Document of
The World Bank

Report No: ICR00003408

IMPLEMENTATION COMPLETION AND RESULTS REPORT
(IDA-43920, IDA- H8170)

ON A

CREDIT AND ADDITIONAL FINANCING GRANT

IN THE AMOUNT OF SDR 14 MILLION
(US$ 22 MILLION EQUIVALENT)

TO THE

REPUBLIC OF NICARAGUA

FOR A

HURRICANE FELIX EMERGENCY RECOVERY PROJECT

June 14, 2015

Social, Urban, Rural and Resilience Global Practice
Central America Country Management Unit
Latin America and the Caribbean Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective June 14, 2015)

Currency Unit = Cordoba
C 27.18 = US$ 1
US$ 1.40 = SDR 1

FISCAL YEAR
January 1 - December 31

ABBREVIATIONS AND ACRONYMS

BP	Banco Produzcamos (Nicaragua Development Bank)
CPS	Country Partnership Strategy
DRM	Disaster Risk Management
EA	Environmental Assessment
EIA	Environmental Impact Assessment
EMP	Environment Management Plan
ERC	Emergency Recovery Credit
FAO	Food and Agricultural Organization
FCR	Rural Credit Fund
FISE	Nicaraguan Social Investment Fund
GEF	Global Environment Facility
GDP	Gross Domestic Product
GoN	Government of Nicaragua
GRACCN	Government of the North Caribbean Coast Autonomous Region
HFERP	Hurricane Felix Emergency Recovery Project
ICB	International Competitive Bidding
IDA	International Development Association
IDR	Rural Development Institute
IFR	Interim Financial Report
INAFOR	National Forestry Institute
INATEC	National Technological Institute
INETER	National Institute for Territorial Studies
INPESCA	Nicaraguan Institute for the Fisheries Sector
INTA	Agricultural Technology Institute
INVUR	Rural and Urban National Housing Institute
MAGFOR	Ministry of Agriculture and Forestry
MARENA	Ministry of Environment and Natural Resources
MIFIC	Ministry of Development, Industry and Commerce
MINED	Ministry of Education
MINREX	Ministry of Foreign Affairs
MINSA	Ministry of Health

MTI	Ministry of Transport and Infrastructure
M&E	Monitoring and Evaluation
NDVRP	Natural Disaster Vulnerability Reduction Project
NGO	Non-Governmental Organization
PCC	Project Coordination Committee
PIU	Project Implementation Unit
PPF	Project Preparation Facility
RACCN	North Caribbean Coast Autonomous Region
RACCS	South Caribbean Coast Autonomous Region
SDC	Caribbean Regional Development Secretariat
SERENA	Secretariat of Natural Resource and Environment - GRACCN
SE-SINAPRED	Executive Secretariat of the National System for Disaster Prevention, Mitigation and Response

Vice President: Jorge Familiar
Country Director: J. Humberto Lopez
Practice Manager: Anna Wellenstein
Project Team Leader: Enrique Pantoja
ICR Team Leader: Enrique Pantoja

NICARAGUA
Hurricane Felix Emergency Recovery Project

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MAP IBRD 35858R (Nicaragua)

A. Basic Information			
Country:	Nicaragua	Project Name:	Hurricane Felix Emergency Recovery Project
Project ID:	P108974	L/C/TF Numbers:	IDA-43920, IDA- H8170
ICR Date:	06/14//2015	ICR Type:	Core ICR
Lending Instrument:	ERC and Additional Financing Grant	Borrower:	Republic of Nicaragua
Original Total Commitment:	XDR 14.0 M	Disbursed Amount:	XDR 9.58M
Revised Amount:	XDR 9.58 M		
Environmental Category: B			
Implementing Agencies: (a) Component 1: Executive Secretariat of the National System for Disaster Prevention, Mitigation and Response (SE-SINAPRED) (b) Component 2-4: Government of the North Caribbean Coast Autonomous Region (GRACCN)			
Other External Partners: None			

B. Key Dates				
Process	**Date**	**Process**	**Original Date**	**Revised / Actual Date(s)**
Concept Review:	01/22/2008	Effectiveness:	10/31/2008	10/31/2008
Appraisal:	11/26/2007	Restructuring(s):		08/10/2009 06/09/2011 01/20/2012 10/10/2012
Approval:	03/06/2008	Mid-term Review:	09/12/2011	10/03/2011
		Closing:	05/30/2012	12/31/2014

C. Ratings Summary	
C.1 Performance Rating by ICR	
Outcomes:	Unsatisfactory
Risk to Development Outcome:	High
Bank Performance:	Moderately Unsatisfactory
Borrower Performance:	Unsatisfactory

C.2 Detailed Ratings of Bank and Borrower Performance (by ICR)			
Bank	**Ratings**	**Borrower**	**Ratings**
Quality at Entry:	Moderately Unsatisfactory	Government:	Moderately Satisfactory
Quality of Supervision:	Moderate Unsatisfactory	Implementing Agencies:	Unsatisfactory
Overall Bank Performance:	Moderate Unsatisfactory	**Overall Borrower Performance:**	Unsatisfactory

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):	Yes	Quality at Entry (QEA):	None
Problem Project at any time (Yes/No):	Yes	Quality of Supervision (QSA):	None
DO rating before Closing:	Unsatisfactory		

D. Sector and Theme Codes

	Original	**Actual**
Sector Code (as % of total Bank financing)		
General agriculture, fishing and forestry sector	40	40
Health	8	1
Housing construction	40	40
Other social services	9	9
Sub-national government administration	3	10
Theme Code (as % of total Bank financing)		
Natural disaster management	67	30
Other rural development	33	70

E. Bank Staff

Positions	**At ICR**	**At Approval**
Vice President:	Jorge Familiar	Pamela Cox
Country Director:	J. Humberto Lopez	Laura Frigenti
Practice Manager:	Anna Wellenstein	Ethel Sennhauser
Project Team Leader:	Enrique Pantoja	Enrique Pantoja
ICR Team Leader:	Enrique Pantoja	
ICR Primary Authors:	André Carletto / Brenda Mendieta	

F. Results Framework Analysis

Project Development Objectives (from Project Appraisal Document)

To support the sustainable recovery of the communities affected by Hurricane Felix in the North Atlantic Autonomous Region of Nicaragua.

Revised Project Development Objective (as approved by original approving authority)
There were no changes to the original PDO throughout the life of the Project.

(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:	Income of fishermen and women participating in the Project is restored or improved			
Value Quantitative or Qualitative)	$200	20%		19.6%
Date achieved	12/31/2007	12/30/2014		12/30/2014
Comments (Incl. % of achievement)	Achieved. According to a December 2014 survey, income of beneficiaries increased by 19.6%. It is noted that a 2012 survey indicated a higher income increase. Such fluctuation likely reflects fishing's cyclical nature, market prices, and credit constraints.			
Indicator 2:	At least 15% increase in sustainable fish production among beneficiaries of revolving fund.			
Value Quantitative or Qualitative)	Not Available[1]	15%		15%
Date achieved	12/31/2007	12/30/2014		12/30/2014
Comments (Incl. % of achievement)	Achieved. A 2014 evaluation survey of beneficiaries of the revolving fund indicated a 15% increase in small-scale fisheries production. This trend is similar to INPESCA's overall estimates for Nicaragua's North Caribbean Region during the same period.			
Indicator 3:	At least 40% of beneficiaries receiving boats and fishing equipment and supplies under the Project are women.			
Value Quantitative or Qualitative)	0%	40%		30%
Date achieved	12/31/2007	n/a		12/30/2014
Comments (Incl. % of	Partially achieved (75%). Although the target was not fully achieved, women in the region benefited through restoring of lost fishing assets such as: outboard			

[1] Due to the emergency nature of the Project, no baseline could be established originally, which was a major challenge for the measurement of this indicator. This indicator was assessed retrospectively during the final evaluation of the Project using available data from official sources.

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
achievement)	motors (24%), fishing supplies (30%), and lobster traps or *nasas* (18%). Additionally, a micro-credit line was specifically established to support women's economic activity related to the fisheries sector. Overall, 96% of the beneficiaries of this credit line were women.			
Indicator 4:	At least 3,300 families living in houses rehabilitated or reconstructed to safer standards under the Project.			
Value Quantitative or Qualitative)	0	3300		5000
Date achieved	12/31/2007	06/30/2012		12/30/2014
Comments (Incl. % of achievement)	Surpassed (27% over the original target). The 2009 National Census established that an average of 1.6 families live in one house in the North Caribbean Region. With the rehabilitation of 3,985 roofs and construction of 262 new houses, for a total of 4,200 units, it is conservatively estimated that the Project benefited at least 5,000 families.			
Indicator 5:	At least 40 affected communities given access to safer buildings for emergency shelter through the Project.			
Value Quantitative or Qualitative)	0	40		10
Date achieved	12/31/2007	n/a		12/30/2014
Comments (Incl. % of achievement)	Not achieved. Four (4) social infrastructure buildings out of 21 planned were completed, benefiting only 10 communities. Five (5) works were cancelled and 12 remained unfinished at Project closing. It is expected that funding will be available from the Government of Nicaragua to complete construction in 2015.			
DROPPED Indicator	At least 120% increase in sustainable fish production in the region by end of project (from pre-disaster levels).			
Value Quantitative or Qualitative)	0	120%		--
Date achieved	12/31/2007	n/a		--
Comments (Incl. % of achievement)	Dropped. This original indicator was replaced in the 2012 project restructuring by Indicator 2 above. It was considered unrealistic and beyond what the Project could directly contribute in improving fish production in the region, even more so after the decision of not financing the fish processing plant and the reduction in the number of boats that would be provided under the Credit.			

(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:	At least 2,800 affected families have their roofs rehabilitated under the Project by August 30, 2011			
Value Quantitative or Qualitative)	0	2800		4200
Date achieved	12/31/2007	06/30/2010		08/30/2011
Comments (Incl. % of achievement)	Surpassed (42% over the original target). The 2009 National Census established that at least 1.6 families live in a house in the North Caribbean Region. SE-SINAPRED reported rehabilitation of 3,985 roofs in 71 communities, surpassing the target by 1,185. It is thus estimated conservatively that the Project benefited at least 4,200 families. It should be noted, however, that the original target date for completion was August 15, 2008.			
Indicator 2:	100% of Component 1 completed by August 30, 2011.			
Value Quantitative or Qualitative)	0	100%		100%
Date achieved	12/31/2007	08/30/2012		08/30/2012
Comments (Incl. % of achievement)	Partially achieved. Original target date for completion was August 15, 2008, and then extended to August 30, 2011. However, the component was completed a year later than the revised date mainly due to lack of capacity and coordination in identifying beneficiaries, defining technical specifications, and carrying out bidding processes under Bank guidelines. Considering the need for immediate response, the delay negatively affected this component's impact.			
Indicator 3:	At least 30 groups with new boats and fishing equipment by end of Project.			
Value Quantitative or Qualitative)	0	40 associations and 110 family enterprises	30 individuals	30
Date achieved	12/31/2007	n/a	12/30/2014	12/30/2014
Comments (Incl. % of achievement)	Achieved. This indicator was revised after the 2012 restructuring and confirmed under the AF to reflect higher costs of the boats, considering the updated technical specifications once the consultation process with potential beneficiaries had been completed. Also, due to legal issues with informal groups, it was agreed to focus on loans for boats to individual beneficiaries. Delays in identifying and training beneficiaries, paired with improper usage and lack of spare parts in the local market have prevented the beneficiaries from operating the boats in optimal conditions.			
Indicator 4:	Sustainable revolving fund established in BP by end of Project to continue providing credit to the small-scale fisheries sector.			
Value Quantitative or Qualitative)	0	Satisfactory Assessment of Fund		Fund not sustainable
Date achieved	12/31/2007	n/a		12/30/2014
Comments	Not achieved. The December 2014 Final Project Evaluation indicated that the			

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
(Incl. % of achievement)	Fund sustainability was unlikely due to, inter alia, a severe drop in loan recovery rates, reflected in average delays of 90 days for credits to women (*Pikineras)*, and of 294 days for boats loans. Despite mitigation measures, by the end of the Project the situation remained unchanged.			
Indicator 5:	At least 80% (out of 4000) of direct beneficiaries, and 80% of female beneficiaries, are satisfied with Project activities supporting the small-scale fisheries sector rehabilitation efforts.			
Value Quantitative or Qualitative)	0	80% out of 6,000 beneficiaries	80% out of 4,000 beneficiaries	60%
Date achieved	12/31/2007	n/a	n/a	12/30/2014
Comments (Incl. % of achievement)	Partially achieved (75%). A December 2014 beneficiary survey indicated that only 60% of beneficiaries were satisfied with activities related to small-scale fisheries, compared with 80% reported in August 2013. This reduction is likely caused, among other things, by the lack of consensus on the appointment of the two new community representatives to the Credit Committee.			
Indicator 6:	At least 80% of target families are satisfied with the rehabilitation and reconstruction activities under Component 3.			
Value Quantitative or Qualitative)	0	80%		40%
Date achieved	12/31/2007	n/a		12/30/2014
Comments (Incl. % of achievement)	Not achieved. A December 2014 beneficiary survey indicated a satisfaction level of only 40%, which is most likely due to delays and unfinished works related to social infrastructure, and perception of low quality of materials used in the construction of bamboo houses.			
Indicator 7:	At least 25 communities benefiting from community churches and centers reconstructed under the Project.			
Value Quantitative or Qualitative)	0	25	25	10
Date achieved	12/31/2007	n/a	n/a	12/30/2014
Comments (Incl. % of achievement)	Not achieved. This indicator was restored under the Additional Financing (AF) to its original target. Nevertheless, only two churches and two community centers were completed out of a total of 16 projected, benefiting only 10 communities.			
Indicator 8:	At least 5 health facilities constructed, renovated and/or equipped. [CORE INDICATOR]			
Value Quantitative or Qualitative)	0	3	5	0
Date achieved	12/31/2007	n/a	n/a	12/30/2014
Comments (Incl. % of achievement)	Not achieved. Although the target was revised under the AF, the construction of small health centers was substantially delayed and could not be completed before Project closing. The Government has confirmed its commitment to complete these works.			

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 9:	Regional Government has adequate capacity to prepare and implement externally financed projects (as measured by an independent evaluation) by end of project.			
Value Quantitative or Qualitative)	0	Yes		No
Date achieved	08/30/2007	n/a		12/30/2014
Comments (Incl. % of achievement)	Not achieved. Although an institutional capacity assessment has shown improvement compared to the original levels at the start of the project, at Project closing, capacity related to fiduciary, planning and human resources still presented challenges. Additional funding through an IDF grant has been made available to continue supporting the Regional Government's institutional strengthening.			
DROPPED Indicator	Fish processing plant, shipyard and community store operated successfully by end of project.			
Value Quantitative or Qualitative)	0	Yes		--
Date achieved	31/12/2007	n/a		--
Comments (Incl. % of achievement)	Dropped. This original indicator was dropped after the 2011 Project Restructuring. This indicator was no longer relevant since it was concluded that investing in the plant, shipyard and store was not economically feasible. Confirmation of the economic feasibility was a condition for financing of these works under the Project.			

G. Ratings of Project Performance in ISRs

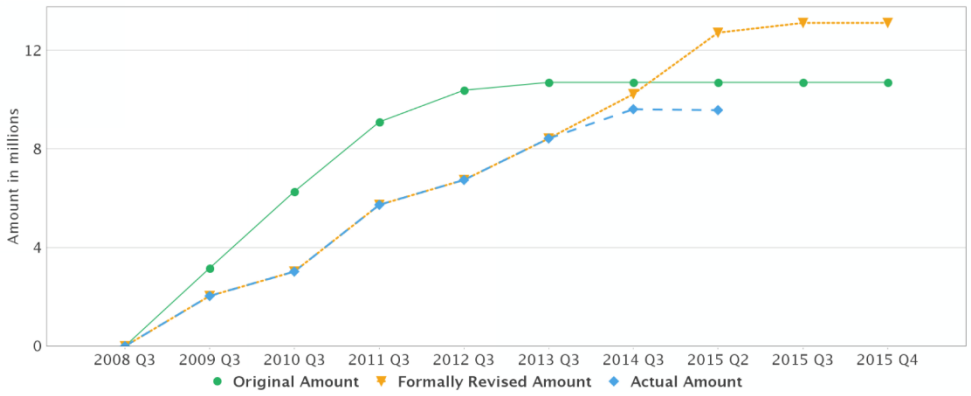
No.	Date ISR Archived	DO	IP	Actual Disbursements (USD millions)
1	04/29/2008	Satisfactory	Satisfactory	0.00
2	10/17/2008	Moderately Satisfactory	Moderately Satisfactory	0.00
3	05/08/2009	Moderately Unsatisfactory	Unsatisfactory	3.00
4	07/30/2009	Moderately Unsatisfactory	Moderately Unsatisfactory	4.20
5	02/24/2010	Moderately Unsatisfactory	Moderately Unsatisfactory	4.55
6	12/22/2010	Moderately Unsatisfactory	Moderately Unsatisfactory	7.70
7	03/02/2011	Moderately Satisfactory	Moderately Satisfactory	8.22
8	06/15/2011	Moderately Satisfactory	Moderately Satisfactory	9.01
9	12/25/2011	Moderately Satisfactory	Moderately Satisfactory	10.02
10	06/30/2012	Moderately Satisfactory	Moderately Satisfactory	10.61
11	08/22/2012	Moderately Satisfactory	Moderately Satisfactory	11.63
12	11/02/2012	Satisfactory	Satisfactory	11.99
13	06/10/2013	Satisfactory	Moderately Satisfactory	12.83
14	10/21/2013	Moderately Satisfactory	Moderately Unsatisfactory	14.06

15	02/19/2014	Moderately Unsatisfactory	Unsatisfactory	14.63
16	04/08/2014	Moderately Unsatisfactory	Unsatisfactory	14.63
17	07/04/2014	Unsatisfactory	Highly Unsatisfactory	14.44
18	12/23/2014	Unsatisfactory	Unsatisfactory	14.57

H. Restructuring (if any)

Restructuring Date(s)	Board Approved PDO Change	ISR Ratings at Restructuring		Amount Disbursed at Restructuring in USD millions	Reason for Restructuring & Key Changes Made
		DO	IP		
08/10/2009		MS	MS	4.86	Inclusion of financing of services associated with the processing of timber under the definition of "non-consultant services."
06/09/2011		MS	MS	5.86	(i) Change of the responsible agency for administering the Project's revolving fund from the Rural Credit Fund to Banco Produzcamos, (ii) Reallocation of proceeds, (iii) Revision of the definition of non-consulting services to include expenditures related to the Communications Strategy under Component 4, and (iv) Adjustments to some targets under Component 2 to reflect the revised fisheries sector recovery strategy.
01/20/2012		MS	MS	6.85	(i) Seven-month extension of the Credit closing date from 05/30 to 12/31/2012, and (ii) Final adjustments to the Project's original targets under Component 3 to reflect cost overruns, based on Mid-Term Review agreements.
10/10/2012		MS	MS	7.87	Extension of the original Credit closing date from December 31, 2012 to December 31, 2013.

