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Report No: ICR00005055

IMPLEMENTATION COMPLETION AND RESULTS REPORT

(TF 018703)

ON A

GRANT

FROM THE GLOBAL AGRICULTURE AND FOOD SECURITY PROGRAM

IN THE AMOUNT OF US\$33.9 MILLION

TO THE

REPUBLIC OF NICARAGUA

FOR A

CARIBBEAN COAST FOOD SECURITY PROJECT (P148809)

June 26, 2020

## CURRENCY EQUIVALENTS

(Exchange Rate Effective December 30, 2019)

Currency Unit = Nicaraguan  
Córdobas (NIO)

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NIO33.44 = US\$1

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## FISCAL YEAR

July 1 - June 30

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## ABBREVIATIONS AND ACRONYMS

BMS	Beneficiary Monitoring System
CCN	Caribbean Coast of Nicaragua
CPF	Country Partnership Framework
CPS	Country Partnership Strategy
CSA	Climate Smart Agriculture
DDS	Dietary Diversity Score
EA	Environmental Assessment
EFA	Economic and Financial Analysis
EMP	Environmental Management Plan
ERR	Economic Rate of Return
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FM	Financial Management
FRR	Financial Rate of Return
GAFSP	Global Agriculture and Food Security Program
GAP	Good Environmental Practices
GDP	Gross Domestic Product
GON	Government of Nicaragua ( <i>Gobierno de Reconciliación y Unidad Nacional</i> )
GRACCN	North Caribbean Coast Autonomous Region Government ( <i>Gobierno Regional Autónomo de la Costa Caribe Norte</i> )
GRACCS	South Caribbean Coast Autonomous Regional Government ( <i>Gobierno Regional Autónomo de la Costa Caribe Sur</i> )
GRM	Grievance and Redress Mechanism
ICR	Implementation Completion and Results Report
IDP	Innovation Development Plan
INIDE	National Institute of Development Information ( <i>Instituto Nacional de Información de Desarrollo</i> )
INPESCA	National Fisheries and Aquaculture Institute ( <i>Instituto Nacional de Pesca y Acuicultura</i> )
INTA	Nicaraguan Institute of Agricultural Technology ( <i>Instituto Nicaragüense de Tecnología Agropecuaria</i> )
IPPF	Indigenous Peoples Planning Framework
IPP	Indigenous Peoples Plan
IPSA	Food Safety and Animal Health Institute ( <i>Instituto de Protección y Sanidad Agropecuaria</i> )
LAC	Latin America and Caribbean Region
MAG	Ministry of Agriculture ( <i>Ministerio Agropecuario</i> )
M&E	Monitoring and Evaluation
MEFCCA	Ministry of Family, Communal, Cooperative and Associative Economy ( <i>Ministerio de Economía Familiar, Comunitaria, Cooperativa y Asociativa</i> )
MINSA	Ministry of Health ( <i>Ministerio de Salud</i> )
NIO	Nicaraguan Córdoba
NPV	Net Present Value
PAD	Project Appraisal Document
PAIPSAN-CNN	Caribbean Coast Food Security Project ( <i>Proyecto de Apoyo para el Incremento de la Productividad, Seguridad Alimentaria y Nutricional en la Costa Caribe Nicaragüense</i> )
PDO	Project Development Objective
POM	Project Operation Manual
PNDH	National Human Development Plan ( <i>Plan Nacional de Desarrollo Humano</i> )
Qq	Quintals
PRORURAL-I	Sector-wide Productive Rural Development Program ( <i>Plan Sectorial de Desarrollo Rural – Incluyente</i> )
RACCN	North Caribbean Coast Autonomous Region ( <i>Región Autónoma de la Costa Caribe Norte</i> )
RACCS	South Caribbean Coast Autonomous Region ( <i>Región Autónoma de la Costa Caribe Sur</i> )

RF	Results Framework
SIAF	Integrated System for Financial Administration ( <i>Sistema Integrado de Administración Financiera</i> )
tCO2e	Tons of carbon dioxide equivalents
TDC	Technological Development Center
UN	United Nations
UNDP	United Nations Development Program

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**DATA SHEET**

**BASIC INFORMATION**

**Product Information**

Project ID P148809	Project Name NI Caribbean Coast Food Security Project
Country Nicaragua	Financing Instrument Investment Project Financing
Original EA Category Partial Assessment (B)	Revised EA Category

**Organizations**

Borrower Republic of Nicaragua	Implementing Agency Ministry of Family Economy MEFCCA
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**Project Development Objective (PDO)**

Original PDO

The proposed project development objective is to enhance food and nutritional security in selected communities of the Caribbean Coast of Nicaragua.

PDO as stated in Legal Agreement

The proposed project development objective is to enhance food and nutritional security in selected communities of the Caribbean Coast of the Recipient.



**FINANCING**

	Original Amount (US\$)	Revised Amount (US\$)	Actual Disbursed (US\$)
<b>World Bank Financing</b>			
TF-18703	33,900,000	33,900,000	33,900,000
<b>Total</b>	<b>33,900,000</b>	<b>33,900,000</b>	<b>33,900,000</b>
<b>Non-World Bank Financing</b>			
Borrower/Recipient	5,840,000	5,940,000	5,940,000
Local Beneficiaries	2,260,000	3,840,000	3,840,000
<b>Total</b>	<b>8,100,000</b>	<b>9,780,000</b>	<b>9,780,000</b>
<b>Total Project Cost</b>	<b>42,000,000</b>	<b>43,680,000</b>	<b>43,680,000</b>

**KEY DATES**

Approval	Effectiveness	MTR Review	Original Closing	Actual Closing
20-Feb-2015	23-Feb-2015	11-Sep-2018	30-Dec-2019	30-Dec-2019

**RESTRUCTURING AND/OR ADDITIONAL FINANCING**

Date(s)	Amount Disbursed (US\$M)	Key Revisions

**KEY RATINGS**

Outcome	Bank Performance	M&E Quality
Satisfactory	Satisfactory	Substantial

**RATINGS OF PROJECT PERFORMANCE IN ISRs**

No.	Date ISR Archived	DO Rating	IP Rating	Actual Disbursements (US\$M)
01	25-Jun-2015	Satisfactory	Satisfactory	2.50
02	31-Dec-2015	Satisfactory	Moderately Satisfactory	2.77



03	28-Jun-2016	Satisfactory	Moderately Satisfactory	4.58
04	21-Dec-2016	Satisfactory	Moderately Satisfactory	6.11
05	23-Jun-2017	Satisfactory	Satisfactory	11.27
06	27-Jan-2018	Satisfactory	Satisfactory	17.80
07	30-Aug-2018	Satisfactory	Satisfactory	22.77
08	24-Mar-2019	Satisfactory	Satisfactory	28.27
09	11-Nov-2019	Satisfactory	Satisfactory	33.90

## SECTORS AND THEMES

### Sectors

Major Sector/Sector (%)

**Agriculture, Fishing and Forestry 70**

Public Administration - Agriculture, Fishing & Forestry 10

Other Agriculture, Fishing and Forestry 60

**Health 10**

Health 10

**Industry, Trade and Services 20**

Agricultural markets, commercialization and agri-business 20

### Themes

Major Theme/ Theme (Level 2)/ Theme (Level 3) (%)

**Private Sector Development 130**

Jobs 100

Enterprise Development 30

MSME Development 30



<b>Finance</b>	<b>20</b>
Financial Infrastructure and Access	20
MSME Finance	20
<b>Human Development and Gender</b>	<b>40</b>
Nutrition and Food Security	40
Nutrition	20
Food Security	20
<b>Urban and Rural Development</b>	<b>10</b>
Rural Development	10
Rural Non-farm Income Generation	10

