neutral, the cost of self-retention would be estimated through the annual average loss over a long period. This assumption

is consistent with Arrow-Lind Public Investment Theorem (Arrow and Lind 1970),[3] which states that governments should be risk neutral toward natural disasters and thus they should not invest in any risk financing strategies that are more expensive than the expected losses caused by a natural disaster. This theory is in fact implemented by a number of large developed countries that rely on post-disaster financing (including budget reallocation and tax increases) to finance catastrophic losses. However, this theory fails in the case of small and highly indebted countries like the Caribbean countries, because they can spread the risk neither across space (geographic spread) nor across time (intertemporal spread). Therefore, the cost of self-retention is assumed to be equal to the annual average loss plus the opportunity cost of reserves. The opportunity cost of reserve is equal to the amount of reserves necessary to survive a 1-in-200-year event, multiplied by the marginal opportunity cost of capital (set at 12 percent).

7. The cost of CCRIF insurance is compared with the cost of individual insurance (that is, if the country had purchased insurance individually) and the cost of self-retention. CCRIF hurricane insurance is estimated to be approximately 50 percent less expensive than individual hurricane insurance, and approximately 70 percent less expensive than the cost of country's self-retention. CCRIF earthquake insurance is estimated to be 45% cheaper than individual earthquake insurance and 50% less expensive than self-retention. This is a direct consequence of risk diversification.

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[3] Arrow, K., and R. Lind, "Uncertainty and the Evaluation of Public Investment Decisions," *American Economic Review*, 60(3)364–78, 1970.

Annex 4. Bank Lending and Implementation Support/Supervision Processes

(a) Task Team members

Names	Title	Unit	Responsibility/ Specialty
Lending			
Hela Cheikhrouhou	Financial Economist	AFTFP	
Ana F. Daza	Language Program Assistant	LCSUW	
Marc S. Forni	Consultant	LCSUW	
Francis Ghesquiere	Lead Urban Specialist	LCSUW	
Lisa Lui	Lead Counsel	LEGIP	
Olivier Mahul	Program Coordinator	GCMNB	
Supervision/ICR			
Carlos Rufino Costa Posada	Consultant	LCSUW	
Todd W. Crawford	Consultant	LCSEG	
Ana F. Daza	Language Program Assistant	LCSUW	
Maricarmen Esquivel	Junior Professional Associate	LCSUW	
Marc S. Forni	Consultant	LCSUW	
Ross Alexander Gartley	Disaster Risk Management Specialist	LCSUW	
Mohammad Mozammel Hoque	Senior Financial Management Specialist	LCSFM	
Svetlana V. Klimenko	Senior Financial Management Specialist	LCSFM	
Patricia E. Macgowan	Consultant	LCSPT	
Olivier Mahul	Program Coordinator	GCMNB	
Andrew Mitchell	Consultant	LCSUW	
Ulrich Cedric Myboto	Consultant	AFTWR	
Atsuko Okubo	Senior Counsel	LEGCF	
Jonathan Palin	Consultant	LCSUW	
Rolande Simone Pryce	Senior Country Officer	LCC3C	
Yingwei Wu	Senior Procurement Specialist	LCSPT	

(b) Staff Time and Cost

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
	No. of staff weeks	USD Thousands (including travel and consultant costs)
Lending		
FY05		20.90
FY06		243.25
FY07		102.03
FY08		0.00
Total:		366.18
Supervision/ICR		
FY05		0.00
FY06		0.00
FY07		15.88
FY08		114.68
Total:		130.56

Annex 5. Beneficiary Survey Results

N/A

Annex 6. Stakeholder Workshop Report and Results

Workshops and conferences hosted by Caribbean stakeholders (including four OECS countries) or by CCRIF itself:

- **Alliance of Small Island States Negotiators' Preparatory Workshop**

CCRIF was represented by CaribRM at this workshop in Grenada during the period 23-25 July 2009. CCRIF's presence was requested to review and provide recommendations into the AOSIS proposal for the creation of a Multi-window Mechanism to address loss and damage from climate change impacts.

- **Regional Workshop on the Excess Rainfall Model held in Barbados in February 2010**

CCRIF member countries (including the four OECS) and potential members attended this event.

- **Regional Workshop on Economics of Climate Adaptation held in Barbados in May 2010**

- **Regional Ministerial-level Meeting on Climate Change and Development**

CaribRM represented CCRIF at this regional meeting in St. Lucia on 14 & 15 September, 2009. This event formed part of the Caribbean region's preparation for the United Nations Climate Change Conference in Copenhagen on 7-18 December, 2009. The meeting was hosted by the Caribbean Community (CARICOM) Secretariat, the Caribbean Community Climate Change Centre (CCCCC) and the Government of St. Lucia.

- **Fourth Caribbean Conference on Comprehensive Disaster Management**

CCRIF was a main sponsor of the Fourth Caribbean Conference on Comprehensive Disaster Management held in Montego Bay, Jamaica on 7-11 December, 2009. CCRIF's involvement in the conference included hosting a professional development session (PDS), "Hazard Risk Reduction Initiatives in the Context of a Changing Climate: Prospects for Promoting Sustainable Prosperity in the Caribbean," attended by over 60 representatives of ministries of finance, national disaster coordinators and other stakeholders from throughout the region; and sponsoring 15 participants at the PDS and conference.

- **14th Meeting of the Council for Finance and Planning (COFAP)**

Meeting of Caribbean Ministers of Finance 27 February & 1 March 2010, held in Trinidad & Tobago. CCRIF Chairman, Mr. Milo Pearson, participated in this forum and discussed CCRIF's activities and operations.

Annex 7. Summary of Borrower's ICR and/or Comments on Draft ICR

See paragraph 59.

Annex 8. Comments of Cofinanciers and Other Partners/Stakeholders

See paragraph 60 and 61.

Annex 9. List of Supporting Documents

World Bank Documents

Project Appraisal Document. The World Bank. Report No. 38539-LAC. February 6, 2007.

A Review of CCRIF's Operation After its First Season. The World Bank. December 1, 2008.

A Review of CCRIF's Operation After Its Second Season. The World Bank. April 2010.

Reducing Financial Vulnerability to Natural Disasters in the Caribbean: A Review of CCRIF's Operation After Its Third Season. The World Bank. April 2011.

CCRIF Documents

Annual Reports (including audited financial statements): Available at www.CCRIF.org

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