I. Disbursement Profile



1. Project Context, Development Objectives and Design

1.1 Context at Appraisal

1. **Context and Sector Background**. Hurricane Felix's effects were overwhelmingly felt by communities in the North Caribbean Coast Autonomous Region (RACCN)[2], one of the poorest regions in one of the poorest countries in Latin America and the Caribbean. Felix, a Category 5 hurricane, made landfall at 4:45 AM (local time) on September 4, 2007, 51 kilometers north of Bilwi, the region's capital. According to official estimates, Hurricane Felix caused 102 deaths and directly affected approximately 200,000 persons. The hurricane disrupted the basic life of many communities as it destroyed over 10,000 houses and blew off the roofs of an additional 9,000, destroyed 20 churches and badly damaged an additional 37, and contaminated approximately 11,500 wells while destroying over 13,000 latrines. At the same time, it also badly damaged or destroyed 84 public buildings, 107 schools, and 134 clinics of various sizes. Transport, normally difficult, was disrupted as the storm damaged 994 km of roads and many bridges.

2. Fisheries and agriculture, two key economic sectors in the region, were critically affected. The storm seriously disrupted extensive marine areas, uprooting mangroves and destroying entire fishing villages, displacing at least 2,100 fishermen and 3,500 people associated with fisheries. The impact on the agricultural sector had serious implications on food security, and it was estimated that over 86,000 hectares of agricultural land were damaged with losses to livestock reaching 21 percent of the region's total. In addition, the hurricane affected 1.3 million hectares of forest areas (of which 477,000 were devastated), where an estimated 12 million cubic meters of potentially usable wood fell to the ground, with limited capacity to salvage most of it.

3. **Country and Regional Background**. At the time of appraisal, Nicaragua was ranked as the second poorest country in Latin America after Haiti, and as one of the most disaster-prone countries in the world. Modest and highly variable GDP growth, reflecting the economy's vulnerability to external shocks, such as disasters associated with extreme weather events, had been hindering poverty reduction efforts. Despite progress, between 2002 and 2006 the annual GDP growth averaged 3.2 percent, or 1.3 percent in per capita terms. Poverty remained high with about 46 percent of the country's 5.5 million people living under the poverty line.

4. Hurricane Felix's effects weighed heavily on a region that still has some of the highest incidences of poverty and malnutrition, and lowest levels of education and health in Nicaragua. With approximately 308,000 inhabitants, RACCN covers almost 33,000 square kilometers of the Caribbean region, the largest and the poorest of the three distinct regions that comprise Nicaragua.[3] The Caribbean region, which RACCN shares with the

[2] At appraisal, the region was known as North Atlantic Autonomous Region (RAAN). This ICR uses the current official name, adopted in 2014, of North Caribbean Coast Autonomous Region.

[3] Other regions are: the Pacific lowlands, where most of the country's population lives, and the North-Central

South Caribbean Coast Autonomous Region (RACCS), comprises about 43 percent of the country's territory but only 11 percent of its population. About 60 percent of the Caribbean autonomous regions' total population – and almost 77 percent of their rural population – lives in poverty. A large rainforest crossed by several large rivers covers the region, characterized by a hot and humid climate and a sparse yet multi-ethnic, multi-cultural and multi-lingual population, including many of Miskito and Afro-Caribbean descent. Most of the territory has a pattern of collectively owned land tenure, traditional institutions such as communal councils and assemblies, and well-established processes of community-based decision-making. Given their distinct culture and history, both RACCN and RACCS have enjoyed partial autonomy since the mid-1980s.

5. **Government strategy.** Confronted with the dramatic losses caused by Felix, on September 4, 2007, the Government of Nicaragua (GoN) declared a State of Emergency in RACCN by which all ministries, as well as local and regional government entities, were instructed by the National Emergency Committee under the National System for Disaster Prevention, Mitigation and Response (SINAPRED) to make available the necessary resources to respond to the disaster and help initiate rehabilitation activities as soon as possible. In line with the National Emergency Response Plan, the Governor of RACCN led the response, while the Regional and Municipal emergency committees were activated to coordinate the search and rescue and overall relief operations. Efforts were also focused on completing an assessment of damage and needs that would allow for the preparation of a recovery plan consistent with regional development priorities.

6. **Rationale for Bank involvement**. Given the impact of the hurricane on such a poor region, the Bank responded to the Government's request and approved an Emergency Recovery Credit of SDR 10.7 million (US$17 million equivalent) on March 6, 2008. Consistent with OP/BP 8.0, the Credit, processed on a fast track basis in less than four months, sought to finance the costs associated with the recovery of affected communities in RACCN. A Project Preparation Facility (PPF, IDA-Q5960) of US$5.0 million had also been rapidly processed and approved on December 19, 2007, to finance technical and fiduciary capacity building to ensure the regional government's readiness for project implementation, and preparation of social, environmental, and other assessments in line with Bank safeguard and fiduciary requirements.

7. Considering other development partners' efforts,[4] the Bank complemented its support to the Government's recovery strategy through the GEF-financed Corazon Transboundary Biosphere Reserve Project (P085488) and the Education for All (EFA) Trust Fund for Nicaragua (TF057311). With support from the Corazon Project, the regional government and INAFOR revised the 2007-2008 Emergency Plan for Prevention and Control of Forest Fires for RACCN, to promote community-based forestry

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Mountains.

[4] As a result of the United Nations' flash appeal, US$18.8 million were committed and US$9.1 million were pledged to relief and recovery operations through UN agencies. There was also aid from some bilateral agencies particularly for emergency response, but financial support for recovery was relatively low.

management and to identify options to salvage fallen trees. Likewise, EFA funds of US$3.5 million were allocated to help reconstruct schools in the region.

8. On November 13, 2012, the Bank approved an Additional Financing (AF) Grant of SDR 3.3 million (US$ 5.0 million equivalent) to help cover cost overruns related to social/community infrastructure. With this AF, the GoN planned to complete the original Project activities for reconstruction of housing and social infrastructure, including community centers, churches and small health clinics.

1.2 Original Project Development Objectives (PDO) and Key Indicators

9. The project was originally prepared as an Emergency Recovery Credit (ERC) from the International Development Association (IDA). The Project Development Objective (PDO) was to support the sustainable recovery of the communities affected by Hurricane Felix in the North Atlantic Autonomous Region of Nicaragua. There were three main proposed outcomes related to the PDO: (i) Ensuring timely restoration of basic social and economic life through early rehabilitation and recovery activities; (ii) rehabilitating and improving the productive capacity and sustainability of the small-scale fishery sector; and (iii) supporting the reconstruction of housing and social infrastructure.

10. Accordingly, the **original Project key indicators** were:

- Income of fishermen and women participating in the Project is restored or improved
- At least 120 percent increase in sustainable fish production in the region by end of project
- At least 40 percent of beneficiaries receiving boats and fishing equipment and supplies under the Project are women
- At least 3,200 families living in houses rehabilitated or reconstructed to safer standards under the Project
- At least 40 affected communities given access to safer buildings for emergency shelter through the Project

1.3 Revised PDO (as approved by original approving authority) and Key Indicators, and reasons/justification

11. There were no revisions to the PDO. Key indicators underwent some adjustments, including one that was dropped after the 2011 Project Restructuring, namely "at least 120 percent increase in sustainable fish production in the region by end of project." This indicator was considered unrealistic and beyond what the Project could directly contribute to improving fish production in the region, particularly after the decision was made to not finance the fish processing plant, and to reduce the number of boats that would be provided under the project.

12. Specific adjustments to targets of some key indicators include: (i) through the Project Restructuring approved in January 20, 2012, which adjusted some Project indicators to reflect reductions of 50 percent in targets under Component 3

(Reconstruction of Housing and Social Infrastructure) due to increased reconstruction costs; and (ii) under the Additional Financing, indicators under Component 3 were brought back to Project's original target levels.

1.4 Main Beneficiaries

13. The Project's direct beneficiaries included: (a) Local, mainly poor indigenous communities who were expected to benefit from the reconstruction of housing and social infrastructure; (b) eligible fisher folk and other people who would benefit from provision of fishing equipment and materials, and access to credit through a revolving fund; and (c) GRACCN, which would benefit from institutional strengthening and increased capacity for project implementation.

1.5 Original Components (*as approved*)

14. The Project had four components. Based on the implementation strategy agreed with the GoN, Component 1 was implemented by the Executive Secretariat of SINAPRED and the rest by GRACCN:

15. ***Component 1-Early recovery*** (US$5.0 million or 29.4 percent of total project cost): Activities under this component were aimed at ensuring timely implementation of critical rehabilitation and recovery activities, as well as readiness of the GRACCN to start project implementation. Sub-Component 1.1 – Provision of Early Reconstruction Materials (US$2.0 million) provided retroactive financing for construction materials and operating costs directly related to relief and early disaster rehabilitation efforts. Sub-Component 1.2 - Institutional Strengthening and Rehabilitation (US$3.0 million) financed (i) institutional strengthening for project management for SE-SINAPRED and GRACCN, and (ii) rehabilitation of housing (mainly roofs), and of the agriculture and fisheries sectors. This component also included financing for the social and environmental assessments and Environmental Management Plan (EMP), which thanks to the flexibility of OP 8.0 could be completed after Board approval.

16. ***Component 2-Recovery of small-scale fisheries sector*** (US$6.3 million or 37 percent of total project cost): Activities under this component sought to restore, and potentially improve, the socioeconomic conditions of the population engaged in the small-scale fisheries sector in the region. Sub-Component 2.1 - Rehabilitation of Small-Scale Fisheries Sector (US$5.0 million): (i) established a Revolving Fund to provide better equipped boats and working capital to affected households to restart their fishing activities in a more productive and sustainable way, (ii) provided technical assistance and training to affected coastal communities, and (iii) provided fishing equipment and supplies. Sub-Component 2.2 - Rehabilitation of Fish Processing Plant and Related Facilities (US$1.0 million) sought to restore income generation opportunities to women and the local economy through: (i) the rehabilitation of the Lamlaya Fish Processing Plant, along with a small shipyard and a community store for fishing supplies, and (ii) credit to affected women. Sub-Component 2.3 – Reconstruction of Small Infrastructure

(US$0.3 million) sought to finance the rehabilitation of several community landing docks and small piers.

17. ***Component 3-Reconstruction of housing and social infrastructure*** (US$5.4 million or 31.8 percent of total project cost): Activities under this Component aimed at reestablishing the social and economic environment of affected communities through the provision of safer and culturally responsive housing and social infrastructure. Sub-Component 3.1 – Reconstruction of Housing (US$2.5 million) financed general housing reconstruction in wood and in traditional yet safer design applying new standards that consider disaster risk, with the participation of beneficiaries in the reconstruction process. Sub-Component 3.2 – Reconstruction of Social Infrastructure (US$2.9 million) funded activities for reconstruction of community churches and community centers with the dual purpose to serve as emergency shelters, and small health clinics.

18. ***Component 4-Institutional strengthening for project management, coordination, and monitoring and evaluation*** (M&E) (US$0.3 million or 1.7 percent of total project cost): Activities under this component aimed at strengthening the institutional capacity of GRACCN to implement the recovery emergency program, and to lead general regional development efforts. This component also financed external audits and the implementation of the Project's M&E system.

1.6 Revised Components

19. While the four components were maintained throughout Project implementation, the Project Restructuring and the Additional Financing (AF) approved in January and November of 2012 respectively, introduced adjustments to components and indicators. The AF sought to cover cost overruns related to social/community infrastructure, in order to complete the original Project activities for Component 3 adjusted by a previous project restructuring.[5] The original project components 1 and 2 did not receive additional resources under the AF since their activities had been completed under the original Credit. The specific changes are as follows:

- *Component 1 - Early recovery* (US$5.0 million or 22.7 percent of total project cost): No change.

- *Component 2 - Recovery of small-scale fisheries sector* (US$6.3 million or 28.6 percent of total project cost): The 2012 Project Restructuring cancelled the rehabilitation of the fish processing plant and shipyard (and therefore removed the related indicator). This decision was based on the conclusion that its financing was not economically justified.[6]

[5] Project Restructuring (Level 2) approved on January 20, 2012 based on MTR recommendations to revise activities of Component 3 reducing it from originally planned. Further details provided in Section 1.7

[6] The Financing Agreement had a legal clause that established the need for a feasibility analysis before funding for these structures could be confirmed under the Credit.

- *Component 3 - Reconstruction of housing and social infrastructure* (US$4.6 million under the AF, for a total of US$10 million or 45.4 percent of total project cost): The original targets for this component had been reduced by almost 50 percent under the 2012 project restructuring, and the AF restored these targets. Specifically, the AF was expected to finance the supervision and construction of eight churches, eight community centers, and two small health centers, and to allow equipping the health centers and completing the training on improved construction techniques.

- *Component 4 - Institutional strengthening for project management, coordination, and monitoring and evaluation (M&E)* (US$0.4 million under the AF, for a total of US$0.7 million or 3.2 percent of total project cost): The AF added funds for project management, and Monitoring and Evaluation. As described, this included, among others, coordination, training, financial management, external auditing, and implementation of the Communication Strategy.

1.7 Other significant changes

20. **Project Restructuring 1** (Level 2), approved on August 10, 2009, to include the financing of services associated with the processing of timber under the definition of "non-consultant services."

21. **Project Restructuring 2** (Level 2), approved on June 9, 2011, including (i) a change in the entity responsible for administering the Project's revolving fund from the Rural Credit Fund (FCR) to the newly created Banco Produzcamos (BP), (ii) a reallocation of proceeds, (iii) a revision of the definition of non-consulting services to include expenditures related to the Communication Strategy under Component 4, and (iv) adjustments to some targets under Component 2 to reflect the revised fisheries sector recovery strategy.

22. **Project Restructuring 3** (Level 2), approved on January 20, 2012, including (i) a seven-month extension of the Credit closing date from May 30, 2012 to December 31, 2012, and (ii) adjustments to the Project's original targets under Component 3 to reflect cost overruns, based on the agreements of the Mid-Term Review (MTR).

23. **Project Restructuring 4** (Level 2), approved on October 10, 2012, extending the Credit closing date from December 31, 2012 to December 31, 2013.

24. **Additional Financing** (IDA Grant of US$5.0 million equivalent) approved on November 13, 2012, in order to complete original activities and meet targets under Component 3; and provide, under Component 4, resources for additional project management, monitoring and evaluation, and to finalize training to promote Hurricane-resistant construction practices.

25. **Extension of Closing Dates**. Project implementation lasted more than six years from Credit effectiveness. The Project officially closed in December 2014 after two closing date extensions of the original Credit, and the expected implementation period of

the AF. The closing date extensions of the original Credit included: (a) with the January 20, 2012 restructuring, from May 30, 2012 to December 31, 2012 to allow the completion of activities under Component 3, and the rolling out of the revolving fund for the small scale fisheries sector; (b) with the October 10, 2012 restructuring, extending the original Credit closing date from December 31, 2012 to December 31, 2013 to provide additional time for the completion of key activities; and (d) with the approval of the AF, to December 31, 2014.

26. **Reallocation of Credit funds**. The Project Restructuring approved on June 9, 2011 included a reallocation of credit proceeds reflecting adjustments made to the scope of some of the Project's components, and to reflect the unused funds of the PPF. As a result, the original appraisal amount of Category 1 (corresponding to Component 1) was decreased by 36 percent, while Category 2 (corresponding to the rest of the project with the exception of the revolving fund and the fish processing plant and shipyard) was increased by 68 percent, and Category 3 (corresponding to the revolving fund) was increased by 96 percent.

27. **Funds cancellation.** A total of SDR 4,422,182.07 (US$6,834,177.02) were cancelled from both the original Credit and the AF Grant. These cancellations correspond to the following: (a) at the request of the Government, SDR 875,265.00 (US$1,345,238.54) were cancelled from the original Credit on December 30, 2013, right before its closing date; and SDR 453,256.79 (US$699,828.48) were cancelled on July 28, 2014 reflecting unused Credit funds; and (b) also at the request of the Government, SDR 3,093,660.37 (US$4,789,110.00 million), or most of the AF Grant amount, was cancelled on April 22, 2014. The funds cancelled before the Credit's and AF grant's closing dates were returned to the IDA pool of Nicaragua to be used in other projects that were under preparation at the time. With the cancellation of Credit funds requested by the Government, no funds were left allocated for the fish processing plant and shipyard (Category 4).

2. Key Factors Affecting Implementation and Outcomes

2.1 Project Preparation, Design and Quality at Entry

28. **Soundness of Background Analysis**. The Project was originally designed as an emergency operation (based on former OP/BP 8.0 streamlined procedures), and as such, it was rapidly prepared within four months.[7] The Project focused on selected sectors, such as emergency recovery as well as social infrastructure and housing reconstruction, where the Bank had a comparative advantage. Although the results matrix focused mainly on output indicators, it also considered outcomes on income and fisheries production improvements, and beneficiaries' satisfaction, while also paying attention to gender equity issues. Project design was for the most part based on knowledge and lessons learned on disaster risk management efforts, including emergency recovery with and without the support of the Bank. The IDA-financed Natural Disaster Vulnerability Reduction Project (NDVRP, P064916), which was in its final stage, provided specific

[7] The Additional Financing Grant was prepared in 2012 under regular procedures given the time past since the disaster.

country knowledge and experience on emergency recovery (see more on lessons learned below). However, given the Project's short preparation time, analyses of institutional and implementation challenges, which would later affect project performance, were not sufficiently comprehensive. At the same time, as part of the original design, Project preparation and readiness for implementation was supposed to have been supported by a Project Preparation Facility (PPF, IDA-Q5960) of US$5.0 million approved on December 17, 2007.