#### **ADM STAFF**

<b>Role</b>	<b>At Approval</b>	<b>At ICR</b>
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## I. PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES

### A. CONTEXT AT APPRAISAL

#### Context

- Despite improvements in both poverty levels and equality in recent years, Nicaragua remained one of the poorest countries in the Latin American and the Caribbean (LAC) region.** The country had sustained an annual growth of 3.2 percent of the Gross Domestic Product (GDP) over the past years, but its Gross National Income per capita was only US\$1,780 in 2013<sup>1</sup>. Approximately, 42.5 percent of the country's 5.9 million inhabitants still lived below the poverty line and 14.6 percent lived in extreme poverty. During 2005-09, income for the bottom 40 percent grew at 4.8 percent per year – almost five times as fast as income for the population as a whole (1.02 percent), surpassing regional performance for LAC region and for Central America<sup>2</sup>. However, challenges remain on poverty reduction and shared prosperity given that most of the poor live in rural areas (63 percent), and many in remote communities.
- At the time of project appraisal in 2015, agriculture was a primary driver of economic growth in Nicaragua.** The agriculture sector represented 21.5 percent of GDP and 32.3 percent of all exports<sup>3</sup>. Agriculture was the single largest employer, accounting for over 30 percent of the labor force (more than twice the average of 15 percent for the LAC region). Low productivity of the main agricultural crops was the primary obstacle to sustaining agricultural growth and ensuring food security. The Caribbean Coast of Nicaragua is the country's main agricultural frontier. The region accounts for 43 percent of the national territory and includes 35 percent of the cattle herd, 23 percent of total agricultural area, 72 percent of the forest area, and 70 percent of fisheries production.
- High poverty levels remain characteristic of the Caribbean Coast of Nicaragua.** The largest poverty and malnutrition levels in Nicaragua are found in the Caribbean Coast<sup>4</sup>, where close to one million people live (15 percent of the national population). The prevalence of underweight children under five years old is 22 percent at the national level and 25.15 percent on average in the Caribbean Coast region, well above the LAC regional average of 3 percent<sup>5</sup>. The area is culturally diverse and is divided into North Caribbean Autonomous Region (*Región Autónoma de la Costa Caribe Norte*, RACCN) and South Caribbean Autonomous Region (*Región Autónoma de la Costa Caribe Sur*, RACCS), covering 20 municipalities and 23 indigenous peoples and afro-descendent territories<sup>6</sup>. Public infrastructure investments in recent years have improved the roads and access to electricity in the region, where the lowest infrastructure access rates in the nation had been the standard, under-scoring the historical marginalization of the region.
- Agriculture had potential for growth but faced critical challenges.** At the time of appraisal, low productivity of key agricultural crops was defined as the main obstacle to sustaining agricultural growth and ensuring regional food security. Agricultural Growth was constrained by weak capacity, limited access

<sup>1</sup> Estimate in current US\$ (Atlas Method), World Development Indicators database.

<sup>2</sup> 4.0% and 0.6% respectively. Source: The World Bank Lab.

<sup>3</sup> Source: INIDE.

<sup>4</sup> Source: MEFCCA, Project Completion Report, April, 2020.

<sup>5</sup> The Millennium Development Goals Report, UNDP, 2014.

<sup>6</sup> The indigenous peoples and afro-descendants constitute approximately 20 percent of the total population.



to assets and inputs, low application of good agricultural practices, and lack of rural infrastructure. Other limiting factors included lack of storage and post-harvest losses, weak agri-business development services and climate vulnerability<sup>7</sup>. Despite these limitations, agriculture had the potential to increase its contribution to the national economy and to poverty reduction, provided these structural challenges were adequately addressed to improve the productivity of food crops, foster diversification, and ensure linkages between agribusiness and smallholder production.

5. **The country's National Human Development Plan (PNDH)<sup>8</sup> emphasized the importance of access to safe and nutritious food for poor families.** The improvement of nutritional security from an agriculture perspective lacked awareness of the integration of nutrition into agricultural decision-making and consumption behavior. The improvements of nutritional security from an agricultural perspective is a multifaceted issue due to lack of awareness about the integration of nutrition into agriculture decisions and consumption behavior.

6. **Rationale for Bank support and Higher-Level Objectives the Project contributes to:** To support the implementation of the objectives of its National Food and Nutrition Security Policy<sup>9</sup>, the Government of Nicaragua requested grant funding from the Global Agriculture and Food Security Program (GAFSP), with the World Bank as the supervising entity of the grant. The goal was to enhance food and nutrition security and improve food availability and secure access to food through increased productivity of agriculture, and to a less extent other non-agriculture rural activities. Through the financial support of the GAFSP, the Project aimed to enhance nutrition security for indigenous, afro-descendants and Mestizo communities through increasing quality and diversified production and nutrition practices.

7. **The Project was aligned with the FY13-FY17 World Bank Group's Country Partnership Strategy (CPS) for the Republic of Nicaragua<sup>10</sup>.** It contributed to the CPS second objective, which focused on raising incomes by sustainably improving agricultural productivity, competitiveness, and diversification (paragraph 79). The Project's target beneficiary population was smallholder farmers in the Caribbean Coast, including Indigenous Peoples and Afro-descendant groups, fully in line with the CPS' Strategic area 2, which was organized around key strategic areas, namely a continuous focus on social welfare through heightened concern on issues of productivity, competitiveness and export diversification. The institutional arrangements were also fully consistent with the lessons learned and recommendations stated in the CPS relative to engagements with the Autonomous Regions, municipal and territorial governments of the Caribbean Coast. And, its objectives clearly linked with the country's overarching National Human Development Plan 2012-2016 (PNDH), including its Caribbean Coast Development Strategy, more specifically with its National Food and Nutrition Security Policy<sup>11</sup>. The CPS gender theme was also supported, and the Project sought alignment with the World Bank's twin goals of eradicating extreme poverty and promoting shared prosperity by targeting the poorest population in its targeted area.

8. **The Project added value and built on World Bank-financed projects.** The Project built on World Bank-financed projects, focused, since 1992, on helping Nicaragua improve rural development, agriculture

<sup>7</sup> Nicaragua ranked 4<sup>th</sup> globally for climate variability in 2014-2015, according to the Global Climate Risk Index (2019).

<sup>8</sup> National Human and Development Plan 2012-2016 (PNDH).

<sup>9</sup> Act N° 693.

<sup>10</sup> Report No 69231-NI, discussed by the Board of Executive Directors on November 13, 2012.

<sup>11</sup> Act N° 693.



and food security, especially through several rural development projects<sup>12</sup> with actions in the Caribbean Coast of Nicaragua. Moreover, the Project sought to add value by: (i) providing technical support and capacity building to improve nutrition and food security; (ii) serving in a convening role to facilitate donor coordination; (iii) providing unparalleled expertise and best practices in transparent and efficient public procurement; (iv) developing and implementing monitoring and evaluation (M&E) systems; and (v) helping the Government manage the risk involved in large-scale inter-institutional activity, consistently with the Caribbean region overall conditions.