29. **Assessment of Project design**. The PDO's focus on supporting the sustainable recovery of the communities affected by Hurricane Felix seemed achievable in a four-year period. This objective was clear and important for the country and region, as indicated in the FY08-12 Country Partnership Strategy for Nicaragua that recognized the significant disaster risks faced by the country and noted the assistance being provided by the World Bank for disaster risk management. The Project was also framed within the Development Strategy that had been recently completed for the Caribbean Region through a participatory process. Positively, the Project went beyond the simple reconstruction of damaged housing and social infrastructure by promoting the integration of flood and wind resistance standards into their designs. However, although Project design considered the social and cultural characteristics of the affected communities, it does not seem to have taken adequately into account implementation challenges inherent to RACCN, including for example remoteness and widespread location of the affected communities, underdeveloped regional markets, and weak inter-institutional coordination.

30. The Project's design reflected several specific requests from the Government of Nicaragua (GoN), which could have benefited from a more in depth analysis if more time had been available for project preparation. First, it was agreed that GRACCN – lacking in implementation experience and capacity – would be the implementing agency, with close support from central agencies. The reason for this request was the Government's objective of promoting regional autonomy and better participation of traditional authorities in the affected communities. Second, and consistent with this objective, it was also agreed to integrate project staff within GRACCN's organizational structure in order to promote institutional strengthening. And third, considering that RACCN is one the poorest regions in Nicaragua, and that it faced critical development challenges before the disaster, the GoN and local authorities saw the project as an opportunity to promote long-term regional development goals, especially regarding the small scale fisheries sector.

31. In the attempt to respond to the above requests, there were several important lessons that were not applied to Project design, and that as detailed below, resulted in implementation issues later on: (i) as experience from other emergency operations shows, there is a need to find an experienced and well performing implementing agency to ensure smooth progress and rapid results; (ii) an emergency project should limit itself to sustainable recovery activities even if within a medium-term development strategy framework; and (iii) as much as possible, the Project should focus on sectors where the Bank has a comparative advantage while ensuring complementarity with other development partners' support.

32. Although the strategy for ensuring quality at entry – which is challenging for most emergency operations – became unfeasible during HFERP's preparation, Project design did not consider alternative measures. To ensure that GRACCN would be ready for project implementation, it was expected that SE-SINAPRED, which had been implementing the NDVRP relatively satisfactorily, would execute the PPF and provide support, training and technical assistance for capacity strengthening to GRACCN. The strategy fell through as SE-SINAPRED's capacity was lost due to a change of staff. In addition, the PPF could not be used as planned since it only became effective in March 2008, and its approval was delayed in the National Assembly for several months. Under the optimistic assumption that SE-SINAPRED could recover its implementation capacity rapidly, it was agreed that it would implement Component 1 as a continuation of the activities originally proposed under the PPF. In retrospect, the latter decision likely made project design and implementation arrangements more complex.

33. Although the PDO was well focused on recovery efforts, the objectives and activities of Component 2 and 4 were overly ambitious. Justifiably, GoN and GRACCN saw the project as an opportunity to promote the long-term development goals of the region. Positively, the Project integrated activities to restore, and potentially improve, the socioeconomic conditions of population engaged in the small-scale fisheries sector, and to promote income generation opportunities for women. However, Component 2 went beyond the emergency recovery of the small fisheries sector and sought to promote a major, medium term change by diversifying it from lobster and shrimp capture into hitherto unexploited fish species, and by promoting new fishing practices. While the Bank relied on advice from FAO, it had not conducted analytical work or provided financial support to this sector in many years. Moreover, Component 4, in addition to building project implementation capacity, aimed to develop the medium-term institutional capacity of GRACCN to lead regional development efforts under the challenging conditions of a post-disaster and complex socio-political environment.

34. **Risk Assessment**. The Project was assessed as being a high-risk operation, with several initial high or substantial risks, and a residual substantial risk after mitigation. This rating properly estimated the challenges of the project related to the socio-political situation, institutional capacity, and the nature of the Project and provided a series of mitigation measures. Most of the risks identified in the matrix materialized at some point during Project implementation, while several of the proposed mitigation measures had limited effectiveness.

35. One of these risks, Implementation – weak capacity for project implementation – rated as High, became manifest early in implementation. The mitigation measure of having SE-SINAPRED provide the required support to GRACCN under Component 1 was insufficient. Although GRACCN had some experience implementing externally funded projects, its implementation capacity remained weak throughout Project implementation. Two additional risks, rated as substantial at appraisal, also materialized: (i) Political, reflecting the often difficult relationship between GRACCN and the central government, and that had historically affected allocation and implementation of development investments in the region; and (ii) Institutional, considering that ministries

and sector agencies had not traditionally played a supporting role to the main Implementing Agency proposed under the Project. In addition to inter-institutional coordination, some of the key agencies could not adequately transfer technical capacity to the regional government.

36. Although mitigation measures included in the Project design were carried out, such as financing of the necessary fiduciary and technical expertise to meet implementation demands along with intensive Bank supervision, agreed implementation responsibilities between agencies were not fully met. In addition, the political relationship between the region and the central government became difficult at times during implementation. Under these circumstances, and with the weak leadership from GRACCN, the Project Coordination Committee was for the most part ineffective.

2.2 Implementation

37. Despite Government's efforts and Bank intensive support, the Project suffered several difficult periods reflected in implementation ratings of moderately unsatisfactory to highly unsatisfactory when the Project reached its most critical point. On the one hand, **several factors helped implementation positively**:

38. *Government-Bank partnership for the Caribbean Region's Development*. The Government and the Bank built a partnership, which has ensured continuous technical and financial support and close collaboration following the FY08-F12 CPS. The Project represented a key mechanism to work together to improve implementation capacity in the Region, and to address project implementation issues, even though this effort was not always as successful due to the factors discussed below.

39. *Engagement of territorial and communal authorities and application of traditional decision making processes*. Despite being an emergency operation, the Project was designed taking well into account the culture and traditions of the beneficiary communities. Eligibility criteria for beneficiaries of the different activities were established in consultation with traditional authorities and community representatives. These were important factors that helped in project implementation, even more when the project suffered delays or faced a difficult situation.

40. *Provision of additional expertise through grant funding*. GRACCN benefited from the provision of specialized technical assistance for fiduciary capacity strengthening financed by trust funds. In 2009 the Public Sector Technical Assistance Project (MDTF-PSTAC, P078891) provided US$160,000 to improve quality, transparency and effectiveness of public administration of GRACCN. In addition, the Strengthening Institutional Capacity of GRACCN Project (P144415), an Institutional Development Fund (IDF) grant of US$600,000 (expected to conclude in July 2016) was granted in 2013 to improve GRACCN organizational structure, governance, planning, financial management, human resource management, procurement, and monitoring and evaluation capacities.

41. **On the other hand, several factors – some outside of and some within the control of the GoN and SE-SINAPRED and GRACCN – adversely affected the Project:**

42. *Dynamic socio-political context*. The project suffered delays and related performance issues due to the regional and municipal electoral cycles and the evolving relationship between the central and regional governments. Two regional elections and one municipal election took place during the Project's life, and some of these resulted in public demonstrations and regional government shutdowns. Moreover, often misleading allegations, reflecting in part weaknesses in the communication strategy, were raised against the Project during the political cycles. Such allegations distracted attention from actual implementation issues. Support to GRACCN by the central government also varied during political cycles, and was particularly limited during the last regional election period of 2013-2014. After a new regional government came into office in May 2014, further delays were experienced due to the government transition and brief civil unrest given initial disagreements of the local population with the election results.

43. *Challenging implementation context*. The Project faced several implementation challenges due to: (a) the remoteness and widespread location of most of the beneficiary communities, many of which could only be accessed by boat; (b) variable seasonal and limited window for construction activities; and (c) very limited regional market regarding suppliers and civil work contractors. More critically, several decisions made dealing with these challenges more difficult. First, and reflecting the high fiduciary risk rating given to the Project, it was initially decided to limit the flexibility usually afforded to emergency operations. Accordingly, among other measures, it was required from SE-SINAPRED and GRACCN to prepare a common and coordinated Procurement Plan; and that all procurement processes should have the previous no objection of the Bank, regardless of its type or estimated amount, while consolidating processes into bidding packages that were often too big for the regional or even the national market. These measures, in turn, resulted in work overload for the Bank team while slowing down procurement activities. In many cases it was necessary to carry out a process several times until finding qualified or interested suppliers or contractors. In contrast, the case of the procurement of timber for housing rehabilitation through local community cooperatives represents an example of how solutions could be found[8] – even if after a protracted internal discussion – that would respond to the project and regional context in a more practical yet still adequate manner from a fiduciary perspective. Certainly, the situation improved over the years as the Bank team learned to strike a better balance between ensuring due diligence of a high risk operation and an implementation pace consistent with the Project's emergency nature.

[8] The original plan was to package all the procurement of timber under one international bidding process. Given the post-disaster situation, and the amount of usable wood left on the ground by the hurricane, regional authorities and communities opposed this proposal. By agreeing that the local cooperatives could supply the timber to the Project through shopping processes, the communities benefitted economically while also allowing the use of local materials closer to the construction sites.

44. *Difficulty in building and keeping project implementation capacity.* Due to the issues noted before, GRACCN and SE-SINAPRED suffered from weak implementation capacity, and had difficulty in keeping an adequate capacity throughout the Project's life. Maintaining fiduciary capacity was a challenge, which affected contract management, documentation of expenditures, budget planning and other key administrative issues. First, GRACCN experienced weak internal collaboration across the technical and fiduciary departments with Project implementation responsibilities. Second, GRACCN, and to some extent SE-SINAPRED, suffered from high turnover of staff and consultants, especially after elections. Eventually, to improve project implementation, an agreement was reached to establish a specialized Implementing Team in GRACCN, including technical and fiduciary consultants from Nicaragua's Pacific Region. However, this measure was only partially successful given that the expert team did not manage to integrate itself fully with GRACCN staff working in the project, as evidenced by conflict and lack of collaboration. Moreover, due to their work load, these experts did not have sufficient time to transfer their expertise and knowledge to local staff. Finally, the expected additional technical assistance was provided a bit late in May 2014, when most of the AF funds had been cancelled and the Project was already in its final closing phase. To have had a meaningful impact, the technical assistance should have been provided sooner.

45. *Poor inter-institutional coordination and collaboration.* The Project represented for GRACCN a first major leading effort, which several central agencies were supposed to support. Although these central agencies signed co-execution agreements with GRACCN, their support throughout the project was generally uneven and inadequate. To some extent, this was due to weak GRACCN project leadership, which also affected the effectiveness of the Project Coordination Committee. Moreover, central agencies were not used to this type of arrangement and were slow in learning to collaborate with the regional government. As a result, coordination gaps at all levels jeopardized the implementation of Project activities and the sustainability of some of its outcomes.

46. *Weak ownership and management of the revolving fund.* The launching of the revolving fund suffered delays when the Government eliminated FCR, the financial institution originally designated as the fund's administrator, and established BP as the new development bank for the country. This change, that affected several Bank-financed operations in Nicaragua, required a long restructuring process including a technical, legal, and fiduciary analysis that assessed the viability of BP for handling Bank-funded lines of credit and the required transfer of assets from FCR to BP, as well as a reconfirmation of compliance with OP 8.30 (Financial Intermediary Lending). Delays in finalizing the technical specifications and the need to repeat the bidding process twice delayed the procuring of the boats that would be provided to eligible beneficiaries through the fund. More fundamentally, the establishment and implementation of the revolving fund suffered from weak ownership by GRACCN, and poor collaboration from BP, the new fund's administrator, and INPESCA, the specialized technical agency expected to provide technical expertise. Despite repeated commitments, neither BP nor INPESCA adequately supported GRACCN in the implementation of the revolving fund as evidenced by the delays in providing technical advice for the boats and poor administration of the credit

portfolio. In spite of having beneficiaries screened and qualified technically and financially to receive credits for boats and fishing equipment, there were processing delays, including the submission of the boats' import documents, in completing the legal transfer of the boats to BP; and delays in deciding on the insurance required for the boats. Lack of GRACCN-BP collaboration has resulted recently in low credit recovery rates that pose a serious threat to the Fund's sustainability.

47. *Lack of internal coordination of Bank team*. Despite intensive supervision and additional technical assistance, the Project remained in a critical situation in its final years. In the final stages of the Project, different views were expressed to the Government by the Bank team that led to confusion on the part of GoN and GRACCN. It is likely that a quicker convergence of views, as was eventually done, would have helped more effectively project implementation.

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

48. **M&E design**. Overall M&E was rated at Project closing as Moderately Satisfactory. Emergency projects mostly focus on reconstruction and rehabilitation, thus their main results tend to be cost-efficient outputs. In contrast, the Project's results matrix introduced socio-economic variables reflected in outcome indicators related to income and fish production increases and social accountability mechanisms to measure beneficiary satisfaction with project activities. M&E was also mainstreamed into all project components at three levels: (a) contract monitoring, (b) implementation progress, and less successfully (c) project impact. Moreover, with Bank technical assistance, an M&E strategy was prepared for the Project, including key instruments such as surveys, and the program for a database of beneficiaries designed.

49. **M&E implementation and utilization**. M&E was carried out through the evaluation of results against pre-established indicators according to the operations manual, and periodic monitoring was used to adjust activities, budget and procurement plans. Nevertheless, M&E implementation and utilization was limited at times due to institutional capacity weaknesses and technological problems (such as lack of hardware and continuous power outages). Specifically, the establishment and maintenance of a beneficiaries' database was severely affected by the lack of updated and accessible information, which in turn hindered the completion of the final project impact assessments. GRACCN hired an independent consultancy firm to help prepare a final project evaluation, which, in spite of some limitations, served as an important input for this ICR.

2.4 Safeguard and Fiduciary Compliance

50. **Safeguards Compliance**. The Project was given a B category, which required the preparation of an environmental analysis and environmental management plan. The safeguards triggered included: Environmental Assessment (OP/BP 4.01), Natural Habitats (OP/BP 4.04), Indigenous Peoples (OP/BP 4.10), and Physical Cultural Resources (OP/BP 4.11). Given the flexibility of OP 8.00, the EA and EMP, as well as

the social assessment, were expected to be finalized six months after Credit effectiveness. Although these documents were completed more than 18 months after effectiveness due to delays in contracting the required consultancy firms, no negative environmental impacts occurred due to close project supervision and the slow pace of implementation of civil works. Based on the needs assessment (and eventually the EMP), the type of works considered fell under the environmental classification Category B.

51. *Environmental Safeguards*. At project closing, compliance with environmental safeguards was rated Satisfactory (S). The Environmental Assessment and Management Plan (EMP) was completed following broad-based consultations and was duly published. In compliance with the national environmental law, the Project obtained an Environmental Certification (License). The Natural Resources and Environment Secretariat (SERENA), as the regional environmental authority, followed-up and monitored compliance with the EMP.

52. *Social Safeguards*. At Project closing, social safeguard ratings were rated Satisfactory (S). As required, a Social Assessment was completed and published following broad-based consultations. Considering that the region is predominantly multi-cultural and multi-ethnic with a majority of indigenous population, the project was designed and implemented in a manner consistent with OP 4.10. GRACCN and SE-SINAPRED consulted widely with beneficiaries and their representatives, and beneficiaries' concerns were integrated in project activities to improve their social relevance, equity and sustainability. A Communication Strategy complemented this approach, including for a while weekly broadcasts detailing project activities on popular local radio stations where potential beneficiaries were encouraged to provide feedback and voice their concerns. Special attention was also paid to social inclusion and gender equity. As originally assessed, reflecting the fact that all land in the beneficiary communities is collectively owned, no resettlement issues emerged when making final decisions regarding reconstruction and rehabilitation activities especially since these decisions, when needed, where taken following traditional practices.

53. At the end of Project implementation, communities were not informed properly about the decision made by the GoN to cancel project funds for some of the social infrastructure works. This resulted in a downgrading of the IP safeguard policy to Moderately Unsatisfactory. This issue was addressed through a special communication plan conducted by GRACCN whereby communities were informed about the Government's decision and the official commitment to continue the construction of social infrastructure with other funds.

54. **Fiduciary Compliance**. Fiduciary performance was weak despite an increase in MHCP's technical support to GRACCN during the last months of implementation and Bank's close monitoring and support.

55. *Financial Management*. At Project closing, financial management under the Project was rated as Unsatisfactory, considering substantial shortcomings that jeopardized GRACCN's capacity to provide timely and reliable information required to

manage and monitor project implementation. Moreover, resolution of many pending FM issues was uncertain, particularly those related to reconciliation of accounts, ineligible expenses, lack of supporting documentation and accounting deficiencies. Performance was affected by high turnover of financial staff in both GRACCN and SE-SINAPRED throughout most of the Project's life, coupled with weaknesses in internal control systems, poor coordination between GRACCN's technical and fiduciary areas, lack of reliable financial information reflecting weak capacity to register, monitor and reconcile funds, deficiencies of supporting documentation of certain expenses, and also delays in payments to providers. In addition, GRACCN offices suffered from constant power blackouts and technical limitations of the IT system. As a result, the Project suffered from overdue IFRs repeatedly. All of these shortcomings affected project implementation and created uncertainty on the proper use of Credit and AF grant funds.

56. More critically, the Project suffered from overdue audits and uneven follow up to audit recommendations. Some audit reports presented a disclaimer or qualified opinion mainly due to limitation on scope because of substantial uncertainties found in the Project's financial statements and deficiencies in support documentation. This situation has resulted in the identification of potential ineligible expenses totaling approximately US$ 1,300,000 (Audits 2010, 2011, 2012, and 2013). The final determination of ineligible expenses will be done once the results of the closing audit are available.

57. The delays on the submission of the external audits posed a financial management challenge with serious implications affecting the Country's portfolio. Bank close supervision was conducted to address these issues and many action plans agreed with GRACCN were partially met. In the final implementation period, financial staff from MHCP helped GRACCN in compiling the documentation required for supervision and external audits.

58. *Procurement*. The management of procurement processes at project closing was rated Moderate Unsatisfactory, due principally to lack of capacity in contract management. The ex-post Procurement Review Reports and the aide memoires of different supervision missions included recommendations that helped improve the management of procurement processes, especially in: (i) procurement planning, (ii) preparation of bidding documents, and (iii) evaluation practices. Although the Procurement Unit in GRACCN received substantial training and support from the Bank, it could not maintain adequate capacity throughout project implementation.