### Theory of Change (Results Chain)

9. **The Project aimed to enhance food security (having access to sufficient quantity of food) and nutritional security (having access to food that meets dietary needs) in selected communities.** This would be achieved by enhancing the productive and marketing capacities of farmers and rural microenterprises, artisanal fisheries in production improvements, innovations and the consolidation of market opportunities. The Project also aimed to strengthen sectoral capacities for the provision of transversal services and support in the areas of technology generation and transfer, as well as nutritional education and communication. The Project's premise is that agricultural practices, technology, education and communication will lead to increased productivity of nutrition-smart crops and products, which will in turn lead to improvement in food security and nutritional status of beneficiaries. The core project instrument to achieve this objective was the participatory design and implementation of Innovation Development Plans (IDPs), a multifaceted package of support provided to organized, smallholder agricultural producers to improve their productivity and the nutritional quality of the agricultural products. Under the first component, the project would finance the participatory design and implementation of IDPs to support investments and capacity building activities in agriculture, artisanal fisheries and non-agricultural microenterprises. Under a separate component, technical assistance would be provided to IDP beneficiaries and agricultural institutions on technology generation and use to improve productivity and quality of agricultural production, as well as nutritional educational activities to the public to promote improved feeding and food handling practices.

10. **The short to medium-term goal was to increase the quantity, diversity and nutritional quality of food available in the Caribbean Coast of Nicaragua** - a marginalized region with high levels of poverty and malnutrition - by alleviating productive, technological, organizational, environmental and market-related barriers. The Project involved the participation of several national institutions and required the allocation of funds to increase their institutional capacities to provide technical assistance, distribute inputs, train beneficiaries on aspects related to food security, nutrition, food production, post-harvest management, food processing, and marketing.

11. **The Project also expected that improving post-harvest practices would ensure food security through the next agricultural cycle.** The longer-term goal - and a key design feature - was to address food and nutritional insecurity under an integrated approach, albeit with results measured separately. Thus, multi-media dissemination of nutrition messages and induced behavior change would intersect with greater production/availability of nutrition-smart crops/products to concurrently and measurably

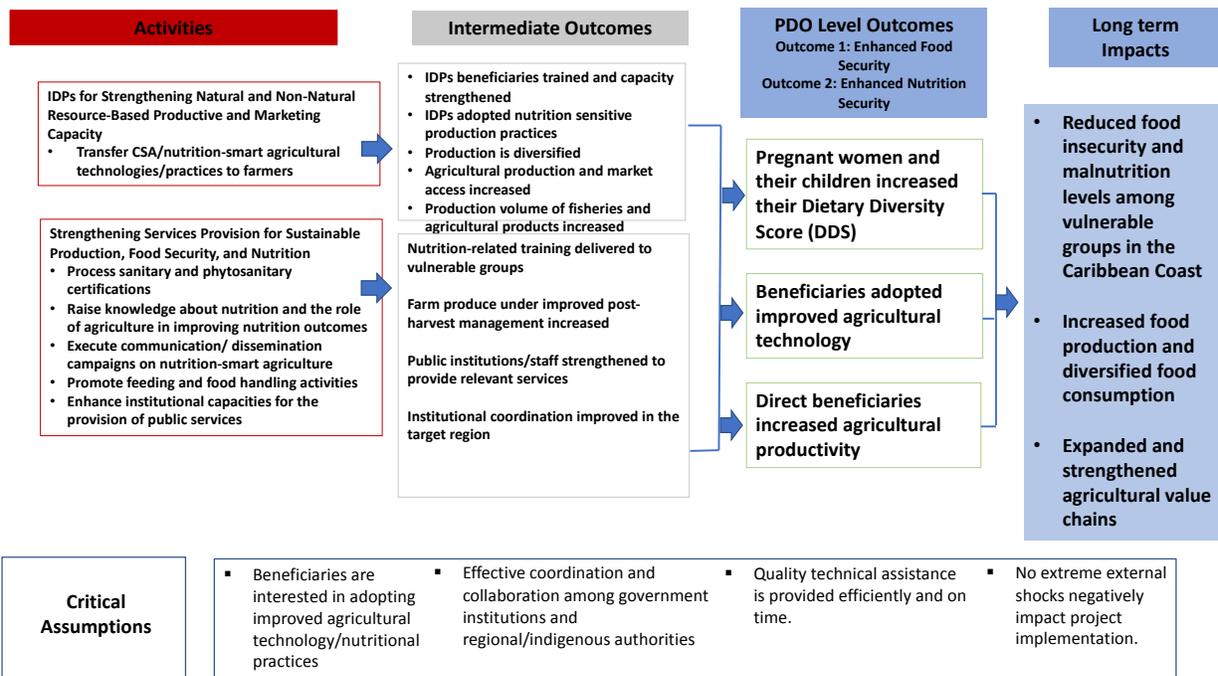
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<sup>12</sup> Projects: P087046 – NI Second Agricultural Technology Project; P108974 – NI Hurricane Felix Emergency Recovery Project; P121152 – NI Second Land Administration Project; P112353 – NI Caribbean Coast Development Program.



strengthen producer families’ food and nutritional security, supported by small infrastructure to store/process production against seasonal food shortages. Looking to longer-term sustainability, these outcomes would be reinforced by parallel strengthening of producers’ organizations and their access to technical and other services of sector institutions; and, strengthening of selected executing agencies especially the Nicaraguan Institute of Agricultural Technology (INTA). The IDP designs factored in regional infrastructure and logistical deficiencies, capacity weaknesses and cultural aspects by financing the incremental costs of the participating institutions to properly deliver the full range of IDP support.

Figure 1: Results Chain for Nicaragua – Caribbean Coast Food Security Project



Project Development Objectives (PDOs)

12. The PDO as stated in the Grant Agreement is to enhance food and nutritional security in Selected Communities of the Caribbean Coast of the Recipient<sup>13</sup>.

Key Expected Outcomes and Outcome Indicators

13. The key expected outcomes were enhanced food and nutritional security in selected communities of the Caribbean Coast of Nicaragua. The outcome Indicators were:

Outcome 1: Enhanced food security (in selected communities of the Caribbean Coast of Nicaragua)

- Clients who have adopted an improved agricultural technology promoted by the Project (Number);
- Clients who have adopted an improved agricultural technology promoted by the Project – Female (Number); –Breakdown indicator);

<sup>13</sup>. In the Grant Agreement (GA), dated February 23, 2015, the PDO is stated as “to enhance food and nutritional security in Selected Communities of the Caribbean Coast of the Recipient”.



- Increased agricultural/livestock productivity among all direct beneficiaries (Percentage).
- Outcome 2: Enhanced nutritional security (in selected communities of the Caribbean Coast of Nicaragua)
- Increase in Dietary Diversity Score (DDS) for women and children of direct beneficiary families (Percentage of the population reaching a target score).

### Targeted Beneficiaries

14. **The Project targeted approximately 246 indigenous, afro-descendant and Mestizo communities in fifteen municipalities<sup>14</sup> of the Caribbean Coast.** Beneficiaries included male and female small and medium-size producers (at least 20 percent to be women), young adults, and artisanal fishers with no or limited assets and equipment. It was estimated that the Project would support approximately 14,000 families, including 5,000 afro-descendant and indigenous families, and 9,000 Mestizo families. The targeted 15 municipalities were selected based on a combination of the level of poverty (from 25.2 percent in Paiwas to 87.4 percent in Desembocadura de Rio Grande)<sup>15</sup>, agricultural potential,<sup>16</sup> and the lack of coverage by similar projects. These same criteria guided the selection of the communities at the intra-municipal level.