2.5 Post-completion Operation/Next Phase

59. Due to the Project's emergency recovery nature, no follow-up operation was planned. Since several churches, community centers, and small health centers were left unfinished, the GoN has committed to allocate funding to complete them. At Project closing, updating of the designs for these social infrastructure works was completed but no budget has yet been allocated. With respect to operation and maintenance (O&M), the churches and community centers that were finalized were formally transferred to traditional territorial and communal authorities. Religious authorities in the community

that benefited from the construction of churches confirmed their commitment to ensure their maintenance with support from community members. At the same time, people who benefitted from the community centers have organized maintenance committees led by their traditional authorities. Finally, GRACCN informed the Bank about the plan to of balance the Revolving Fund debt portfolio through a debt recovery strategy, bringing it to sustainable levels that would allow an improved operation with a potential to increase the beneficiary base.

3. Assessment of Outcomes

3.1 Relevance of Objectives, Design and Implementation

60. The **Project Development Objective** (PDO) remains relevant and is consistent with the current Country Partnership Strategy (FY2013-2017) and National Human Development Plan (2012-2026). Communities in the region remain poor and vulnerable to disasters, while the Government continues its support for RACCN's sustainable development. While progress has been achieved, several challenges remain to be addressed for enhancing Project impact and ensuring sustainability of results (see Section 2.2).

61. **Project design** is consistent with the PDO, but its current relevance is considered modest given that design weaknesses make its applicability unadvisable in any new emergency recovery operation in the country. Specifically, the Project's implementation strategy and arrangements, as well as the overambitious design of the fisheries and institutional strengthening components, would have a very modest relevance for promoting sustainable emergency recovery. On the other hand, some aspects of Project design remain relevant, including the focus on building back better while ensuring that the culture and traditions of the affected communities are taken into consideration in the design of housing and social infrastructure, and in general in all project activities.

62. **Project implementation** allowed the Project to remain relevant, even if in an overall modest level. Project design was flexible, allowing for adjustments regarding institutional strengthening and engagement of local communities in the decision-making process. These adjustments include, for example, the establishment of a specialized implementation team and the preparation of a communication and community engagement strategy. Moreover, for the first time, a sustained effort was carried out to improve GRACCN's governance, planning, financial management, human resource management, procurement, and monitoring and evaluation capacities. Despite the serious challenges faced at the coordination level, and high rotation of personnel that jeopardized the sustainability of Project activities, GRACCN and other regional agencies are overall better prepared, or at least have to some extent learned to implement externally funded projects.

3.2 Achievement of Project Development Objectives

63. The PDO was not fully achieved, although some activities were completed with some level of success. The achievement of the PDO, which was to support the sustainable recovery of the communities affected by Hurricane Felix in RACCN, can be analyzed through three main outcomes:

Ensuring timely restoration of basic social and economic life in the affected communities through implementation of early rehabilitation and recovery activities (Partially Achieved)

64. The Project contributed to the restoration of basic social and economic life in the affected communities, but implementation delays limited the achievement of some results and reduced the impact of early rehabilitation and recovery activities. This situation is evidenced by:

- *The immediate emergency recovery activities (under Component 1) benefited more than 4,200 families (which surpassed the Project's target) through rehabilitation of roofs*, but such rehabilitation was completed after substantial delays that kept many families living in difficult conditions for a prolonged period after the disaster.

- *Inputs and seeds were distributed along with technical assistance that helped rehabilitate 1,000 family gardens and small farms*, meeting the Project's target. Moreover, these inputs and seeds were distributed on time for the planting season, thus helping promote food security and likely, albeit in a limited scale, the overall local agriculture sector.

- Finally, *SINAPRED distributed materials financed by the Project directly related to Hurricane Felix's relief and early disaster rehabilitation efforts*, which helped communities cope with the initial aftermath of the hurricane. Surveys indicate that beneficiaries considered this initial support satisfactory.

Rehabilitating and improving the productive capacity and sustainability of the small-scale fishery sector – the primary source of income of the affected coastal communities (Partially Achieved)

65. The Project helped, although in a more limited way than originally expected, rehabilitate the productive capacity and sustainability of the small-scale fisheries. This is evident through some key results such as:

- *Income of fishermen and women participating in the Project was to some extent restored or improved*. Project Evaluation results showed improvements in the livelihoods of the revolving fund's beneficiaries. According to a December 2014

survey, income of *pikineras*[9] and fisher folk compared to baseline income estimated before the Hurricane increased by 19.6 percent (very close to the Project's target of 20 percent for this indicator).[10] However, previous surveys show that income varies due to the fisheries sector's cyclical nature, market prices, and limited access to credit.

- *A 15 percent increase in sustainable fish production was estimated through the 2014 final survey of the revolving fund's beneficiaries, which indicates that the Project's target for this indicator was met.* This figure is similar to INPESCA's estimates for Nicaragua's North Caribbean Region during the same period. Although this result shows the achievement of the revised target, it should be noted that its impact is limited given significant reductions in the final number of boats provided under the Project and other changes to the fisheries component – including the decision of not rehabilitating the fish processing plant and shipyard due to the economic unfeasibility of the investment. On the other hand, specific training in first aid, survival in open sea, basic navigation skills, fishing techniques, on-board fish handling, and boat maintenance was provided to 160 fisher folk.

- *Women benefited from boats and fishing equipment and supplies under the Project, albeit not at the level expected*. In spite of the partial achievement of this indicator (which was expected to be in general 40 percent), women in the region received outboard motors (24 percent of total), fishing supplies (30 percent of total) and lobster traps or *nasas* (18 percent of total). In addition, a specific microcredit line was established under the Revolving Fund to support the economic activities of *pikineras*. Moreover, 108 *pikineras* received training in business administration, marketing, and seafood conservation and processing.

- Finally, *the establishment of the revolving fund, seen as a key mechanism for the recovery of the small fisheries sector, suffered delays and faces sustainability issues*. As a direct result of the revolving fund, a total of 108 *pikineras* benefited from seed capital and 30 fisher folk, including women, were beneficiaries of in-kind credit (boats and fishing equipment). Overall, however, Project results were limited by the lack of adequate management of the Revolving Fund, as evidenced by delays in delivering boats to beneficiaries in satisfactory operational conditions, and in providing technical assistance for boat engine operation and maintenance, coupled with weak debt portfolio administration leading to poor recovery rates. Under these circumstances, the Government decided to cancel more than 60 percent of the resources allocated for the revolving fund in its request for partial cancellation of Credit funds of December 2013.

[9] *Pikineras* are women who work in the region buying and trading lobsters from the divers, among other economic activities related to the fisheries sector.
[10] The baseline was established based on the 2010 FAO assessment of Nicaragua's small-scale fisheries sector socio-economic indicators referenced in the Government's Project Final Evaluation.

Supporting the reconstruction of housing and social infrastructure such as community centers, community churches, and small health clinics (Not achieved)

66. The Project had very limited results related to reconstruction of housing and social infrastructure. This is evident through the following:

- *At least 5,000 families were living in houses rehabilitated or reconstructed to safer standards under the Project*. The target set for this indicator was surpassed by 27 percent, although with substantial delays. Specifically, 3,985 roofs were rehabilitated and 215 new houses were built, for a total conservative estimate of at least 5,000 families benefited through the Project (assuming 1.6 families per house). On a positive note, beneficiaries of selected affected communities participated in the construction of their own houses, and thus received training in building techniques, safety, and risk mitigation.

- *Only 10 communities of the planned 40 communities, were given access to safer buildings for emergency shelter through the Project*. The limited achievement of this indicator reflects the lack of completion of social infrastructure works. In the end, only 4 social infrastructure works out of 21 planned were completed, benefiting only 10 communities. A total of 5 works were cancelled and 12 works remained unfinished by the Project's closing date. In addition, four of these unfinished works will have to be demolished and re-started due to technical deficiencies. The GoN informed that additional funding from other sources would be available to carry out the pending construction.

3.3 Efficiency

67. Overall economic efficiency is considered low. Since the Project was prepared under OP/BP 8.0, an economic analysis was not required at appraisal. In any case, economic analyses of the Project were not feasible until studies for key investments had been completed.[11] However, a cost/benefit analysis, detailed in Annex 3, was conducted for the final Project evaluation. The flow of benefits was estimated as (i) the avoided damage cost, meaning the costs of damages that are now prevented by the works completed under the Project, and (ii) social resilience activities from the various subcomponents, as well as other collateral benefits derived from them.

68. The results obtained as outputs from the model designed show that all the subcomponents analyzed have positive NPV values, although modest in quantity. The Revolving Fund and the four partially built social facilities had negative values and no IRR results. Although the analysis did not calculate an overall IRR (given that some

[11] For the fish processing plant, shipyard and community store, a legal covenant was included in the Financing Agreement that established that financing for these investments would only be provided if their economic feasibility was confirmed through a sound analysis. Since such feasibility was not confirmed, these investments were cancelled from the Project.

social infrastructure works were not concluded), an IRR of 34.54% was obtained when only considering those subcomponents with positive results

69. In addition, Project delays and initial technical deficiencies in some of the works likely impacted final costs and adversely affected efficiency.[12] In particular, it should be considered that none of the unfinished works are providing benefits to the communities. Moreover, four of these unfinished works will have to be demolished and work restarted. Critically, if the construction of the remaining 8 works is not restarted soon, their exposed structures will deteriorate to the point that they will also have to be demolished. Finally, specific results from the ex post economic analysis for the revolving fund, under current circumstances, are negative.

3.4 Justification of Overall Outcome Rating

Rating: Unsatisfactory

70. As detailed above, the PDO remains relevant but design and implementation's relevance is modest. Overall, the PDO was not achieved. Some key indicators were achieved, although several of them with a high sustainability risk. Shortcomings mostly in project management and institutional coordination jeopardized Project implementation and prevented the construction of safer social infrastructure doubling as emergency shelter. In addition, construction delays requiring closing date extensions, paired with weak ownership and management of the revolving fund (with low credit recovery rates and hence low sustainability) contribute to a low economic efficiency. Thus, overall outcome rating is considered Unsatisfactory.

3.5 Overarching Themes, Other Outcomes and Impacts

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

71. Damage and loss assessments indicate that disasters tend to affect the poor disproportionately due to their social and physical vulnerability. Consequently, post-disaster recovery time and costs for the poor also tend to be relatively higher than for the better off. In this respect, although not expressly considered in the PDO, the Project had an impact by helping to increase the resilience of poor communities in highly vulnerable targeted areas of one of the poorest regions in Nicaragua, thus providing the difficult-to-estimate benefit of avoiding increased poverty levels after disasters. The Project also helped strengthening the social capital of these communities by supporting participatory decision-making processes of reconstruction works. This social capital is also reflected in communities' engagement in the activities to restore, and potentially improve, their socioeconomic conditions after the disaster. More broadly, Project implementation facilitated the recognition by the national government of regional governments and indigenous communities as viable partners for disaster risk management.

[12] For example, the square meter of wooden houses cost 25 percent more than originally estimated. In the case of churches and community centers, the square meter cost approximately twice as much as originally estimated.

72. Gender equity was mainstreamed into Project design by promoting women's participation and access to information, targeting women under certain activities, and collecting key gender disaggregated data for M&E. According to interviews in selected communities, female beneficiaries were generally satisfied with their engagement in project activities. This is an important result since women tend to have more limited literacy levels and time availability to participate in meetings due to socially and culturally assigned gender roles. Women also benefited directly from credits and training. A total of 55 percent of training beneficiaries were women; in addition, they were recipients of 96 percent of micro-credits, 24 percent of outboard motors, 30 percent of fishing supplies, and 18 percent of improved lobster traps (*nasas*).

(b) Institutional Change/Strengthening

73. GRACCN and other government related project implementation personnel were beneficiaries of capacity building. By Project closing, the staff at GRACCN and former staff currently working in other local government agencies and private sector in Bilwi have strengthened capacity to perform fiduciary responsibilities, planning, and monitoring and evaluation. Moreover, the Project provided a learning mechanism for collaboration between the GoN and GRACCN for training personnel in the use for the first time of national administration information systems,[13] including data management, procurement and management.

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

74. The procurement processes carried out by the Project have supported indirectly the development of a local market for suppliers, construction companies and consulting firms. Compliance of documentation and transparency required by the Bank's procurement guidelines have exposed local bidders to a higher quality level of proposal submissions, which can set a trend for other procurement processes carried out by GRACCN. In addition, the publication of calls for proposals in international sites opened up these processes to more bidders and therefore provided a better base for selection.

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

75. In February 2015, representatives of governmental agencies directly involved with the project implementation were interviewed for firsthand views on the Project's results and impact. During the same month, additional input was sought during a stakeholder workshop involving the Bank, GRACCN and GoN representatives. Please refer to Annex 6 for main findings and commentary.

4. Assessment of Risk to Development Outcome

Rating: High

76. Overall risk for Project Development Outcome is rated high. In addition to the overall disaster vulnerability of the region, difficulties related to enduring capacity

[13] Information management systems: SIGFA, SIGFAPRO, SISCAE, SEPA and Client Connection

weaknesses in GRACCN, social and political factors, and physical conditions and isolation of beneficiary communities, will continue at varying degrees after Project closing. Development outcome faces several ***internal risks***, including:

77. *Institutional coordination*. Limitations on the institutional structure for coordination among national agencies and GRACCN need to be better addressed in order to effectively advance with an adequate implementation of the regional development strategy, both operationally and technically.

78. *Sustaining technical capacities at the local level*. Staff turnover after government changes challenge the effectiveness of the investment in capacity building, inter alia training and updating fiduciary management and risk reduction. This requires keeping up the strategic relevance of recruiting and maintaining qualified technical staff to further strengthen GRACCN's capacity.

79. *Securing adequate funding for DRM*. Fiscal constraints associated with a progressive reduction of international aid funds for emergency recovery and rehabilitation make more urgent the need for developing a risk financing strategy to secure resources to address emergencies, as well as to strengthen DRM investments in the country. In the Caribbean coast, such investments include mitigation works, and establishing of a hydro-meteorological network and of a community-based early warning system.

80. *Completion of Project activities*. At Project closing, several challenges remained to be addressed for enhancing Project impact and ensuring sustainability of results: (a) Continuity of the Revolving Fund, particularly the need to improve the loan recovery rate (currently with delays of 90 days for credits to *pikineras*, and 294 days for boats beneficiaries, placing a serious sustainability risk) by, *inter alia*, increasing BP staff for administration and debt collection in the region, and helping beneficiaries of the credits for boats to repair their defective engines and obtaining spare parts; and (b) prompt completion of unfinished civil works cancelled before Project closing so that their exposed structures do not deteriorate to a point that they are no longer technically sound.

81. There are also several **external risks** related to the country's growing disaster vulnerability and the magnitude of DRM challenges, and the difficult business environment of the region.

82. *Regional disaster vulnerability*. Although SINAPRED has been strengthened with the creation of numerous community-level hazard and risk management organizations, and the identification, prioritization and implementation of various risk mitigation and emergency response activities throughout the country, it is not clear that GRACCN has either benefited from or developed its own disaster response capacity. Environmental degradation and the vulnerability of communities living in high-risk locations could overwhelm the impacts of the Project's mitigation investments.

83. *Business development in an extremely vulnerable region.* Efforts to foster any type of sustainable businesses, including fishing operations, always represents an enormous challenge in places with a myriad of limitations like RACCN. In this environment, any economic endeavor will face high transaction costs, price volatility, lack of skilled labor and other unexpected factors that constitute major impediments in the local economy.

5. Assessment of Bank and Borrower Performance

5.1 Bank Performance

(a) Bank Performance in Ensuring Quality at Entry

Rating: Moderately Unsatisfactory

84. The ICR rating is based on the fact that although Project design responded adequately to the Borrower's objectives, especially the request to make GRACCN the main implementing agency in order to foster regional autonomy, it had shortcomings that were not addressed during preparation. It must be recognized that the Bank provided a quick response by preparing the Project in four months, which limited the ability to carry out in depth institutional and operational analyses. There were also inherent risks due to regional socio-political conditions and the remote and widespread locations of the affected communities. It is positive that Project design reflects the close collaboration between the Bank and the Borrower and the relevance of the Project to both parties. Project design also includes, for the most part, reasonable targets under a context of post-disaster uncertainty. However, project design was overly optimistic with respect to the speed with which SE-SINAPRED would recover its implementation capacity to ensure readiness of GRACCN. The Bank could have helped identify a more effective strategy to ensure quality at entry once it became evident that SE-SINAPRED had lost its capacity to support GRACCN to get ready for project implementation, and that the PPF would not help in ensuring readiness for implementation. Moreover, although the PDO was well focused, some of the specific components' objectives and activities were overly ambitious.

(b) Quality of Supervision

Rating: Moderately Unsatisfactory

85. The Project was intensively supervised, as reflected in the 21 missions that were conducted and the resources allocated.[14] Moreover, supervision was co-located with part of the team following up directly from the Country Office. As such, the ICR rating recognizes that in general supervision missions were timely and solution oriented, that there was a Mid-term Review that resulted in effective decisions and agreements (through Project restructuring), and that several critical issues affecting Project implementation were adequately handled, including by, among other things, bringing in additional expertise through the Bank agreement with FAO and trust fund resources. Procurement and financial management were also well supervised, though fiduciary challenges

[14] It should be noted that not all missions were registered in the Implementation Status and Results Reports (ISRs) since some of them were considered technical or fiduciary follow up missions.

remained throughout implementation. Safeguards supervision was also adequately conducted and no negative social or environmental impacts were identified as a result of Project activities. The Bank should have, however, followed up closer on the weak inter-institutional coordination and the sustainability of the revolving fund, as well as ensuring sooner the internal coordination of the Bank's advice during one of the most critical periods of the project.

(c) Justification of Rating for Overall Bank Performance

Rating: Moderate Unsatisfactory

86. Bank performance is rated as *moderately unsatisfactory* considering that ratings for quality at entry and supervision are both considered to be *moderately unsatisfactory.* There were shortcomings supervising the Project implementation and securing implementing agencies' performance that prevented the achievement of better outcomes, even though some key indicators were achieved.

5.2 Borrower Performance

(a) Government Performance

Rating: Moderately Satisfactory

87. The ICR rating recognizes the priority given by the Government to the Project in light of the socio-economic conditions of the region and communities affected by the hurricane. It also recognizes the objective of promoting regional autonomy and participation of the affected communities. Despite the Government's commitment to PDO achievement, however, its performance had some shortcomings considering the uneven support provided to GRACCN, especially at critical times and despite commitments included in signed Aide Memoirs. Given the unconsolidated institutional framework for emergency activities at the regional level and the inter-sectoral nature of the Project, coordination and implementation issues were bound to arise, but more effort from the central level should have been made to address these. Although the priority given to the Project by the Government facilitated resolution of some critical constraints, delays due to limited implementation capacity and personnel changes jeopardized outcomes.

(b) Implementing Agency or Agencies Performance

Rating: Unsatisfactory

88. The overall *unsatisfactory* rating considers the different performance levels of the two agencies that were responsible for project implementation, namely, SE-SINAPRED and GRACCN. The specific performances of each implementation agency are discussed below.

89. SE-SINAPRED performance is rated as *moderately unsatisfactory*. After initial delays, SE-SINAPRED performance faced continued shortcomings, including: (a) inadequate attention to implementation issues that led to delays of some key activities needed for immediate emergency recovery of the affected communities, which resulted in a protracted completion of Component 1 of more than two years; and (b) weak inter-institutional coordination with GRACCN.

90. GRACCN performance is rated as *unsatisfactory*. Despite the commitment of the Regional Government throughout implementation, uneven performance levels of the various components under its responsibility jeopardized Project outcomes. In the initial stage (up to one year after the effectiveness) GRACCN did not perform as expected in part due to complex institutional arrangements that led to a lack of Project leadership and slow decision making. In the intermediate phase of the Project (from 2011 to 2012 Project restructuring), with a greater stability in terms of personnel turnover and renewed commitment from the GoN, the project experienced an improvement of its implementation pace and performance. Nevertheless, management and institutional coordination shortcomings prevented the timely delivery of outputs and completion of activities according to the original implementation plan. In its final phase, a series of restructurings were needed to extend the Project closing date and meet some legal commitments under the Financing Agreement. In the end, all these efforts did not ensure the delivery of several social infrastructure works to affected communities and the sustainability of the Revolving Fund.

(c) Justification of Rating for Overall Borrower Performance

Rating: Unsatisfactory

91. Borrower performance is rated as unsatisfactory considering a combination of the ratings of moderately satisfactory for Government performance and unsatisfactory for implementing agencies. There were shortcomings in implementing agencies' performance that were not fully overcome, even though some of the Project outcomes were achieved.

6. Lessons Learned

92. **The design of emergency recovery operations should be relatively simple, flexible, and focused on sustainable activities directly related to the recovery, while also reflecting the priorities of the affected communities**. The recovery program for RACCN reflected the regional priorities and was developed with broad consultation of the communities, including women, elderly and other vulnerable groups. Nevertheless, Project experience shows that considering longer-term development goals beyond the emergency recovery needs, even if justifiably prioritized by the government and affected communities, can make Project design more complex and implementation more challenging. While in high capacity contexts emergency operations may include rebuilding medium-term productive capacity, in low capacity contexts such as the North Caribbean Coast of Nicaragua emergency operations should focus on emergency recovery needs. Therefore, a thorough analysis of implementation capacity, prioritization of recovery activities, and setting of realistic emergency recovery goals are of outmost importance to effectively restore livelihoods in a sustainable manner.

93. **Implementation arrangements for emergency operations should be straightforward and pragmatic, even if attempting to be responsive to national decentralization efforts and special geopolitical conditions**. Certainly, the Project provided a unique opportunity for the regional government to take the lead in the

recovery process, while also strengthening its capacity for implementing future projects and taking charge of development efforts. Nevertheless, while the involvement of the relevant sub-national government is necessary, in an emergency recovery operation it is important to secure the participation of an experienced implementing agency that can effectively lead overall implementation, minimizing risks of weak management and implementation delays due to poor technical and operational capacity. An emergency operation is not the most adequate instrument for larger institutional development objectives, as evidenced by the effects of the Project's implementation arrangements. On the other hand, it is very important to provide through project design and implementation the right mechanisms and incentives for involvement of the local authorities and population of the affected areas. It is also advisable to address implementation capacity weaknesses through practical options such as short-term secondment of experienced staff from well-performing project implementation units and well-focused provision of specialized external expertise (through consultants or government staff).

94. **In countries or areas prone to disasters, emergency recovery operations should strive to mainstream disaster mitigation in a socially and culturally responsive manner**. The Project focused on rebuilding safer communities, with houses and buildings rehabilitated or reconstructed with improved construction standards that considered disaster risk mitigation and traditional designs and social organization. Accordingly, an emergency project can be a vehicle to apply lessons learned on promoting resilience to disasters, and preparedness and risk mitigation through non-structural measures such as evacuation plans, shelter planning, etc. Moreover, Project design should take into account livelihood patterns and the needs of widows and single female-headed households in activities such as housing reconstruction requiring direct labor contribution of beneficiaries.

95. **In emergency operations monitoring and evaluation are key to ensure the achievement of goals set in the recovery plan**. Project design adequately considered socio-economic variables as part of the key outcome indicators, complementing the focus on reconstruction and rehabilitation indicators typically used in emergency operations. The introduction of socio-economic variables is key for a comprehensive recovery, however this requires an additional effort and resources to ensure that related activities are fully completed and evaluated. While this effort under the Project represented an opportunity to address development issues through the restoration of livelihoods in a more inclusive way, basic challenges of monitoring and evaluating social and economic outcomes remained. Lack of reliable information to establish baselines (given that previous historical data was not available) coupled with a lack of proper survey design and database administration and updating proved to be challenges that overwhelmed the Project implementation team. Future emergency operations should not only ensure monitoring and evaluation guidelines and training for the implementing agency, but should also focus on mainstreaming M&E into the day-to-day project administration, particularly when socio-economic outcomes are part of the results matrix.

96. **Technical criteria should guide the establishment and operation of financial mechanisms for reactivation of economic activity**. While the establishment of a

revolving fund for restoring and improving the economic conditions in the small-scale fisheries sector seems appropriate initially, given the local socio-economic conditions, its implementation proved to be of a high complexity. In light of the Project's revolving fund's administration problems, key considerations to be taken into account in future operations include: (i) provide incentives and mechanisms to promote a credit culture in the target area (in RACCN, for example, few beneficiaries understand that a loan entails legal obligations and is not a government handout); (ii) establish clear and expeditious processing of in-kind credits (in the case of the Project, purchase and delivery of capital goods, such as boats, became entangled in protracted bureaucratic processes); and (iii) set up an efficient collection system that facilitates payment by minimizing the distance that beneficiaries should travel to honor their credit, along with a mechanism to sanction delinquent beneficiaries (under the Project, beneficiaries needed to go to the only regional branch of BP, often having to travel long distances even by boat). In brief, establishment of a credit line or revolving fund should be conducted through a consolidated financial institution with a track record of providing sustainable micro-finance services and knowledge of the target beneficiaries / clients. On the other hand, as experience from other emergency operations indicate, provision of grants for fisher folk could have provided faster results and more sustainable impacts, although it may not be directly compatible with the medium-term goal of establishing a sustainable mechanism to provide funds to an often overlooked sector such as the small scale fisheries sector.

97. **Reactivation of small-scale fisheries and related commercial activities does not finish when in-kind/financial credits are provided to the beneficiaries**. GRACCN conducted broad-based consultations with fisher folk to determine the characteristics of fishing gear and boats that later were validated by the National Fisheries Agency (INPESCA), in order to secure the best technically and culturally sound solution for the beneficiaries. However, in spite of a promising start, impact of the activity was jeopardized by delays in the procurement and delivery of fishing equipment, particularly boats, along with the lack of insurance and engine spare parts in the local market for the boats. Moreover, lower education levels, constraints to adaptation to new technologies and lack of proper training for the use of new boat engines resulted in a great number of vessels with broken motors unable to operate. On the financial credit provided to women, the lack of follow up to beneficiaries led in some cases to the use of loan funds in unprofitable, high-risk or miscalculated investments setting back some of the gains obtained by the affected beneficiaries. Overall, the absence of a close follow up and continuous assessments to identify corrective measures adversely affected sustainability. Similar future operations should thus consider these elements as part of a comprehensive strategy.

98. **It is important that both the Government and the Bank continue to learn from project design and implementation in the Caribbean region, given its particular socio-economic and political context and development challenges.** It is advisable to carry out a review of projects that had components or were fully aimed at the Caribbean region, in order to consolidate knowledge and lessons learned. Addressing the dual challenge of building institutional capacity at the regional and territorial level, while

ensuring smooth implementation of projects and programs, will benefit from such a review.

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

(a) Borrower/implementing agencies

99. The Borrower and implementing agencies confirmed their overall agreement with the ICR. However, the Borrower noted that the ICR should reconsider the assessment of the central government and in particular MHCP (as representative of the Borrower) in paragraphs 36, 44 and 45.[15] Upon careful consideration, where possible, Government comments have been taken into account and language adjusted accordingly.

(b) Cofinanciers

n/a

(c) Other partners and stakeholders

n/a

[15] See formal response from Government in Project files.

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
1 – Early recovery	5.00	5.13	102.60
2 – Recovery of small-scale fisheries sector	6.30	1.58	25.08%
3 – Reconstruction of housing and social infrastructure	10.00	6.16	61.60%
4 – Instit. strengthening for project management, coordination and M&E	0.70	1.70	242.99%
Total Baseline Cost	0.00	14.57	66.23
Physical Contingencies	0.00	0.00	0.0
Price Contingencies	0.00	0.00	0.0
Total Project Costs	22.00	14.57	66.23
Total Financing Required	22.00	14.57	66.23

(*) PPF financing included in Project costs

Project Cost (by Original Appraisal and Additional Financing Appraisal)

Components	Appraisal (USD millions)		Actual / Latest Estimate (USD millions)	
	Under Original Credit	Under Additional Financing	Under Original Credit	Under Additional Financing
1 – Early recovery	5.0	--	5.13	--
2 – Recovery of small-scale fisheries sector	6.3	--	1.58	--
3 – Reconstruction of housing and social infrastructure	5.4	4.6	6.16	--
4 – Inst. strengthening for project management, coordination and M&E	0.3	0.4	1.39	0.31
Total Financing	**17.0**	**5.0**	**14.26**	**0.31**

(b) Financing

Source of Funds	Type of Cofinancing	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
International Development Association (IDA) - 1	Credit	17.00	14.26	83.90%
International Development Association (IDA) - 2	Grant	5.00	0.31	6.22%
		22.00	14.57	

Annex 2. Outputs by Component

The Project Development Objective (PDO) was to support the sustainable recovery of the communities affected by Hurricane Felix in the North Caribbean Coast Autonomous Region of Nicaragua.

The PDO was to be achieved through (i) ensuring timely restoration of basic social and economic life in the affected communities through implementation of early rehabilitation and recovery activities; (ii) rehabilitating and improving the productive capacity and sustainability of the small-scale fisheries sector – the primary source of income of the affected coastal communities; and (iii) supporting the reconstruction of housing and social infrastructure such as community centers and community churches, and small health clinics.

Table 1 – PDO Outcome Indicators

Indicator	Baseline	Target	Result
Income of fishermen and women participating in the Project is restored or improved.	$200	20%	20%
At least 15% increase in sustainable fish production among beneficiaries of revolving fund.	N/A	15%	15%
At least 40% of beneficiaries receiving boats and fishing equipment and supplies under the Project are women.	0%	40%	30%
At least 3,300 families living in houses rehabilitated or reconstructed to safer standards under the Project.	0	3,300	5,000
At least 40 affected communities given access to safer buildings for emergency shelter through the Project.	0	40	10

Component 1 - Early Recovery

The objective of this component was to ensure timely implementation of critical rehabilitation and recovery activities, as well as readiness of the Government of the North Caribbean Coast Autonomous Region (GRACCN) to start project implementation. This component was financed through the Project Preparation Facility (PPF), and activities under this component that were not completed by the time of Credit effectiveness continued to be implemented by GRACCN.

This component was completed in August 2012, and financed critical rehabilitation and recovery activities such as provision of early reconstruction materials, housing rehabilitation for approximately 4,200 families, restoration of family gardens, and fishing gear. The Executive Secretariat of the National System for Disaster Prevention, Mitigation and Response (SE-SINAPRED) was responsible for the implementation of this component in coordination with GRACCN. Key institutions involved in

implementation were Rural and Urban National Housing Institute (INVUR), Ministry of Transport and Infrastructure (MTI), Nicaraguan Institute for the Fisheries Sector (INPESCA), Ministry of Agriculture and Forestry (MAGFOR), and National Forestry Institute (INAFOR). The total cost of activities assigned for this component was US$5.0 million (29.4% of the total budget). Accordingly, the component included the following specific sub-components:

1.1 Provision of Early Reconstruction Materials
1.2 Institutional Strengthening and Rehabilitation

1.1 Provision of Early Reconstruction Materials. This sub-component provided retroactive financing for a total of US$ 2 million on October 31, 2008 to SE-SINAPRED for materials and operating costs directly related to Hurricane Felix's relief and early disaster rehabilitation efforts. These included, inter alia, (i) gas and gasoline (land vehicles and airplanes) used for transportation of materials; and (ii) construction materials used for the rehabilitation of houses and buildings.

1.2 Institutional Strengthening and Rehabilitation. This sub-component provided funding for relief of the most affected families. Activities under this sub-component included:

Institutional strengthening of GRACNN. This activity included (a) financing of capacity building and technical support to the regional government to be ready for project implementation; (b) Project preparation, including carrying out of (i) the social and environmental assessments required for the Project in line with the applicable Bank safeguards, and preparation of related project management manuals such as the Project Implementation Plan (PIP), Environmental Management Plan (EMP), and the Operations Manual; and (ii) workshops to disseminate information (particularly during initial activities) and continue consulting target communities about the Project. .

The Damage and Needs Assessment Report (EDAN) prepared by SINAPRED provided an initial list of beneficiaries, which was validated by communities, through a participatory mechanism that considered social inclusion, gender, and eligibility criterion. Environmental and social assessments required by Bank's safeguard policies were carried out with the support of MAGFOR, INPESCA and INVUR; likewise operation manuals were prepared with the support of SE-SINAPRED.

Support to the Executive Secretariat of SINAPRED for the implementation of the PPF. This activity financed consultants, software, equipment and operational costs that enabled SE-SINAPRED to administer the PPF and help prepare GRACCN for project implementation.

Rehabilitation of housing. The rehabilitation of roofs was carried out with the technical assistance of INVUR and MTI benefiting 4,200 families. Works were carried out by community members and supervised by technical personnel; this approach allowed the development of new skills for construction and maintenance while also creating a temporary source of income. Civil works supervision committees composed by

communities' traditional social structures and local government representatives were established as part of the community participation strategy. Construction guides in local languages (Miskitu and Mayangna) explaining the self-building process with improved design and construction standards were distributed to beneficiary communities.

Early rehabilitation of agriculture sector. GRACCN, assisted by MAGFOR, distributed inputs and seeds and provided technical assistance to help rehabilitate 1,000 family gardens and small farms, thereby also promoting food security. The seeds distributed included traditional crops affected by the disaster such as plantain, yucca, malanga, ayote and quiquisque, among others.

The activities for *early rehabilitation of small-scale fisheries (artisanal)* consisted of providing 50 outboard motors (40 and 25 HP) to 15 women with any activity related to seafood and 35 artisanal low incomes fishermen in order to provide a quick and effective restoration of their working capabilities. The list of beneficiaries was provided by the INPESCA and ratified by the GRAAN.

Table 2 – Component 1 Indicators

Indicator	Baseline	Target	Result
(1.1) At least 2,800 affected families have their roofs rehabilitated under the Project by August 30, 2011	0	2,800	4,200
(1.2) 100% of Component 1 completed by August 30, 2011	0%	100%	100%

Component 2 - Strengthening of Small-Scale Fisheries Sector

The objective of this component was to help restore and improve the socioeconomic conditions of the men and women engaged in the small-scale fisheries sector. This component, implemented by GRACCN with technical support from INPESCA, National Technological Institute (INATEC) and Banco Produzcamos (BP), focused on 19 coastal communities affected by the disaster for which fishing is the main income source. In addition to training and provision of fishing equipment, this component included the establishment of a revolving fund to provide credit to affected fisher folk.

The component is based on a sector-specific recovery strategy prepared by INPESCA in consultation with Rural Credit Fund (FCR), the regional and local governments, and affected communities. The total cost of activities assigned for this component was US$6.3 million (37.0% of the total budget). Accordingly, it included the following sub-components:

2.1 Rehabilitation of Small Scale Fisheries Sector
2.2 Rehabilitation of Fish Processing Plant
2.3 Reconstruction of Small Infrastructure

2.1 Rehabilitation of Small Scale Fisheries Sector. This sub-component aimed to restore, and potentially improve, the incomes of men and women engaged in the small-scale fisheries sector. Activities under this sub-component included:

Establishment of Revolving Fund. The establishment of a revolving fund to continue offering credit to the sector in the future was one of the main objectives of this sub-component. The fund, originally to be administered by FCR, was transferred to the state-owned BP. Beneficiaries organized in cooperatives, community associations, and small family enterprises, had access to credit for buying boats, and working capital to re-start their fishing activities in a more efficient and sustainable way.

Once targets were revised and adjusted based on cost increase and feasibility studies for repayment, 30 small fishing boats (approximately 8.53 meters in length, with diesel-powered engines, ice container, and navigation/communication equipment) were financed. Technical specifications were prepared with the support of INPESCA. The vessels were delivered with fishing equipment and initial operating capital for a total of US$ 1.3 million.

The Revolving Fund had two operational committees, the (i) Coordination Committee, composed by GRACCN, MAGFOR, MINSA, INPESCA, BP, SE-SINAPRED e INVUR, responsible for selection of beneficiaries, and the (ii) Credit Committee, composed by GRACCN, BP, INPESCA and two representatives from eligible beneficiaries (a man and a woman). At Project closing, the Fund had placed US$ 328,125 in loans and recovered US$ 281,754. Overall, US$ 150,000 was allocated to women (*pikineras*) and US$ 245,500 was provided as seed capital to beneficiaries of in-kind credit (boats and fishing equipment). However, the credit portfolio has 161 delinquent loans (32% to fishermen and 68% to *pikineras*) with 24% of them overdue, for a total of US$ 176,317.04.

Technical assistance and training. With support from INPESCA and INATEC, beneficiaries in all 19 coastal communities received technical assistance and training. A total of six workshops were carried out with the participation of 160 fishermen with specific training in first-aid, survival in open sea, basic navigation skills, fishing techniques, on-board fish handling, and boat maintenance. In addition, 108 women (*pikineras*) received training in business administration, marketing, and seafood conservation and processing.