### Components

15. **Component 1: Innovation Development Plans for Strengthening Natural and Non-Natural Resource-Based Productive and Marketing Capacity (estimated total cost US\$31.85 million, and actual US\$33.49 million)<sup>17</sup>.** This component sought to boost the productive and marketing capacities of farmers and rural enterprises by financing the participatory design and implementation - by formal and informal groups (cooperatives, producer associations) - of Innovation Development Plans (IDPs). The Ministry of Family, Communal, Cooperative, and Associative Economies (*Ministerio de Economía Familiar, Comunitaria, Cooperativa y Asociativa*, MEFCCA) identified and mobilized eligible beneficiaries through local consultations and promoted the participatory design of the IDP investments, including: (i) communication campaigns, (ii) provision of training to municipal officials and technical service providers; (iii) financial, procurement, social, environmental and technical assessments; (iv) strengthening organizational and business capacities of producer groups, and fostering smallholder linkages to market; and (v) the mobilization of technical assistance for sanitary and phytosanitary surveillance/services required to support IDP processes. The IDPs received project financing to cover investments for natural and non-natural resource-based activities and services with nutrition considerations. Four types of IDPs were supported by the Project: (i) Family agriculture; (ii) Artisanal fisheries; (iii) Agricultural/agro-industrial ventures; and, (iv) Non-agricultural microenterprises. More detailed information on the IDP is included in Annex 6.

16. **Component 2: Strengthening Service Provision for Sustainable Production, Food Security, and Nutrition (estimated total cost US\$6.42 million, and actual US\$4.84 million).** This component financed the strengthening of sector capacity to provide services to IDP beneficiaries in two broad areas: (i)

<sup>14</sup> Puerto Cabezas, Bonanza, Rosita, Waspam, Siuna, Prinzapolka, Waslala, Mulukuku, Paiwas, Bluefields, Kukra Hill, El Tortuguero, La Desembocadura de Rio Grande, Laguna de Perlas, and La Cruz de Rio Grande.

<sup>15</sup> National Weight and Height Census (INIDE, 2009)

<sup>16</sup> Study prepared by the International Food Policy Research Institute (2012)

<sup>17</sup> The difference in project cost at appraisal and closing is explained under Revised Components section.



technology generation/validation and transfer to improve productivity and quality of agricultural production by enhancing the institutional capacity of the Nicaraguan Institute of Agricultural Technology (INTA); and, (ii) nutritional education and communication and nutrition-smart agriculture activities promoting improved feeding and food handling practices emphasizing fertile, pregnant and breastfeeding women and children under five years old.

17. **Component 3: Project Management, Monitoring and Evaluation (estimated total cost US\$3.73 million, and actual US\$5.47 million).** This component supported project management capacity in MEFCCA, through its General Division of Cooperation and Projects (*División General de Cooperación y Proyectos*), which was responsible for the implementation of the project activities. Component 3 financed incremental and operating costs, equipment and goods for the MEFCCA, including a comprehensive Monitoring and Evaluation (M&E) system, environmental and social safeguards, financial management and procurement.

18. The change in total project cost compared to the appraisal estimate is explained by the increased contribution of beneficiaries, which was estimated at US\$2.26 million at appraisal but by closing reached US\$3.84 million, attributed to beneficiaries' interest in securing IDP support. At the component level, changes in the allocation of project funds resulted in: (i) increased funds under Component 1 to finance IDP operational costs; (ii) decreased funds under Component 2 due to transfer to Component 3; and, (iii) increased funds under Component 3.

## B. SIGNIFICANT CHANGES DURING IMPLEMENTATION (IF APPLICABLE)

### Revised PDOs and Outcome Targets

19. The PDOs and the outcome targets were not revised.

### Revised PDO Indicators

20. The PDO indicators were not revised.

### Revised Components

21. **The Components were not formally revised.** However, the major change in the project funds was the increase in the contribution from the beneficiaries, which was estimated at US\$ 2.26 million and the actual was US\$ 3.84 million and attributed to the beneficiaries' interest in the IDP support. The changes in funds allocation that occurred during project implementation were: (i) increase of funds under Component 1, to finance operational costs supporting IDP implementation; (ii) decreased funds under Component 2, which were transferred to Component 3; and (iii) increased funds under Component 3. The Government's actual counterpart funds contribution at closing was US\$5.94 million, slightly higher than estimated at appraisal. The actual total project cost at closing was US\$43.61 million, 103 percent of the appraisal estimate, which reflected the higher contribution provided by the beneficiaries and the marginally higher government counterpart amount.



## Other Changes

22. **Number of beneficiaries per IDP.** It was envisaged at appraisal that each IDP would include between 30 to 50 beneficiaries, which would result in the creation of approximately 200 - 400 IDPs. This approach was changed by reducing the number of IDPs to 58 averaging 255 beneficiaries each, and it did not affect the overall number of beneficiaries targeted by the Project.

## Rationale for Changes and Their Implication on the Original Theory of Change

23. The justification for the change in number of beneficiaries per IDPs was based on lessons from the first group of IDPs prepared which demonstrated that it was necessary to group a larger number of beneficiaries per IDP to optimize the supply of resources supporting the IDPs' preparation and implementation. Fewer IDPs encompassing more beneficiaries added efficiency to the management and organizational procedures for the supply of goods and services supported under the IDPs.

24. The adjustment in number of beneficiaries per IDP did not alter the Theory of Change (TOC). The TOC retained its approach to enhance food and nutritional security. The main adjustments to the technical strategy improved the operationalization of the IDPs, without altering their objectives.

## II. OUTCOME

### A. RELEVANCE OF PDOs

#### Assessment of Relevance of PDOs and Rating

25. **Relevance of the PDO to the World Bank Group (WBG) Country Partnership Framework (CPF, FY18-FY22, Report No. 123026-NI) remains High<sup>18</sup>.** The CPF pays special attention to disadvantaged groups and lagging territories within Nicaragua that have not participated fully in the benefits of growth. It prioritizes interventions that target specific groups such as youth, women, subsistence farmers, and Indigenous and Afro-descendant communities with a spatial focus on rural areas in the Caribbean and Central regions. Also, the project PDO remains aligned with the current CPF Pillar 1: Investing in Human Capital in particular for Disadvantaged Groups and its Objective 4: Improved Business Productivity and Financial Inclusion and Rural SMEs and Female Entrepreneurs, indicator 4.3, focused on increasing agricultural / livestock productivity among targeted beneficiaries in the Caribbean and Dry Corridor regions.<sup>19</sup> Continuous support to greater agricultural / livestock productivity in the Caribbean Coast remains essential. The PDO also remains consistent with government's development Strategy No. 6: Integral development of the Caribbean Coast and Strategy No. 10: Strengthening family, community and cooperative economies, including food security are priorities sought under the productive sector strategy, outlined in the current National Plan for Human Development<sup>20</sup>, which informs the National Policy for Mitigation and Adaptation to Climate Change<sup>21</sup> and the National Policy for Food and Nutrition Security<sup>22</sup>.

<sup>18</sup> See Country Partnership Framework (CPF) FY18-FY22 Report No. 123026-NI, dated February 12, 2018.

<sup>19</sup> Report No. 123026-NI, page 21, paragraph 58.

<sup>20</sup> *Plan Nacional de Desarrollo Humano 2018 - 2021 (PNDH)*.

<sup>21</sup> *Política Nacional de Mitigación y Adaptación al Cambio Climático*. Decreto Presidencial No. 07-2019, February 2019.

<sup>22</sup> *Política Nacional de Seguridad Alimentaria y Nutricional* (2009).



## B. ACHIEVEMENT OF PDOs (EFFICACY)

26. **The PDO to “enhance food and nutritional security in selected communities of the Caribbean Coast of Nicaragua” could be interpreted as two outcomes:** (i) enhanced food security in selected communities of the Caribbean Coast of Nicaragua; and (ii) enhanced nutritional security in selected communities of the Caribbean Coast of Nicaragua. However, the Project Appraisal Document (PAD) addresses these two outcomes as an integrated single development goal as the project interventions that support food security also lead to nutritional security<sup>23</sup>. Therefore, the same approach was followed in the ICR with the understanding that the achievements under the enhanced food security outcome also contribute to the achievement of the enhanced nutritional security outcome. Food security is defined as “having access to sufficient quantity of food” and nutritional security is defined as “having access to food that meets dietary needs.” The Project achieved this by increasing the productivity of food with nutritional value which meets the dietary needs of the selected communities of the Caribbean Coast of Nicaragua.

27. **Project results are directly linked to the project-financed interventions that supported the preparation and implementation of 58 IDPs<sup>24</sup>.** The Project was innovative for Nicaragua and its Caribbean Coast, at the time of appraisal, using an integrated approach through the implementation of IDPs to address food and nutritional security. The innovation consisted of the use of new improved crop varieties combined with the adoption of agro-ecological practices<sup>25</sup>; integration of food and nutrition security supported through the promotion of biofortified varieties<sup>26</sup>. Another innovative aspect was successfully enabling the institutional coordination designed to support the IDP beneficiaries, which was key for the operationalization of the Project’s integrated approach. To that end, the IDPs supported quality inputs (certified or improved seeds/seedlings), equipment, and practices to increase production/productivity, while also including nutrition elements such as: crop diversification using highly nutritious foods, introduction of improved seeds and bio-fortified crops, use of zinc fertilizers, improved technology for high value nutritional crops. The approach enabled the Project to provide the envisaged support to the targeted beneficiaries, stimulated their organizational strengthening, and significantly expanded the promoters’ network (IDP beneficiaries supporting the dissemination of technologies) within the targeted smallholder farmers’ communities. It also promoted the strengthening of sector institutions supporting the agricultural sector and improved coordination among the institutions that support producers in the Caribbean Coast through various governmental programs. The combined results of these interventions contributed to successfully achieving the PDO. Evidence of achievement of the PDO captured by the PDO Outcome and Intermediate Results Indicators and supporting information, including results from the Borrower Completion Report (MEFCCA/PAIPSAN-CNN, February 2020), and four impact assessments<sup>27</sup> financed under the Project are presented as follows:

<sup>23</sup> Food and Nutrition Security, UNSCN Meeting of the Minds, Nutrition Impact of Food Systems, 25-28 March, 2013.

<sup>24</sup> IDP interventions accounted for 70 percent of projects. The number of IDPs per type and beneficiaries is presented in Table No. 1, Annex 6

<sup>25</sup> A farming approach inspired in natural ecosystems, including improved crop varieties that offered higher resistance to diseases, sustained by using organic substrates and fertilization rich in nitrogen and micronutrients. Also, it allowed for the establishment of diversified agricultural and agroforestry systems, improving natural resources management, and the adoption of appropriate post-harvest technologies

<sup>26</sup> These are crops that are bred to have higher levels of essential nutrients, either through selective breeding or genetic modification. They improved the quality of the food consumed by IDP beneficiaries, since these are rich in zinc, iron, proteins and beta-carotene, among other important elements.

<sup>27</sup> The full title of these assessments and their summary is presented in Annex 8. They are: Independent final impact evaluation; Technology adoption level assessment; Agriculture-nutritive practices implemented; Agroecological production under the smart agriculture approach.



**PDO Outcome 1: Enhanced food security in selected communities of the Caribbean Coast of Nicaragua**

***PDO Outcome Indicator No. 1: Clients<sup>28</sup> who have adopted an improved agricultural technology promoted by the Project<sup>29</sup>. (Target exceeded by 33 percent. Target: 8,000; Result: 10,675)***

28. **The number of direct beneficiaries who adopted project technologies reached 10,675 (133 percent of the target)** with the large majority reported to have adopted from one to four technologies (compared to the adoption of at least one technology per the definition of Outcome Indicator 1). The information on the number technologies adopted results from monitoring, through the Beneficiary Monitoring System (BMS), of a total of 40 IDPs (which supports family agriculture activities), encompassing 11,713 beneficiaries (79 percent of the total 14,826 IDP beneficiaries). The technologies most adopted are presented in Table No. 3, Annex 6.

***PDO Outcome Indicator No. 1 (breakdown indicator): Clients who adopted an improved agricultural technology promoted by the Project – females<sup>30</sup>. (Target exceeded by 224 percent. Target: 1,600; Results: 5,188)***

29. **The total number of families led by women who implemented IDPs reached 6,994. Of those, 74.18 percent (5,188 women) adopted improved agricultural technologies.** Also, of major relevance was the participation of 1,123 women in the IDPs' "juntas directivas", the decision-making body at the community level managing IDP preparation and implementation (Table No.5, Annex 6). Women and young adults supported IDPs, with high relevance for food security. Female heads of household who benefited from the IDP directly contributed to family nutrition and food security, given their double role in providing for the family as well as in preparing food, raising the children, and promoting hygienic habits. Approximately 32 percent (4,750) of total IDP beneficiaries were young adults, contributing to longer-lasting changes (generational changes) both in technology adoption and nutritional practices. Details are provided in Table No. 5 and 6, Annex 6.

***PDO Outcome Indicator No. 2: Increased agricultural/livestock productivity among all direct beneficiaries. (Target exceeded by 680 percent<sup>31</sup>. Target: 10 percent; Result: 78 percent)***

30. **The Caribbean Coast demonstrated capacity to host significant increases in agricultural productivity.** The agricultural IDPs sought to improve agricultural activities through sustainable productivity gains and diversification of production. The IDP support resulted in a significant increase in agricultural productivity, increasing both access to food and availability of food simultaneously, and also improved their nutrition and income. IDPs targeting family agriculture (including livestock) led to an increase in production of corn, beans, rice, yucca, bananas and pork for self-consumption and production of surplus/commercial orientation. The key activities supporting the project's high productivity

<sup>28</sup> Clients, or beneficiaries of the IDP support have the same meaning. The beneficiary family means the family of the IDP beneficiary.

<sup>29</sup> This indicator measures the number of IDP beneficiaries who adopted at least one technology promoted by the Project, in a subsequent agricultural cycle after the IDP support concludes.

<sup>30</sup> This Outcome Indicator measures the number of IDPs beneficiaries (female) who adopted at least one technology promoted by the project, in a subsequent agricultural cycle after the end of the IDP support.

<sup>31</sup> This Outcome Indicator measures the percentage increase in agricultural yields (agricultural/livestock) compared to the baseline information.



achievements were: (i) Adoption of improved seeds providing superior resistance to pests and diseases, and high nutritional value; (ii) Hands-on, learning-by-doing dissemination of agricultural technologies for crop management such as: green manure; bio-inputs; and, integrated crop management; (iii) Adoption of Good Agricultural Practices (GAP); and, (iv) Provision of technical assistance coupled with frequent monitoring of farmers' progress. Details of the productivity values are provided in Table No. 7, Annex. 6.