Restoration of fishing equipment and supplies (US$1.76 million). This activity sought to ensure a basic level of rehabilitation through the provision of equipment and supplies (cast nets, seines, thermos, traps, hand lines) to 2,187 women and men belonging to families engaged in artisanal fishing but who were not creditworthy. Potential beneficiaries were initially identified by INPESCA (on the basis of EDAN), with the final list of beneficiaries having been agreed upon by the communities.

2.2 Rehabilitation of Fish Processing Plant and Related Facilities. Under this sub-component, the Project aimed to help restore income generation opportunities for women,

and improve the productivity of the fisheries sector and the local economy. Activities originally planned included civil works to rehabilitate the structures and working areas; restitution of equipment for the Lamlaya Processing Plant, the associated shipyard, and the small community store; and the provision of initial operating capital. However, studies carried out indicated that this activity was not economically feasible, and was therefore cancelled. Funding for this activity was reallocated to the purchase of boats and credit for women (*pikineras*) under the Revolving Fund.

2.3 Reconstruction of Small Infrastructure. Under this sub-component, the Project aimed to help rehabilitate or reconstruct several community landing docks and small piers affected by the disaster, and that are critical to the small scale fisheries sector in RACCN in general and to the 19 most affected coastal communities in particular. The Project also aimed to finance any necessary engineering designs, environmental studies, and technical supervision. However, this activity was cancelled due to delays in implementing procurement processes to contract studies for civil works, which led the communities to seek alternative sources of funding for the works (mainly from the regional government). Planned funds were reallocated to the purchase of boats.

Table 3 – Component 2 Indicators

Indicator	Baseline	Target	Result
(2.1) At least 30 groups with boats and fishing equipment by end of project	0	30	30
(2.2) A sustainable revolving fund established in BP by end of project to continue providing credit to the small-scale fisheries sector	N/A	Satisfactory Assessment of Fund	Fund not sustainable
(2.3) Fish Processing Plant and shipyard operated successfully by end of project – if rehabilitation is confirmed by feasibility study	Dropped	Dropped	Dropped
(2.4) At least 80% (out of 4,000) of direct beneficiaries, and 80% of female beneficiaries, are satisfied with Project activities supporting the small-scale fisheries sector rehabilitation efforts.	0%	80%	60%

Component 3 – Reconstruction of Housing and Social Infrastructure

This component aimed to reestablish the social and economic environment of affected communities by providing safer and culturally responsive housing and social infrastructure, including reconstruction of community centers, churches, and small health clinics that double as shelters. This component was implemented by GRACCN with support from INVUR, technical assistance from FISE and MTI, and in coordination with the local governments. The total cost of activities assigned to this component was US$5.4 million (31.8% of the total budget). It included the following sub-components:

3.1 Reconstruction of Housing

3.2 Reconstruction of Social Infrastructure

3.1 Reconstruction of Housing. Under this sub-component, the Project planned to benefit approximately 3,500 people in selected affected communities through the construction of houses, and training in building techniques, safety, and risk prevention.

During implementation, the original target of 500 wood houses was reduced to 361 houses made of wood and bamboo. Finally, only 262 houses were built (202 wood and 60 bamboo). The reconstruction of houses made of wood was carried out through a self-construction system, contributing to a greater sense of inclusion, identity, and ownership. Competitively selected contractors performed the construction of houses made of bamboo; technical specifications were reviewed by INVUR, agreed with the community, and approved by the GRACCN. The project promoted the use of wood from trees felled by the Hurricane and the introduction of a new sustainable technology for homebuilding with bamboo.

The houses were formally delivered to each representative of the beneficiary families through a legal document certifying property ownership. In addition, this legal document also commits beneficiaries for a period of ten years to not to sell, exchange, donate, pawn, or transfer the house to a different site.

3.2 Reconstruction of Social Infrastructure. This sub-component included the reconstruction of community churches, community centers, and small health clinics. All structures would be built to better standards and with adequate technical supervision. Specifically, and given that local communities use churches and community centers as emergency shelter, the sub-component included the reconstruction of 14 churches, 15 community centers, and 5 small health clinics. However, only 4 social infrastructures (2 community centers and 2 churches) out of the 16 contracted were finished (funded with Cr 4392).

However, disputes related to the siting of some of the civil works within the community, paired with a variable seasonal window for construction activities caused implementation delays. By the time the procurement of civil works started, the cost had almost doubled, which led the Government to request an additional financing in June 2012, reestablishing the original targets for this component.

The unfinished works include 4 small health clinics, 4 community centers, and 4 churches in different selected communities; some of these unfinished works also present serious technical issues.

Table 4 – Component 3 Indicators

Indicator	Baseline	Target	Result
(3.1) At least 60 communities benefiting from small health clinics reconstructed under the Project	Replaced by Core Indicator	--	--
(3.2) At least 25 communities	0	25	10

benefiting from churches and community centers reconstructed under the Project			
(3.3) At least 5 health facilities constructed, renovated and/or equipped	0	5	0
(3.4) At least 80% of target families are satisfied with the rehabilitation and reconstruction activities financed under Component 3	0%	80%	40%

Component 4 – Institutional Strengthening for Project Management, Coordination, and Monitoring and Evaluation,

This component sought to ensure adequate capacity in GRACCN to implement the project, and to lead regional development efforts in general. It aimed to fully integrate project implementation in the organizational structure of the regional government instead of establishing a separate Project Implementation Unit (PIU). The total cost of activities assigned for this component was US$0.3 million (1.8% of the total budget). Nonetheless, after an initial good implementation pace, performance of SE-SINAPRED faced shortcomings due to changes in its personnel and operating structure. This situation in turn affected the support provided to GRACCN and the implementation of activities related to Component 1.

Throughout Project implementation, GRACCN displayed lack of institutional and technical capacity for managing activities under an inter-institutional collaboration setting. A series of factors contributed to delays in Project implementation, including: (i) GRACCN's lack of experience in managing external resources with highly demanding technical requirements, including for fiduciary and administrative management; (ii) GRACCN's lack of leadership among Project institutional partners and stakeholders; and (iii) annual operational plans focused on process management rather than results achievement. This situation led to the establishment of a PIU within GRACCN, setting back the original objective of this component.

The establishment of the PIU sought to facilitate GRACCN's ownership of the Project through improved managerial capacity and the ability to bring to a closure pending activities; it also sought to improve the implementation pace and efficiency. However, the PIU did not have the autonomy to move forward with Project implementation. In addition, high personnel turnover and non-technically oriented decisions impacted negatively in contract management, fiduciary reporting, and overall implementation.

Once the new Regional Government came into office in May 2014, the PIU was dissolved and project activities integrated within the Government structure. However, due to the Credit closing date and to delays in bidding processes, several activities, particularly from Component 3, were dropped. In terms of outcomes, while the Regional Government benefited for a period of time from training and institutional strengthening efforts, it continues to have limited capacity for managing externally funded projects.

Table 5 – Component 4 Indicators

Indicator	Baseline	Target	Result
Regional Government has adequate capacity to prepare and implement externally financed projects (as measured by an independent evaluation) by end of project.	N/A	Yes	Not

Annex 3. Economic Analysis

A. Introduction

A cost/benefit analysis was conducted as part of the final evaluation of the Project. Key aspects were identified under each of the Project`s components that represent economic and financial benefits to the communities, such as rehabilitation of damaged houses or building of new ones, reconstruction of social infrastructure, and restoration of income of fishing communities and other economic activities.

Selected sub-components analyzed include: housing rehabilitation, early rehabilitation of fisheries sector by providing outboard motors and fishing gear and supplies, as well as the rehabilitation of small scale fisheries sector by financing boats, fishing gear and working capital (through the revolving fund), and reconstruction of housing and social infrastructure.

B. Methodology

The flow of benefits was estimated as the avoided damage cost (i.e., the costs of damages that are now preventable by the works completed under the project), and social resilience activities under the various subcomponents. The flow is related to the damages observed before intervention, equivalent to the "without" project scenario, and those expected to be avoided with the rehabilitation and improvement works in the new "with" project scenario.

The specific methodology applied is based on cost/benefit analysis of the investments made in each of the subcomponents, accounting for the number of direct and indirect beneficiaries, damages and repairs done in affected houses, as well as construction of new houses and social infrastructure, the negative effects on the livelihood of fishing villages, and measures to restore social and economic activities and enhance social and economic resilience. See tables 1 and 2 below.

Table 1. Selected Subcomponents for Economical Cost/Benefit Analysis

No.	Name	Number of communities	Type of Work or Activity	Expected Benefits
1.2.c	Rehabilitation of housing	74	Roof repairs	Less maintenance expenses, reduced vulnerability, added value.
1.2.c	Rehabilitation of housing		Carpentry training and employment	Better trained labor force
1.2.e	Early rehabilitation of fisheries sector	23	Outboard motors donation	Reduced social and economic vulnerability, continued employment and earnings.
1.2.e	Early rehabilitation of fisheries sector	25	Fishing supplies donation	Reduced social and economic vulnerability, continued employment and earnings.
2. 1.a	Establishment of Revolving Fund	RACCN	Revolving fund	Reduced social and economic vulnerability, job creation and

No.	Name	Number of communities	Type of Work or Activity	Expected Benefits
				earnings.
2.1.a	Establishment of Revolving Fund	9	Boats loans	Reduced social and economic vulnerability, job creation and earnings.
3.1	Reconstruction of housing	Puerto Cabezas Municipality	Housing construction	Less maintenance expenses, reduced vulnerability, added value
3.2	Reconstruction of social infrastructure	Krukira and Santa Martha	Churches construction	Less maintenance expenses, reduced vulnerability, added value.
3.2	Reconstruction of social infrastructure	Krukira and Sisin	Community centers construction	Less maintenance expenses, public services provision, reduced vulnerability, added value.

Source: World Bank, GRACCN, INVUR, INPESCA.

Table 2. Amount of Beneficiaries by Subcomponent and Directs Costs*

No.	Subcomponent	Direct	Indirect	Subtotals	Cost US$
1	Rehabilitation of Housing	3,984	23,904	27,888	562,381.44
3	Outboard motors	50	350	400	156,750.00
4	Fishing gear	360	1,800	2,160	315,000.00
5	Revolving fund	272	1,360	1,632	1,159,154.73
6	Boats	30	120	150	546,110.39
7	Wood Houses Construction	301	1,806	2,107	1,710,536.00
8	Bamboo Houses Construction	60	360	420	499,884.04
9	Krukira Church	1,800		1,800	199,016.86
10	Krukira Community Center				76,930.71
11	Santa Martha Church				201,430.60
12	Sisin Community Center				82,715.09
13	Pahara Moravian Church				82,218.63
14	Betania Moravian Church				90,418.64
15	Awas Yari Community Center				21,344.38
16	Watla Community Center				21,603.35
	Totals	**6,857**	**29,700**	**34,757**	**5,725,498.87**

Sources: GRAAN, INVUR, INPESCA, Banco Produzcamos, Consultancy work

* No data for direct and indirect beneficiaries was available for the social infrastructure projects, except for the direct ones reported by the pastor at the Krukira Moravian Church

Economic and financial costs and benefits were estimated according to each of the social and economic activities carried out, i.e., equipment donations and revolving fund; and the works and the type of solutions presented in the 3 categories studied: houses, churches, and community centers.

Cost Estimates. Costs related to roof rehabilitation and timber contracts,[16] outboard motors and fishing gear, and donated supplies were provided by GRACCN. Revolving fund investment financial data was provided by GRACCN and Banco Produzcamos.

[16] Timber contracts were made with cooperatives for processed wood.

Finally, costs of reconstruction works, equipment and supplies, feasibility studies and designs, maintenance, and training were provided by the GRACCN and INVUR.

Benefits and Possible Avoided Losses. Estimated benefits, equivalent to damage costs or possible losses avoided by works constructed, varied according to the type of works and expected benefits from rehabilitated and newly built houses, churches and community centers. Also, more benefits are expected from the revolving fund, which adds to the social and economic resilience of the affected communities and beneficiaries, by providing readily available funds, much needed when a disaster occurs.

Tangible and intangible benefits derived from the social and economic impacts of the subcomponents and subprojects included: (a) reduction of damages to private and public buildings, (b) reduction of days public buildings stayed closed due to hurricane and tropical storm damages, (c) maintenance savings and value added, (d) reduction of fatalities and injured people, (e) increase of employment due to less interruptions of the social and economic activities, (f) reduction of social and economic vulnerability by ways of adequate financial response, and (i) reduction of migration as a signal of improvement of the quality of life (Charvériat 2000 revised[17]).

Quantifiable benefits resulting from improved conditions in buildings and houses, and in the fishing and financial industry are provided for items (a), (c), (e), and (f) above, always taking into consideration the "with" and "without" Project scenarios, and the resulting impacts. The remaining items were considered as qualitative information, gathered through personal interviews with administrative personnel from GRACCN, INPESCA and direct beneficiaries.

Benefits from reduction of damages to public and private buildings are indicated by the roof rehabilitation works and construction of new houses and social infrastructure, with their corresponding values added, such as better designs and construction technology (for instance, through the use of metal pieces attached to the roof structure, reinforced roof structures in churches, among others).

These details are expected to allow for the newly constructed public buildings to fare better than the old churches that did not withstand the brunt of Hurricane Felix (for example, the roof blew off from the old Santa Martha church when it was being used as a shelter by the community, according to beneficiaries and church personnel interviewed).

Construction works provided benefits such as less maintenance costs and value added, as new housing and public buildings have improved design and are rendered less vulnerable than the old structures. The amount of carpenters trained and hired for roof rehabilitation was used as an indication of employment increases. These same trained carpenters later kept on working in the target and other communities, according to beneficiaries interviewed, thus creating a long term Project benefit. Another group of carpenters,

[17] Natural Disasters in Latin America and the Caribbean: An Overview of Risk. Céline Charvériat. Inter-American Development Bank, October 2000.

selected from the local labor force, was trained to enhance their construction and maintenance skills to work in the construction of new houses and public buildings, in turn increasing current and future job opportunities. In addition, timber cooperatives mostly run by women were formalized in the aftermath of the disaster, and are still running, creating employment and earnings for their members.

Furthermore, keeping fishing communities working by means of donating outboard motors created an important impact on fishermen that kept their boats running, which in turn employed in average up to 7 people per boat, including the direct beneficiaries.

Average yearly earnings were obtained from extrapolating 2007 figures from INPESCA's Project Report.[18] Also, a significant impact on the fisher folk labor resulted from the donation of 9,000 lobster traps or *nasas* that allowed scuba divers to start adopting safer fishing practices, reducing fatalities and injuries while increasing earnings in the process. Average yearly benefits for this donation were investigated using the Hernandez, J.R. 2008 report[19] for average yearly costs for all lobster *nasas,* and the Lee, R. 09/2013[20] report for average industry income.

The creation of the revolving fund, despite its shortcomings, has been useful to an underserved fisheries sector in remote locations, by providing most needed funds for buying equipment and working capital, adding to the social and economic resilience of the communities and individual beneficiaries. In this respect, financial indicators were investigated from publication by banking sector regulators to determine possible earnings. Other benefits derived from potential fishing income increases, once the new boats were working, were estimated from the Hernandez report mentioned above.

Additionally, no relevant migration phenomena was mentioned by the beneficiaries interviewed, indicating that social, economic and environmental conditions have improved or at least have not deteriorated further since Project appraisal.

Data Sources and Estimates. The model created used selected variables and statistics, including an annual average inflation of 8.614% during the 2005-2014 period. The same was done for other key factors, such as the minimum wage average which was adjusted considering a 9.254% average annual increase in the 2011-2015 period;[21] exchange rates used were the ones reported in the different reports used as sources.[22]

Financial sector average annual increase rates for income (-12.35%), costs (-3.15%), and profit margins (-9.20%) were extracted from reports from the Nicaraguan Financial Sector Regulator[23] for the 2008-2014 period.

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[18] Support to the Fisheries Production Sector
[19] Credit demand study for the Small-scale Fisheries Sector in Bilwi and coastal RACCN communities affected by Hurricane Felix
[20] Supervision Mission Report, 09/2-13/2013
[21] From Ministry of Labor of Nicaragua reports
[22] From Nicaragua Central Bank reports
[23] *Superintendencia de Bancos y de Otras Instituciones Financieras de Nicaragua*

The discount rate for calculating NPV was 10%. The return period used for outboard motors, lobster traps, boats and revolving fund was 15 years, which is equivalent to the expected useful life of the financed boats; for lobster *nasas,* a replacement rotation period of 2 years was also considered. .[24]

A return period of 15 years was also defined for all construction works, i.e. roof rehabilitation, new wood and bamboo houses, community centers, and churches, based on INVUR estimates for the roof repairs designs and references from similar works in the Caribbean region.

NPV and IRR estimates for each of the activities and works were calculated in order to define trends and results of the use of Project funds in general, and for each subcomponent is particular. Data was subject to statistical and analytical rigor to provide for the most accurate results possible.

Limitations of the Analysis. The results of the economic analysis are limited by several factors: limited information about the total number of beneficiaries of the social infrastructure projects, absence of information on the financial results of the lumber cooperatives contracted under Project activities, lack of specific benefits from partially built social infrastructure, and the potential demolition costs for unfinished social infrastructure,[25] among others.

C. Analysis by Component

Component 1

1.2.c Rehabilitation of Housing; Roof Repairs

Employment benefits were accounted for by assuming that trained carpenters have stayed in the job market, as stated by villagers interviewed, using the 2010 salary that these workers earned under the Project, $2,440, indexed to 2014.[26]

Value added to the houses that benefited from roof rehabilitation was another aspect considered, assuming that roof expenditures amounted to 24.1%[27] of the cost of houses designed by INVUR for Component 3. This would indicate that having a rehabilitated roof should increase the value of an old house by this same quantity.

Assuming that rehabilitated houses in general were half the size of the new houses, or that rehabilitation covered only half the roof of a house of the same size, then the $141.10 budget per house amounted to 3.88% of a $3,634 rehabilitated house. INVUR's budget for new wood houses valued the roof at 24.1% of the total house value. This would leave

[24] From INPESCA reports.
[25] The unfinished works may have to be demolished if their construction is not restarted before their structure become technically unsound.
[26] From project information
[27] Data from INVUR

a value gain of 20.22% over the old house price with the works done, equivalent to repaired depreciation of $734.69.[28]

This value added includes beneficial externalities such as sturdier roof structures to help withstand disasters better than the old houses. Maintenance costs associated with the natural depreciation of the roof was in this case estimated as 6.67% annually, with an assumed return period of 15 years.