31. **Increase in production volume was substantial.** Average production volume increase was 123 percent, exceeding the target of 15%, based on results from 45 IDPs. This also includes the results from 8 IDPs focused on artisanal fishery, which encompassed a total of 1,500 beneficiaries. These 45 IDPs comprised a total of 11, 713 beneficiaries, or 79 percent of the total 58 IDP beneficiaries (14,826). The IDPs led to an increase in production volume of priority crops (maize, beans, and rice) and main fishery products (fisheries, shrimps, and lobster). Through the fisheries IDPs, the Project strengthened the productive capacities for 1,500 families of small artisanal fishermen, by enhancing productivity of small-scale fisheries operations, and promoting environmentally friendly aquaculture businesses. The Artisanal Fishery IDPs financed provision of boats and fishery equipment, training in appropriate and selective fishery practices, strengthening capacity in commercialization; and technical assistance and monitoring. Details of the production volume and units of measure are provided in Table No. 8, Annex 6.

32. **Improved post-harvest practices.** As a result of overall increased productivity, production volume and the availability of post-harvest management technologies, approximately 66 percent of IDPs beneficiaries' total farm production volume of maize, beans and rice benefited from support to improve post-harvest practices. These post-harvest management technologies made more food (e.g. vegetables, homemade sauces, conserves, and flour) available for the family consumption and for commercial use, and enhanced family food security through the next agricultural cycle, to allow sales when prices were higher. It also ensured the agricultural products were able to keep their nutritional value longer. Post-harvest practices included: improved product selection, drying and storing processes; increased use of drying equipment; and, use of bags, metal silos and barrels for storage. (Table No. 15, Annex 6).

33. **Increased access to market.** The assessment of 14 IDPs indicated that 71 percent of those succeeded in establishing partnerships/agreements for product commercialization. Examples of these agreements include Robusta coffee bean crop purchases; fish production purchases; threshing services for grains and seeds processing; cacao production purchases by commercial groups; dairy production purchases by grocers' shops; and, spaces in markets and street markets. To increase access to markets, IDP support focused on: (i) identification of potential buyers; (ii) interchange of experience with processing plants and potential buyers; (iii) participation in events organized by an agency supporting micro and small enterprises<sup>32</sup>; (iv) capacity building in increasing value-added and commercialization; and, (v) participation in agricultural markets promoting and selling products.

34. **Sizeable coverage of the Project in the Caribbean Coast, and selected communities.** The implementation of project-supported IDPs benefited 14,826 families, or some 75,000 people totaling 39.8 percent of the total smallholder farmers (29,364)<sup>33</sup> in the Caribbean Coast of Nicaragua<sup>34</sup>. The Project reached 536 communities (exceeding the 246 estimated at appraisal) of which 33 percent are Indigenous

<sup>32</sup> MiPYMES – Nicaragua Micro, Small and Medium Enterprises Agency.

<sup>33</sup> IV CENAGRO Census, 2012, Nicaragua.

<sup>34</sup> A family is estimated to consist of 5.1 people : Nicaragua 2005 National Population Census.



Peoples and Afro-descendent beneficiaries (compared to the 35.7 percent estimated at appraisal). The food and nutritional security of these communities was improved via project investments which increased the quantity, diversity and nutritional quality of food available to them, backed by training in modern manufacturing practices including sanitary production (see below), and in household hygiene and healthy eating practices benefiting especially women and children. The methodology for selecting the beneficiaries, as well as the communities, combined three criteria: level of poverty, malnutrition, and agricultural potential. The differences, in particular in number of communities, were a consequence of the Government's effort to ensure equitable support to the 15 municipalities and to the existing 17 Indigenous Peoples territories that are located within the targeted area, within the two sub-regions targeted (RACCN and RACCS). The number of IDP beneficiaries by sub-regions, communities, gender, age, and ethnicity is presented in Table No. 2, Annex 6.

35. **Improved food safety. Agribusiness adopted Good Manufacturing Practices (GMP)/Good Hygienic Practices (GHP) (of the total agribusiness & fisheries IDPs) (Target: 50%; Result: 52%).** The five Agro-industrial type IDPs financed encompassed 23 agro-industrial ventures including the following: appropriate hygiene and manufacturing practices as per existing norms; sanitary measures for handling products; procedures for obtaining business and sanitary licenses; compliance with respect to the business location and water and sanitation facilities; preparation of technical manuals; training staff in production processes, administrative procedures, and follow-up with the required institutions; and, health certificates for staff. These activities improved food safety which also contributed to enhanced food security as well as nutritional security.

**PDO Outcome 2: Enhanced nutritional security in selected communities of the Caribbean Coast of Nicaragua**

**PDO Outcome Indicator No.3: Increase in Dietary Diversity Score (DDS) for women and children of direct beneficiary families<sup>35</sup>. (Target exceeded by 13 percent. Target: 80 percent; Result: 91 percent)**

36. **Combined technologies (increasing productivity, diversification, and nutrition quality of food produced) and technical assistance proved successful in increasing DDS.** Monitoring of a large sample including 16,770 women of fertile age (15 to 49 years old) and children under five years old, benefiting from 56 IDPs, indicated a DDS increase of 91 percent. This was leveraged by a combination of appropriate technologies and capacity building, primarily by incorporating nutrition-smart crops varieties and livestock in the IDPs support (e.g. fortified seeds, fruits and vegetable, production diversification, livestock increasing protein availability). Also, by training modules and materials on nutrition-smart activities in IDP proposals, and, most important, by entering "nutrition smart" criteria in the IDP approval mechanism. The increase in DDS obtained and the targeted population evaluated is presented in Table No. 9, Annex 6.

37. **Additional results supporting the achievement of the outcome of nutritional security are captured under the following indicators:** Percentage of diversified production (target:15%; result:45.51%); Percentage of IDPs beneficiaries adopting nutrition sensitive practices (target:50%; result:100%); and Number of nutrition related training (target:2,000; result:10,838). The number of

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<sup>35</sup> This Outcome Indicator measures the number of individual or group foods consumed daily by children under five and women, measured among all members of the family of the IDP beneficiaries.



agricultural improved practices (incorporating nutrition sensitive crops and livestock), and the number of IDP beneficiaries adopting nutrition-sensitive practices are presented in Tables No. 10 and No. 16, respectively in Annex 6.

### Other supporting information

38. The supporting information that follows, although not linked to an indicator in the Results Framework, reflects important project actions contributing to strong and durable outcomes:

- **Producers' organizations strengthened.** The IDPs supported the creation of 54 "solidarity groups" providing an organizational format for IDP support, and "*juntas directivas*" (beneficiary management committees) for each IDP and associated community. These committees helped to select the beneficiaries, define the IDP type, decide on the goods and services to be provided, and stayed informed on IDP implementation progress, including financial status. Most of these committees were mainstreamed as important community organizations (Table No. 11, Annex 6).
- **Network of promoters fostered.** Some 1,289 promoters (453 women) – community members, volunteers and IDP beneficiaries familiar with community culture and agricultural practices - were trained in agriculture and livestock production, agro-industry, fishery, micro and small business, social and environmental topics, and food and nutritional security as a transversal theme and supported IDP implementation. Their role was critical in ensuring that project targets were reached, field work was conducted and communication with communities was culturally appropriate.
- **Fostering, improving processes of value addition.** The IDPs: (i) supported agricultural/agro-industrial ventures, promoted and improved processes of value addition at the farm and collective level, and fostered market linkages; and, (ii) supported downstream processing (e.g., manual processing of cocoa). Resources were allocated to strengthen quality and safety management and investments in equipment for production. Regional deficiencies in productive technology, management and business capacity were addressed by: strengthening producers' entrepreneurial vision, especially women; supporting preparation of compliant business plans; provision of productivity- and quality-enhancing equipment and advisory on manufacturing practices; and, market-related information, partnerships/agreements with buyers and support with business licenses.
- **Technologies applied to artisanal fishery.** Artisanal fishery benefited from: innovative, sustainable technologies improving productivity, in compliance with national norms; training, equipment and hands-on assistance in linking to markets including partnerships/agreements with buyers. Results were substantial given the importance of artisanal fishery in the region and for coastal families for whom it is their only accessible activity for family food and income generation.
- **Increased availability of certified seeds and genetic material.** Limited availability of certified seeds contributed to initial difficulties in speeding up project implementation. IDPs supporting agricultural/agro-industrial ventures strengthened the quality and volume of seeds produced along with their appropriate treatment, storage solutions and marketing. This greatly benefited the two Technological Development Centers (TDC) managed by INTA, and upgraded by the Project, part of INTA's farm innovation system (including germplasm banks) providing genetic material adapted to regional production conditions in the project area.

### Justification of Overall Efficacy Rating



39. **Overall Efficacy is rated Substantial, considering the following factors:** The project objectives of enhanced food and nutritional security were fully achieved and directly attributable to the activities supported by the Project. The selected communities of the Caribbean Coast of Nicaragua now have improved access to food with improved nutritional value. These are supported by the achievement of all PDO Outcome Indicators, exceeding their end-targets, and all the Intermediate Outcome Indicators were achieved, with 12 of the 15 Intermediate Outcome Indicators exceeding their end-targets. The sustainability of project outcomes is also promising as described in the Risk to Development Outcome section of the ICR.

## C. EFFICIENCY

### Assessment of Efficiency and Rating

40. **An economic and financial analysis (EFA) was undertaken at appraisal and the same approach will be applied at ICR.** The impact of the Project is expected to be higher than envisaged at appraisal as confirmed by the economic rate of return (ERR) and the net present value (NPV) indicators presented in Annex 4. The economic net value of benefits being generated annually by beneficiaries is estimated to grow fourfold from NIO 146 million to NIO 586 million (US\$ 4.2 million to US\$ 17 million) as investments mature. While the project ERR at appraisal was estimated at 17 percent, at project closing it is now projected at 22.6 percent. Similarly, the project NPV was US\$ 15.6 million at appraisal and is estimated at US\$ 34.1 million at closing.

41. **Family income was expected to grow between 1.5 and 6-fold with an increase in family employment by enhancing farm activities and reducing farmers' dependence on off-farm income.** The Project supported beneficiaries' participatory identification of investments - including adequate training and technical assistance - reaching 14,826 farmers and fishermen grouped in 58 IDPs from the Caribbean Coast of Nicaragua (CCN) selected areas, including targeted indigenous and afro-descendant communities and mestizos. With the Project's holistic support, beneficiaries introduced climate smart changes and improvements in their activities generating benefits for themselves and the Nicaraguan economy.

42. **As in the original PAD EFA, the assessment at closing was based on representative farm and off-farm production or processing models including the main supported crops and activities of typical beneficiaries.** Agricultural beneficiaries (11,713 farmers) represented by the five models show an increase in their net family income per year of between two- to six-fold, from an average of about US\$320 to US\$1,300<sup>36</sup>. Similarly, the fisheries models representing 1,500 beneficiaries would permit increasing family income three-fold from about US\$2,680 to US\$8,150 per year<sup>37</sup> (see Annex 4). Two small businesses and two agro-industrial models representing eight and four IDPs, were also implemented. Under the first group (eight IDPs) favoring 1,104 farmers, it was estimated that after the Project grants, the financial rate of return (FRR) of the sample cases was more than 100 percent, while the ERR was 8 and 20 percent. In

<sup>36</sup> With improved seeds, some compost, adjusting seeding dates, integrated pest management practices and some other technology improvements, significant yield increases are being attained specially when departing almost from a below zero situation.

<sup>37</sup> Small-scale fishery folk in the project area are poor people living in isolated communities. Some groups are better connected to local processing plants and, hence, might get more stable income if quality requirements and just-in-time delivery of fish and seafood are met. Besides promoting improvements in productivity of capture, labor safety, and other good practices, the project promoted commercial linkages with processing plants so poor fishery folk can realize their economic potential.



the case of the second group (four IDPs) representing 509 IDPs beneficiaries, the FRR was also more than 100 percent, while the ERR was 34 and 20 percent<sup>38</sup>.

43. **The total value of production from the Project beneficiaries was estimated to grow about 3.8 times**, from USD 11.3 million to USD 43.3 million, while employment of family labor would increase by 73 percent, from 1.9 a 3.3 million person-days' work per year. Besides the increased amount of family labor use supported by the Project, the average returns per day of work were estimated to be increasing by 32.5 percent, from NIO 323 to NIO 428.

44. **Sensitivity:** The sensitivity analysis showed that if 15 percent of the assisted farmers were not to succeed in adopting the recommended agricultural practices, the ERR would drop from 22.6 percent to 19.5 percent; and if 30 percent of the assisted farmers did not sustain their changes, the drop would reach 16 percent. If the average agricultural prices of all products considered for the analysis were to drop by 10 percent, the ERR would be 14.5 percent, while if prices were to drop by 15 percent, the ERR would descend to 9.8 percent. Aspects of design and implementation were adequate and flexible, and no issues imposed a major burden on implementation (e.g., staff turnover, procurement issues, cost overruns, need for extensions of the closing date, cancellations of funds, etc.), which could have affected efficiency. All PDO targets were exceeded, further demonstrating that economic resources and inputs were converted into results.

45. **Based on this assessment, the Project has achieved and surpassed its economic and financial targets** and the efficiency is what would be expected in the operation's sector. It can be concluded that Project efficiency is **Substantial**.

#### D. JUSTIFICATION OF OVERALL OUTCOME RATING

46. **Overall outcome is rated Satisfactory** based on the following:

- **High relevance** of the PDO based on its sustained alignment with Bank strategy documents for Nicaragua, as well as with current national policies targeting the rural poor in defined regions.
- **Substantial rating for Efficacy** considering that: the project objectives were fully achieved.
- **Substantial rating for Efficiency**, based on positive economic and financial outcomes, and implementation efficiency.

#### E. OTHER OUTCOMES AND IMPACTS (IF ANY)

##### Gender

47. The Project was guided by a gender strategy, which in addition to responding to the relevance of gender in project design, also echoed government policies aimed at empowering women. Reflecting these orientations, the Project promoted gender equality through several integrated activities, part of the IDP methodology. Among key achievements, IDP support to 6,994 women, resulting in almost half of the IDP

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<sup>38</sup> The FRR is relevant for determining the results at the level of beneficiaries to verify if beneficiaries will be willing to undertake the assumed activities. If most of the investment is financed by project grants the cost for beneficiaries is only 10 or 20% of the investment, so the FRR to the amount that they invest is huge (100% or even more). Under the perspective of the ERR, grants (as other transfer of payments as taxes) do not enter as inflows or outflows in the cost and benefits analysis. Hence, even when the FRR is huge, the ERR considering the overall investment is not higher than 30 – 40%. Grants received by beneficiaries are the main reason why (FRR and ERR) show a huge difference.



support to beneficiaries being channeled to female heads of household, stands out. Another major result was the Project's achievements in ensuring women's informed participation in key decision-making platforms deriving from the IDPs' participatory approach, including: women's role in the IDPs' "*juntas directivas*" (1,123 women); in the rural development promoters' network; and, in commercialization promotion events. The Project's gender-sensitive approach was also embedded in the M&E system. Overall, the gender approach implemented by the Project led to tangible results, which were properly monitored and evaluated.