1.2.e Early Rehabilitation of Fisheries Sector; Outboard Motors Donation

Total cost of US$ 156,750 for 50 outboard motors was revised to 2014 prices.[29] Average yearly earnings were calculated using INPESCA income figures, considering the motors as being equivalent to 33% of a small size boat (8.53 m). Figures from the same INPESCA report for a 10 HP motor were utilized to determine average operational costs, adding a 50% increase for fuel and oil expenses estimates to adjust for the larger motor units bought by the project. Labor costs were estimated for one worker in charge of the motor maintenance and operation.

1.2.e Early Rehabilitation of Fisheries Sector; Lobster Traps (nasas) Donation

Benefits were estimated by using average annual profit figures for the 9,000 donated lobster traps or *nasas*, from the Lee, R. report mentioned above, indexed to 2014 prices. Maintenance costs were considered as 50% of lobster trap price for one year, as they only last 18 months to 2 years on average. Capturing costs were determined by extrapolating figures for the most efficient vessel example from the Hernandez report, indexed to 2014 prices.

Component 2

2.1.a Establishment of Revolving Fund

Yearly financial income and costs were taken from 2014 figures for the revolving fund, provided by Banco Produzcamos, discounted by means of yearly average financial income and costs indicators for the Nicaraguan financial industry, according to the Nicaragua Financial Sector Regulator mentioned above.

Calculated benefits included the revolving fund's annual financial income, and the annual income increases for 109 *pikineras* beneficiaries. On the cost side, annual financial costs and preventive provision for credit risks were accounted for. Published financial regulations establish that said provision must cover 100% or more of the unproductive portfolios (as boat loans are considered).[30]

2.1.a Establishment of Revolving Fund; Boat Loans

With respect to the boat loans, boat expenditures were adjusted to 2014 prices; the same was done for average income generated by fishing boats. In addition, a 25% increase was added to average income, as figures were extracted from the Hernandez report for a

[28] 24.1% of $3,634=$875.79; $875.79 - $141.10=$734.69

[29] The donation consisted of 15 motors with 25 HP, and 35 motors with 40 HP. Data from INPESCA

30 From reports from the Superintendencia de Bancos y de Otras Instituciones Financieras de Nicaragua.

smaller boat sample. In a similar fashion, average operational cost estimates were increased by 50%, to account for boats with more powerful motors than the 10 HP boats considered in the Hernandez report.

Salaries for the direct beneficiaries and the average 5-man crews were reckoned with as job creation benefits. In a related topic, although not included in the quantitative analysis, fish capturing total for 2014 was 6,180,851 pounds for the Nicaraguan Caribbean coast, an increase of 5.25%, or 308,380 pounds, over the 2013 result of 5,872,471 pounds.[31]

2.1.a Establishment of Revolving Fund; Microcredit Loans for Pikineras

It is worth mentioning that estimates from the *Guia Agropecuaria Report*[32] indicate that *pikineras* that received loans from the revolving fund increased their incomes by an average of 37.5% by the end of the project (i.e., an average of US$900 annually per beneficiary). For analysis purposes, only 50% of these gains were attributed to the credit operation.

Component 3

3.1 Reconstruction of Housing; Wooden Houses

Firstly, house prices were determined from INVUR reports. Employment created and salaries were taken from project information. Value added in relation to undeveloped communal land at market prices was estimated at 13.34% of house cost, taking into consideration the better design and building technology.

3.1 Reconstruction of Housing; Bamboo Houses

This analysis was carried out with the same considerations and estimates as in the wooden house case above, from figures provided by the project. Other institutions intervening in the same target region donated complementary water harvesting systems and latrines for all these houses, which were factored in the calculation of benefits at US$0.10 per day.

3.2 Reconstruction of Social Infrastructure

Analysis for this part of Component 3 included a visit paid to the 4 finished buildings, i.e., 2 churches and 2 community centers, out of a total of 13 subprojects. The remaining 9 stopped construction at different stages. Quantitative analysis was carried out for the four buildings completed, and for 4 more of the unfinished ones, selected based on the higher investments criteria.

Value added for all cases was calculated at 13.34%. Maintenance cost, equivalent to annual depreciation was estimated at 6.67%, for 15-year return period designs. Construction costs for all cases were provided by the GRACCN.[33] Feasibility study,

[31] From INPESCA report

[32] Final External Evaluation Report for the HFERP. 01-30-2015

[33] Supervisión Técnica de las Obras de Construcción de Iglesias y Centros Comunitarios de la RAAN Contrato SCC-HF-327/2012

design and supervision costs were calculated employing the industry average of 15% of construction cost.[34]

Value added in relation to undeveloped communal land at market prices was estimated at 5% of the cost of construction, taking into consideration a better design and building technology compared to the ones employed in the old church, which partially withstood the effects of Hurricane Felix. Maintenance costs were defined as 2.5% of construction cost, similar to a depreciation rate for a building design with a 40-year return period.

3.2 Reconstruction of Social Infrastructure; Krukira Moravian Church

A job creation benefit was observed for a pastor and a janitor, with salaries amounting to twice the current Nicaraguan minimum wage for socially oriented jobs. Value added in an undeveloped communal market of the sort found in the target region was determined considering a better design and building technology used, in comparison to the ones employed in the old church, which partially withstood the damaging effects of Hurricane Felix. Important benefits are provided by a rehabilitated well on premises, supplying water for the church and nearby neighbors on a continuous basis, which was factored in the calculation of benefits at US$2.50 per day.

3.2 Reconstruction of Social Infrastructure; Krukira Community Center

Construction cost was determined by averaging the costs of building the Krukira Community Center and the Moravian church. Job creation was determined for a community chief and janitorial personnel, salaries for both were calculated as twice the minimum wage for social activities.

Other benefits were estimated for the use of the facility as a clinic, paying US$1,114.14 a year for rent, as mentioned by personnel interviewed. In addition, 1 well and 4 latrines were also constructed and factored in the calculation of benefits at US$5 per day. Value added in this case was considered as equivalent to 6.6% of construction cost, for a building with a return period of 30 years in a community that did not previously have such a facility, according to beneficiaries interviewed. Maintenance cost or depreciation rate was determined at 3.3%.

3.2 Reconstruction of Social Infrastructure; Santa Martha Catholic Church

As in the previous church case, job creation was accounted for a priest and a janitor, with salaries amounting to twice the current Nicaraguan minimum wage for this type of jobs.
Likewise, value added was estimated taking into consideration a better design and building technology, compared to the ones employed in the old church, which was rendered useless by the effects of Hurricane Felix, and was later demolished, as witnessed during the inspection trip.

3.2 Reconstruction of Social Infrastructure; Sisin Community Center

As in the previous community center case, job creation was determined for judiciary and janitorial personnel, salaries for both were calculated as twice the minimum wage for

[34] From consultancy research in the construction industry

social activities. As in the Krukira example, 1 well and 4 latrines were also constructed and factored in the calculation of benefits at US$5 per day.

Benefits from rent paid for different uses by the community and outsiders was estimated at US$1,114.14 on a yearly basis, following the same estimation made for the Krukira Community Center (i.e., use of the facility as a clinic). Value added was calculated for a building in a community that previously had a facility of roughly 14 square meters,[35] (whereas the centers financed by the Project have an area of 110 square meters).

3.2 Reconstruction of Social Infrastructure: Pehara and Betania Churches, and Awas Yari and Watla Community Centers.

The unfinished conditions of these 4 buildings did not allow for an estimation of either benefits or depreciation costs. Demolition costs were allocated for 4 of the other 5 unfinished constructions,[36] which on average add the equivalent of 10% of construction costs to total Project costs.[37]

D. Main Findings

Overall economic efficiency is considered low. The results obtained as outputs from the model designed, presented in Table 3, show that all the subcomponents analyzed have positive NPV values, although modest in quantity. The Revolving Fund and the 4 partially built social facilities had negative values and no IRR results. IRR values for the subcomponents with positive results are all equal or higher than the 10% discount rate applied.

In addition, Project delays and initial technical deficiencies in some of the works likely impacted final costs and adversely affected efficiency. In particular, it should be considered that none of the unfinished works are providing benefits to the communities. Moreover, four of these unfinished works will have to be demolished and work restarted. Critically, if the construction of the remaining 8 works is not restarted soon, their exposed structures will deteriorate to the point that they will also have to be demolished.

Although the analysis did not calculate an overall IRR (given that some construction works were not concluded), an IRR of 34.54% was obtained when only considering those subcomponents with positive results. See Table 3.

Table 3. Benefit-Costs by Subcomponent (US$)

SUBCOMPONENT	NPV BENEFITS	NPV COSTS	NPV SUBTOTAL	IRR
Rehabilitation of Housing	1,551,557.73	937,409.38	614,148.35	23.68%
Outboard motors	17,293,509.32	16,491,532.06	801,977.26	64.66%
Fishing gear	8,519,924.39	6,842,619.96	1,677,304.43	67.73%

[35] According to beneficiaries interviewed.
[36] From GRACCN: Technical Supervision of RACCN's Churches and Community Centers Construction Works , Contract SCC-HF-327/2012
[37] From consultancy research in the construction industry.

Revolving fund	1,333,275.03	6,645,781.56	-5,312,506.52	
Boats	39,303,430.28	35,621,809.43	3,681,620.85	77.93%
Wood Houses Construction	3,725,380.51	2,667,536.26	1,057,844.25	18.27%
Bamboo Houses Construction	1,101,314.57	776,257.22	325,057.35	18.65%
Krukira Church	351,895.58	312,061.99	39,833.59	12.93%
Krukira Community Center	225,411.18	120,628.73	104,782.45	26.43%
Santa Martha Church	355,076.54	315,846.78	39,229.76	12.86%
Sisin Community Center	209,615.70	129,698.74	79,916.96	22.26%
Pahara Moravian Church	0.00	128,920.28	-128,920.28	
Betania Moravian Church	0.00	141,778.05	-141,778.05	
Awas Yari Community Center	0.00	33,468.36	-33,468.36	
Watla Community Center	0.00	33,874.44	-33,874.44	
TOTALS	**73,970,390.84**	**71,199,223.24**	**2,771,167.60**	**34.54%**

The most economically beneficial subcomponents were the boats and outboard motors, followed by fishing gear. In terms of costs, boats, followed by outboard motors, had by far the highest results. Total NPV values confirm boats as the most productive subcomponent (US$3,681,620.85), with fishing gear and wood houses construction contributing each less than 50% of the subtotal for boats.

Investments in boats, fishing gear and outboard motors had the 3 highest IRR results, 77.93%, 67.73%, and 64.66% respectively, followed by the Krukira Community Center, housing rehabilitation, and Sisin Community Center subcomponents. The rest of the works subcomponents had more modest IRRs within the 18.65%-12.86% range.

Results by subcomponent are presented in Table 4, where Component 1 obtained the highest NVP value of US$3,093,430.04 and an IRR result of 52.02% due to the adequate emergency response that helped restore living conditions and much needed income to beneficiaries.

Component 2 had no overall IRR result, with a NPV of (-US$1,630,885.67), influenced negatively by the meager performance of the revolving fund. An NPV value of US$1,308,623.23 and an undefined IRR were accounted for Component 3, considering both the finished and incomplete social infrastructure buildings.

Table 4. Benefit-Costs by Component (US$)

COMPONENT & SUBCOMPONENT	NPV BENEFITS	NPV COSTS	NPV SUBTOTAL	IRR
Rehabilitation of Housing	1,551,557.73	937,409.38	614,148.35	23.68%
Outboard motors	17,293,509.32	16,491,532.06	801,977.26	64.66%
Fishing gear	8,519,924.39	6,842,619.96	1,677,304.43	67.73%
SUBTOTALS COMPONENT 1	***27,364,991.44***	***24,271,561.40***	***3,093,430.04***	***52.02%***
Revolving fund	1,333,275.03	6,645,781.56	-5,312,506.52	
Boats	39,303,430.28	35,621,809.43	3,681,620.85	77.93%
SUBTOTALS COMPONENT 2	***40,636,705.31***	***42,267,590.99***	***-1,630,885.67***	
Wood Houses Construction	3,725,380.51	2,667,536.26	1,057,844.25	18.27%
Bamboo Houses Construction	1,101,314.57	776,257.22	325,057.35	18.65%
Krukira Church	351,895.58	312,061.99	39,833.59	12.93%
Krukira Community Center	225,411.18	120,628.73	104,782.45	26.43%
Santa Martha Church	355,076.54	315,846.78	39,229.76	12.86%

Sisin Community Center	209,615.70	129,698.74	79,916.96	22.26%
Pahara Moravian Church	0.00	128,920.28	-128,920.28	
Betania Moravian Church	0.00	141,778.05	-141,778.05	
Awas Yari Community Center	0.00	33,468.36	-33,468.36	
Watla Community Center	0.00	33,874.44	-33,874.44	
SUBTOTALS COMPONENT 3	***5,968,694.09***	***4,660,070.85***	***1,308,623.23***	

An exercise was conducted to estimate the probable outcomes for the revolving fund if administrative improvements were enforced at Banco Produzcamos. For example, increasing collection efforts could allow transferring at least 10% of estimated profit margins from boat owners, as payments for loans, thus reducing the Bank's preventive provision for credit risks. If this provision could be decreased to the reported average of 19.0733% of gross financial margin for this particular bank (down from the 100% currently applied to the revolving fund), then the NPV of the revolving fund would increase to US$1,089,314.80, from US$(-5,321,506.52), with an IRR of 21.40%.

An additional exercise was performed calculating average results based only on the finished buildings, to show their benefits and motivate completion of the remaining subprojects. The resulting NPV of US$9,511,030.06, and IRR of 33.34% are presented below in Table 5. Likewise, results by components are shown in Table 6, where Component 2 now has the highest NPV (US$1,646,664.37), but Component 1 still has the highest IRR (52.02%).

Table 5. Benefit-Costs By Subcomponent (US$)

SUBCOMPONENT	NPV BENEFITS	NPV COSTS	NPV SUBTOTAL	IRR
Rehabilitation of Housing	1,551,557.73	937,409.38	614,148.35	23.68%
Outboard motors	17,293,509.32	16,491,532.06	801,977.26	64.66%
Fishing gear	8,519,924.39	6,842,619.96	1,677,304.43	67.73%
Revolving Fund 2	2,331,106.51	1,241,791.72	1,089,314.80	21.40%
Boats	39,303,430.28	35,621,809.43	3,681,620.85	77.93%
Wooden Houses Construction	3,725,380.51	2,667,536.26	1,057,844.25	18.27%
Bamboo Houses Construction	1,101,314.57	776,257.22	325,057.35	18.65%
Krukira Church	351,895.58	312,061.99	39,833.59	12.93%
Krukira Community Center	225,411.18	120,628.73	104,782.45	26.43%
Santa Martha Church	355,076.54	315,846.78	39,229.76	12.86%
Sisin Community Center	209,615.70	129,698.74	79,916.96	22.26%
TOTALS	**74,968,222.33**	**65,457,192.27**	**9,511,030.06**	**33.34%**

Table 6. Benefit-Costs By Component (US$)

COMPONENT & SUBCOMPONENT	NPV BENEFITS	NPV COSTS	NPV SUBTOTAL	IRR
Rehabilitation of Housing	1,551,557.73	937,409.38	614,148.35	23.68%
Outboard motors	17,293,509.32	16,491,532.06	801,977.26	64.66%
Fishing gear	8,519,924.39	6,842,619.96	1,677,304.43	67.73%
SUBTOTALS COMPONENT 1	***27,364,991.44***	***24,271,561.40***	***3,093,430.04***	***52.02%***
Revolving Fund 2	2,331,106.51	1,241,791.72	1,089,314.80	21.40%
Boats	39,303,430.28	35,621,809.43	3,681,620.85	77.93%
SUBTOTALS COMPONENT 2	***41,634,536.79***	***36,863,601.15***	***4,770,935.65***	***49.66%***
Wooden Houses Construction	3,725,380.51	2,667,536.26	1,057,844.25	18.27%
Bamboo Houses Construction	1,101,314.57	776,257.22	325,057.35	18.65%

Krukira Church	351,895.58	312,061.99	39,833.59	12.93%
Krukira Community Center	225,411.18	120,628.73	104,782.45	26.43%
Santa Martha Church	355,076.54	315,846.78	39,229.76	12.86%
Sisin Community Center	209,615.70	129,698.74	79,916.96	22.26%
SUBTOTALS COMPONENT 3	***5,968,694.09***	***4,322,029.72***	***1,646,664.37***	***18.57%***

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Annex 4. Bank Lending and Implementation Support/Supervision Processes

(a) Task Team members

Names	Title	Unit	Responsibility/ Specialty
Lending			
Escolano, Irani G.	Sr. Procurement Sp	LCSPT	Procurement
Goldberg, Michael J.	Sr. Private Sector Sp	LCSPF	Revolving Fund
Larrea, Alvaro	Sr. Procurement Sp.	LCSPT	Procurement
Pantoja, Enrique	Sr. Land Adm Spec	LCSAR	Team Leader
Stubbs, Josefina	Sr. Social Dev Spec	LCSSO	Social Safeguards
Toro Landivar, Jose C. Joaquin	Sr. Disaster Risk Spec	LCSUR	Team Leader
Veizaga, Mary Lou M.	Procurement Spec	LCSPT	Procurement
Gartley, Ross Alexander	Disaster Risk Spec	LCSUR	Disaster Recovery
Rapp, Kennan W.	Sr. Social Dev Spec	LCSSO	Social Safeguards
Arguello, Margarita	Consultant	LCSAR	Inst Coordination
Durand, Gisela	Consultant	LCSAR	Planning/Budget
Escobar, German	Consultant	LCSAR	Fin Management
Garcia Medrano, Reyna	Consultant	LCSAR	Fin Management
Hernandez, Julio Ricardo	Consultant	LCSAR	Revolving Fund
Ortega Rodriguez, Marvin	Consultant	LCSAR	Env Safeguards
Velasco Lopez, Osmar	Consultant	LCSAR	Disaster Manag
Supervision/ICR			
Arguello, Margarita	Consultant	SURR	Inst Coordination
Arguello, Marta Elena	Consultant	SURR	Inst Capacity Dev
Campos Arias, Adrian Otoniel	Consultant	SURR	M&E
Carletto, Andre L.	Consultant	SURR	Disaster Risk/ICR
De la Riva Aguero, Renzo	Consultant	SURR	Operations
Escobar, German	Consultant	SURR	Fin Management
Estrada Martinez, Leonel Jose	Consultant	GOV	Procurement
Faria, Maria Manuela	Consultant	SURR	Soc Comm/ICR
Campos Garcia, Ana	Sr. Disaster Mg Spec	SURR	Disaster Manag
Garcia, Augusto	Sr. Rural Dev Spec	AG	Rural Develop
Guerrero, Jeanine	Program Assistant	LCCN	Program Support
Hernandez, Julio Ricardo	Consultant	SURR	Revolving Fund
Kotouzas, Stamatis	Junior Professional	SURR	Operations
Larrea, Alvaro	Sr Procurement Spec	GOV	Procurement
Lira, Manuel Ofilio	Consultant	GOV	Fin Management
Martinez, Marquez	Consultant	SURR	Social Safeguards
Maywah, Nicole Andrea	Consultant	SURR	Env Safeguards
Mendieta-Arroyo, Brenda	Consultant	SURR	Planning/Budget

Morales Noval, Ketty	Program Assistant	SURR	Program Support
Munoz Nunez, Roberto	Consultant	SURR	Ex Post Econ An
Paiement, Jason Jacques	Sr. Social Dev Spec	SURR	Social Safeguards
Pantelic, Jelena	Sr. Operations Officer	SURR	Disaster Manag
Pantoja, Enrique	Sr. Land Adm Spec	SURR	Team Leader
Proite, Anemarie Guth	Procurement Specialist	GOV	Procurement
Rodriguez, Francisco	Sr Procurement Spec	GOV	Procurement
Roman, Enrique Antonio	Fin Management Spec	GOV	Fin Management
Siezar, Carlos Francisco	Consultant	SURR	Revolving Fund
Tambucho Perez, Monica	Sr. Financial Officer	CTRLN	Disbursements
Zambrano, Marco Antonio	Consultant	ENV	Env Safeguards
Zavala Castillo, Reina Altagracia	Consultant	SURR	Inst Capacity Dev

(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		
FY08	26.88	166.87
Total:	**26.88**	**166.87**
Supervision/ICR		
FY08	15.29	85.26
FY09	33.28	188.88
FY10	35.85	134.21
FY11	36.61	116.92
FY12	19.81	91.86
FY13	12.95	95.45
FY14	15.48	127.01
FY15	7.76	74.52
Total:	**177.03**	**914.11**

Annex 5. Beneficiary Survey Results

In 2014, GRACCN hired a consulting firm to help carry out the Project's final evaluation, including a household survey of the socio-economic impacts of the emergency recovery works (i.e., construction / rehabilitation of housing and social infrastructure). In addition, the firm conducted focus groups to obtain qualitative data on the impact of the works and the revolving fund. This Annex summarizes the methodology applied and the most pertinent results of both the survey and the focus groups.

1. Description of the Methodology

Household Survey

The survey was conducted in December 2014 on a sample of 5% of the households that benefitted from roof rehabilitation and new housing construction to assess the effects of the Project at the household and community level. In particular, the survey sought to investigate whether the Project contributed to improving beneficiaries' living conditions and reducing their risk to future disasters. Moreover, regarding social infrastructure, a survey was conducted on a sample that included communities where civil works were finished and those where works were pending completion or would need to be demolished due to technical deficiencies. Accordingly, the communities surveyed included Dakura, Pahara, Krukira, Betania, Santa Marta, and Yulu.

The questionnaire covered issues related to the selection of beneficiaries, community participation in the design and implementation of works, training, duration of construction, issues related to contractors, recommendations for future similar projects, as well as beneficiaries' satisfaction with Project activities.

The consulting firm carried out the survey, while GRAACN contributed to the definition of the methodology, and the design and pilot testing of the survey instrument. GRACCN also supervised data input and analysis.

Focus Groups

A total of six focus groups, each with 10 to 15 participants from the same communities surveyed, were carried out to provide a more in depth evaluation of the impacts of Component 3 (Reconstruction of Housing and Social Infrastructure.) The questionnaire used for the focus groups covered beneficiaries' satisfaction with Project activities and community participation in their implementation, as well as with the handling of issues faced during the construction of civil works.

In addition, four focus groups were carried out in Bilwi and Sandy Bay with fisher folk and women (*pikineras)* to evaluate the impact of Component 2 (Recovery of Small-Scale Fisheries Sector.) The discussions focused on the effectiveness of the credit services (revolving fund) delivered by the Project, and beneficiaries' satisfaction with those

services. The focus groups also gave beneficiaries an opportunity to report issues faced during implementation of the Revolving Fund.

Analysis of Results

The survey data was subject to different levels of analysis; (a) a reliable characterization of the direct beneficiaries of the housing and social infrastructure works was developed, in terms of their social and economic assets as well as their vulnerability; (b) beneficiaries' level of satisfaction with Project activities was analyzed by cross-referencing sample sub-groups (i.e., beneficiaries of roof rehabilitation, housing, credit, etc.) with similar characteristics for comparative analysis; and (c) a cross-analysis among some of different sub-groups was undertaken to compare the situation of the beneficiaries and their assets against "control groups."

Finally, data from beneficiary groups were compared with other survey data, such as the 2012 National Agricultural Census, to triangulate survey findings. The analysis of the survey and focus groups results also considered, to a limited extent, the results of the 2010 National Household Survey.[38] This was facilitated by aligning the questionnaire for the Project household evaluation survey with the questionnaire for the 2010 National Household Survey.

2. Main Findings

Recovery of Small-Scale Fisheries Sector

Artisanal fishing is a traditional source of income for communities in the Project area. Results show that, on average, 5 people per household are employed in fishing activities, and that women are often dependent on men. Most fishing boat owners (9 out of 10 interviewed) report employing 4 - 5 workers, and about half are estimated to employ at least one family member.

Most fishermen interviewed reported having received working capital and boats through the Project. However, most of them stated their dissatisfaction regarding income generation, claiming that their situation had worsened; about a third claimed that their income has remained stable; and only a minority reported that their income had improved. In addition, all fishermen interviewed mentioned owing overdue payments to Banco *Produzcamos,* arguing that the boats received were not in optimal conditions, which forced them to take loans to purchase spare parts. In addition, most beneficiaries reported that the boats were given to them in poor condition, and about a third reported that fishing gear was also in bad condition.

Regarding income, fishermen report that before Hurricane Felix, their earnings ranged from C$3,000 to C$45,000 per kilo of fish, C$16,000 to C$60,000 per kilo of lobster, and

[38] It was not possible to use the 2010 National Household Survey data as a baseline for the Project due to differences in household sizes.

C$24,000 for a similar amount of shrimp. Currently, due to a sharp decrease in production, compared to pre-hurricane levels, fishermen report an average income ranging from C$1,000 to C$16,000 per kilo of fish.[39]

About half of *pikineras,* on the other hand, report having 4 family members working in their particular line of business (there are no men in this activity), and claim they employ at least one worker. Most *pikineras* report having benefited from the Project (as 96% of microcredit beneficiaries were women.) Among the main impacts reported by the *pikineras* are: (a) recovery of business activity, (b) improvement of housing conditions, and (c) increased living standards.

Despite a previous survey reporting that credit to *pikineras* had more than doubled their income, at the end of the Project this value is estimated at 37.5%. Although this improvement cannot be attributed exclusively to the benefits of Project activities, the *pikineras* recognized the large contribution from the Project in increasing their income.

Housing and Social Infrastructure

Beneficiaries acknowledged that the Project supported the rehabilitation and reconstruction of houses. However, 20% of the sample considered that some of the construction materials used were of low quality. Moreover, the beneficiaries do not perceive the new houses as being safer from hurricanes due to the use of what they considered inappropriate materials, such as sinkers, soft pinewood, non-galvanized nails, and 8x8 beams.

At the time of the final evaluation, only 4 of the 16 contracted social infrastructure works were completed. The main problems and/or issues reported were:

- In some cases, the social infrastructure was not built on the sites initially agreed upon with the community, prompting space limitations, and in one case increased risk of flooding.

- One of the contractors did not honor payment commitments to the local workforce.

- Due to the situation with the above contractor, in some cases temporary construction facilities had not been removed and areas occupied by unfinished works not cleaned at project closing.

In summary, Project beneficiaries were not completely satisfied with activities under Component 3, particularly given that houses and social infrastructure were affected by construction delays that in some cases jeopardized the completion of the works. Regarding Component 2, although the line of credit to help reactivate the small-scale fisheries sector had limitations in its results, overall, beneficiaries reported being in a better position compared to pre-hurricane levels.

[39] Fishermen report a 64% reduction in fish production, 95% for shrimp, and 62% for lobster.

Annex 6. Stakeholder Workshop Report and Results

Bilwi, February 26, 2015

The workshop entitled "Lessons Learned from Hurricane Felix Emergency Project" was brought together representatives of the Bank, Borrower (GoN), and implementing agencies (SE-SINAPRED and GRACCN) to share, discuss, and validate the results of the Project.

Present at the workshop were representatives of the World Bank (Country Office and Headquarters), Project Implementation Unit (GRACCN), in addition to former governors, project staff and representatives of governmental agencies associated with Project implementation: Banco Produzcamos (BP), INVUR, INATEC, INPESCA, MHCP, URACCAN, Municipality of Bilwi, and Congress.

Carlos Alemán, Governor of GRACCN, delivered opening remarks in representation of the Borrower, and Enrique Pantoja, Task Team Leader, delivered remarks in representation of the Bank.

The ICR Team presented the findings on achievement of Project targets, positive and negative issues affecting implementation, and overall Project implementation.

The participation of an ample cross-section of Bank and Borrower interests fostered a highly productive discussion in a relatively short period of time. The salient points of the discussion and lessons learned are as follows:

Institutional and Management Aspects

- Projects should contribute to improve institutional capacity (technical and administrative). It is important to create the conditions to manage new projects with efficiency and efficacy, to avoid implementation delays and additional unforeseen costs.
- Inter-institutional coordination must be strengthened. It is key to avoid duplicity of tasks and to secure the efficient use of resources, fostering complementarity and monitoring of activities.
- Flexibilization of procedures. Early recovery activities should allow fast deployment in order to reduce response time and costs, under a transparent and accountable setting.
- Empowerment of project beneficiaries. Sustainability and satisfaction of beneficiaries are intrinsically related to participatory processes in the design and selection of solutions.

Fiduciary Aspects

- Continuous training in fiduciary topics. It is important to ensure quality in the use of fiduciary mechanisms and procedures to ensure the achievement of project objectives with the available resources.

- Supervision and monitoring through national systems. Connectivity is paramount for updating the register of transactions, budget management, and reporting.
- Timely reporting. It is very important to timely present reports, audits, and any other documentation required by donors and financiers in order to maintain transparency in the management of resources.
- Procurement adapted to local conditions. Delays in bidding processes can be avoided if methods and methodologies are adapted to local market conditions and the capacity of the implementing institution.

Infrastructure

- Supervision according to works complexity. In order to make sure that civil works are delivered timely, with expected quality standards, close supervision with technical capacity is required.
- Use of local labor and providers. Procurement processes should take into consideration local conditions in order to secure the best contracts while promoting opportunities for local providers and employment.
- Operational decisions should be based on technical recommendations, in order to avoid delays, deficiencies in project implementation, and lack of quality of final product.

Fisheries

- Technical support to beneficiaries. Close support and training will secure the proper use of equipment and sustainability of the economic activity.
- Credit control and supervision. Close supervision is needed to ensure the proper use of financial resources, portfolio sustainability and the opportunity for others to benefit from credit lines.
- Inclusion of non-traditional beneficiaries. It is important to secure wider social participation to effectively reduce exclusion and help alleviate poverty.

Communication

- Communication strategy from Project inception. It is important to have communication channels with beneficiaries in order to promote ownership and maintain transparency.
- Information dissemination. All stakeholders should be informed of project activities to promote empowerment and social audit.

The workshop allowed for a productive discussion between the Bank and the implementing agencies on the design, implementation, and results of the Project. In turn, this allowed for a better understanding of the challenges faced during implementation, as well as the impacts of (not) achieving the expected Project results.

The evaluation team recognizes the efforts made by officers in all governmental agencies involved in designing and implementing the Project, and appreciates the proactive attitude of workshop participants.

Annex 7. Summary of Borrower's ICR

The Hurricane Felix Emergency Recovery Project was designed in response to the damages caused by Hurricane Felix. It aimed to support the immediate rehabilitation of housing and social infrastructure, and the rehabilitation of the small scale fisheries sector in the RACCN. The Project also sought to strengthen the autonomy and capacity of the GRACCN to manage and implement externally financed projects. Component 1 was implemented by SINAPRED, while Components 2, 3, and 4 were implemented by GRACCN, with assistance from INPESCA, INVUR, MAGFOR, MTI and MINSA. The Project had a participatory approach that enabled community leaders to participate in the definition of eligibility criteria for selecting beneficiaries; social infrastructure works were also prioritized through a participatory process.

Context. The Project spanned two regional government administrations, and suffered important delays and shortcomings. The implementation strategy included the immediate execution of early rehabilitation works to be financed through a PPF approved in December 2007. However, the PPF was not implemented given a six-month delay in obtaining Project effectiveness. The Bank approved the US$17 million emergency credit in March 2008, and Additional Financing (AF) for US$5.1 million in 2012. Given continued delays in Project implementation, the GoN requested a cancellation of most of the AF, as well as US$1.35 million from the original credit. The Project also underwent four restructurings in 2009, 2011, and twice in 2012. The loss of key people working in the Project, following a change in Government Administration, further affected Project implementation.

Achievement of PDO. The Project achieved important development indicators: (i) almost 4,000 houses rehabilitated or reconstructed; (ii) 30 fishermen received boats and fishing equipment and supplies, (iii) 40 percent of beneficiaries who received fishing equipment and supplies were women, (iv) beneficiaries of the revolving fund saw a 15 percent increase in fishing production, and (v) fishermen's and *pikinera's* incomes increased by 20 percent. However, other indicators were not fully achieved: (i) only 10 of the projected 40 communities now have access to safer buildings for emergency shelter; (ii) only 4 community churches and centers were fully reconstructed; (iii) a revolving fund was established but its financial sustainability was in doubt at Project closing; (iv) only 60 percent of beneficiaries were satisfied with Project support to the small-scale fisheries sector, and only 40 percent of families were satisfied with rehabilitation and reconstruction works; (v) the planned health facilities were not built; and (vi) GRACCN did not develop in a substantial manner its capacity to prepare and implement externally financed projects. However, although the revolving fund was not sustainable at Project closing, the granting of credit with extended repayment deadlines and competitive interest rates had great impact for *pikineras* and fishermen, as it contributed to offset the economic losses of groups who do not usually have access to formal financing. Overall, Project design is considered *satisfactory,* but implementation is considered *unsatisfactory.*

The project was evaluated according to its relevance, effectiveness, and efficiency. In terms of relevance, Project components contributed to improving the living conditions of beneficiary families, and to reactivating the regional economy. In terms of effectiveness, the Project did not achieve the objectives satisfactorily, since GRACCN did not achieve sufficient or steady technical and administrative capacity throughout project implementation. Regarding efficiency, resources were not used efficiently; as of October 2014, the repayment of 161 loans to the revolving fund was overdue. In addition, only 4 of 16 social infrastructure works were concluded, while four of the unfinished ones will need to be demolished.

Sustainability. It is not clear whether Project activities will contribute to sustainable regional economic growth. Sustainability of Project activities is conditioned by several factors: (i) at Project closing, GRACCN did not have resources to continue monitoring Project results (e.g., the sale of new housing built with Project financing, or the operation of the revolving fund), nor to conclude the unfinished social infrastructure works (although budget allocation was expected from the central government.) Boat maintenance by beneficiaries is not assured given that spare parts for the fishing equipment and supplies are not available in Bilwi; (ii) human resources at Banco Produzcamos in RACN lacked technical capacity to manage the revolving fund, and *pikineras* and fishermen also have limited capacity to administer resources; and (iii) the Project was not completely successful in strengthening partnerships among communities, municipalities, and the regional and central governments.

Bank Performance. The Bank's technical assistance during Project preparation was pertinent and Project design addressed the critical needs of the affected communities. During implementation, the Bank's technical, environmental and social specialists visited the beneficiary communities several times, and interviewed the local authorities to document progress and assess the difficulties faced. To address the weak technical capacity of GRACCN, the Bank also recommended the hiring of staff with experience in implementing Bank-financed projects.

Borrower Performance. The Project was not implemented as expected mainly due to GRACCN's lack of experience in implementing procurement processes, and in handling complex processes. GRACCN faced serious weaknesses in internal coordination between the fiduciary and the technical areas. In addition, high staff rotation affected Project progress, and the Project's image among the communities and related institutions. The Bank's recommendation to hire external specialists with experience in Bank-financed projects did not lead to better outcomes due most likely to the difficulty these specialists and GRACCN staff faced in working together. Although by 2014 the Project team (GRACCN staff and external specialists) was finally complete, it could not reach the performance level needed to resolve critical issues and accelerate Project implementation.

Lessons Learned. The main lessons learned include: (i) the relevance of adopting a participatory approach to strengthen Project sustainability, despite a more onerous implementation; (ii) the critical need for effective coordination between the implementing agency and any external team in order take advantage of its expertise and knowledge. In

this regard, it may help if the Project's administrative and fiduciary requirements are better aligned with the procedures of the implementing agency; (iii) the need for constant supervision to ensure compliance with safeguards, particularly concerning communication and grievance redress mechanisms; (iv) the importance of an effective Communication Strategy to inform and consult beneficiaries. In a context where most beneficiaries are indigenous, the Communication Strategy must reflect the indigenous cultural views (*cosmovision*) to ensure its relevance; and (v) the importance of engaging the municipalities and territorial governments in Project implementation in order to promote the Project's legitimacy among beneficiaries.

Annex 8. Comments of Cofinanciers and Other Partners/Stakeholders

N/A

Annex 9. List of Supporting Documents

Gobierno de Nicaragua / Gobierno Regional Autónomo del Atlántico Norte / SINAPRED. "Evaluación Ambiental del Proyecto Recuperación ante el Huracán Félix." January 21, 2011.

Gobierno de Nicaragua / Gobierno Regional Autónomo del Atlántico Norte / SINAPRED. "Informe de Análisis Social del Proyecto Recuperación ante el Huracán Félix." January 11, 2011.

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World Bank. "Project Paper on a Proposed Credit to the Republic of Nicaragua for a Hurricane Felix Emergency Recovery Project." Report No. 42266-NI, February 15, 2008

World Bank. "Project Paper on a Proposed Additional Grant to the Republic of Nicaragua for a Hurricane Felix Emergency Recovery Project." Report No. 73020-NI, October 15, 2012.

MAP