### Institutional Strengthening

48. **The Project promoted substantial institutional strengthening.** Enhancing the existing national and sectoral institutional coordination was a central part of project design and key to its success. The following institutional strengthening elements stand out:

- Effective functioning of the Project's institutional arrangements, which successfully enabled: (i) several institutions to contribute with specialized technical capacity and help MEFCCA with its project implementation responsibilities; (ii) decentralization of project implementation by effectively transferring the responsibility for key project activities to the three MEFCCA regional Delegations.
- Effective strengthening of the MEFCCA regional delegations through the provision of up-to-date equipment allowing same time communication with MEFCCA central offices, and enabling the decentralization of project activities; and, creation of institutional capacity for decentralizing development support to the Caribbean Coast.

49. **Institutional strengthening reached the Indigenous and Communal governments.** The Indigenous Territorial Governments and Indigenous Communal Governments were part of the project institutional arrangements and effectively involved. Project activities reached 17 of the 23 indigenous territories, and 208 local authorities participated as key players in IDP implementation and approval, including the two Governments of RACCS and RACCN.

50. **Sanitary and phytosanitary surveillance/services.** The Project strengthened this system of measures for food safety and animal and plant health standards by increasing the number of specialists, building capacity of technical teams, and providing transportation for supervision in remote areas. This enabled their presence in all communities supported by the Project. In many of these, it was the first time these services were available.

51. **Support to artisanal fisheries modernization.** The Project strengthened the National Fisheries and Aquaculture Institute (*Instituto Nacional de Pesca y Acuicultura*, INPESCA), increasing its presence in the fishery communities and supporting the improvement of fishery practices, allowing INPESCA to scale up support to these communities.

### Mobilizing Private Sector Financing

52. The IDP support involved in-kind contributions from private, beneficiary financing to the estimated cost of support provided under the IDPs, based on IDP type. The beneficiary contribution varied between 10 and 15 percent. The PAD estimated that the in-kind contribution from beneficiaries would



amount to US\$2.26 million. At project completion, beneficiaries' in-kind contribution was estimated at US\$3.38 million.

### Poverty Reduction and Shared Prosperity

53. **The Project contributed to poverty reduction.** It targeted the Caribbean Coast of Nicaragua, which is divided into two autonomous regions, the RACCN and the RACCS, which hold the highest poverty levels and incidence of extreme poverty in the country. In the RACCN municipalities, 77 percent of the population live in poverty, of which 72 percent are extremely poor. In the RACCS municipalities, 36 percent of the population live in poverty, of which 74 percent are extremely poor<sup>39</sup>. In addition, project beneficiaries were selected based on a combination of the level of poverty, malnutrition<sup>40</sup>, agricultural potential<sup>41</sup>, and lack of coverage by similar projects. In total, the Project provided support to 536 communities, of which 170 communities constituted indigenous and afro-descendent families, and 386 communities of Mestizo families. The IDP approach, combining integrated technologies focusing on increasing production and nutrition quality, directly contributed to improving living conditions and wellbeing of these families by increasing access to and availability of food of better quality. The net agricultural family income per year was estimated to have increased, with the IDP support, between two- to six-fold, from an average of about US\$320 to US\$1,300.

### Other Unintended Outcomes and Impacts

N/A

## III. KEY FACTORS THAT AFFECTED IMPLEMENTATION AND OUTCOME

### A. KEY FACTORS DURING PREPARATION

54. **Building upon lessons.** Project preparation benefited from the technical and institutional knowledge from previous operations<sup>42</sup>. In particular, it was built on a proposal initially prepared for the 2013 GAFSP, and on subsequent comprehensive discussions on that proposal concept and design, with different entities sharing solid expertise on the subject and laying the groundwork for preparation of the Bank-supported/ GAFSP operation in 2014.

55. **Challenging implementation arrangements.** The institutional arrangements proposed largely built on lessons from the sector-wide Productive Rural Development Program (*Plan Sectorial de Desarrollo Rural – Incluyente, PRORURAL-I*), which highlighted the need to strengthen institutional coordination within the sector and provided guidance in pursuing this strengthening focusing on regional and local levels. Still, the institutional arrangements required significant effort during preparation, especially given changes and institutional reforms occurring in Nicaragua at that point, as well as the World Bank's internal review recommendation that the institutional framework be simplified. The overall institutional

<sup>39</sup> [www.inide.gob.ni](http://www.inide.gob.ni): The latest and only official data by Municipalities is the Map of Extreme Poverty which uses the information of the 2005 National Population Census and the Unsatisfied Basic Needs Method to estimate poverty levels.

<sup>40</sup> National Weight and Height Census (INIDE, 2009).

<sup>41</sup> A study prepared by International Food Policy Research Institute (2012)

<sup>42</sup> Projects: P087046 – NI Second Agricultural Technology Project; P108974 – NI Hurricane Felix Emergency Recovery Project; P121152 – NI Second Land Administration Project; P112353 – NI Caribbean Coast Development Program.



arrangement<sup>43</sup> constituted a key challenge, especially given the decision to have MEFCCA as the only implementing agency, but dependent on support from several other agencies under other ministries, contrasted with the institutional arrangements in place for most Bank projects in Nicaragua at that time.

56. **Adequacy of the risk analysis.** The overall project risk rating at appraisal was *High*, mainly because a *High*-risk level was also assigned to each of the following categories: political and governance, technical design of the project, institutional capacity for implementation and sustainability, and, fiduciary. The PAD acknowledges that, although the project proposal was built on lessons learned from similar operations, significant risks remained given the multi-sector context, the complexity of project design, the country's vulnerability to external shocks, and low beneficiary capacity. No new risks were identified during implementation. The detailed description in the Project Operational Manual (POM), of the complex steps involving IDP preparation and implementation (from different operational angles), was part of the actions taken to mitigate the risks.

57. **Readiness for implementation.** Just two months after appraisal, the Grant Agreement was signed and declared effective. The required POM was ready and complied with the requirements agreed upon, as well as advanced first-year procurement activities. These were indications of the Government's high degree of ownership, and commitment to the Project. Later, in early project implementation, the difficulties faced by the Project in gaining the required speed in implementing IDPs indicated that a more robust implementation capacity needed to be established to tackle the multiple tasks related to them. Nevertheless, this need appears to have been foreseen during project preparation, since substantial funds were allocated for strengthening the implementation team at MEFCCA as well as in the sectoral institutions included in the implementation arrangements.

## B. KEY FACTORS DURING IMPLEMENTATION

### Factors subject to government and/or implementation entities' control:

58. **The IDP concept was innovative but more complex than anticipated, and acquiring the speed required in preparing and implementing the IDPs was challenging.** The IDPs were central to project design, and as such, IDP preparation and implementation processes constituted the driving force steering the project implementation timeline. During the first years, preparation of IDPs faced significant difficulties in gaining speed. This was attributed to the longer than expected timeframe needed for hiring specialized consultants (especially, experienced specialists from the Caribbean Coast, with knowledge of local languages and context) to strengthen the technical teams supporting project implementation in MEFCCA and its three territorial delegations, as well as in other sector institutions involved. Also, the implementation tools developed during project preparation were too complex, and the adjustments needed took longer than anticipated. In parallel, involvement of the institutions required to support the IDPs gradually gained traction, once the discussions and training achieved results and agreements were updated. In addition, the support designed to implement the IDPs did not properly reflect the different operational procedures required by each type of IDP, which had significant implications such as in terms of expertise of the technical support needed and the timeline involved. The Project's implementation pace, which gained speed between the second and third year of project implementation, reflects the efforts in preparing the envisaged number of IDPs to achieve the targets set. Nevertheless, the integration

<sup>43</sup> A summary of the project institutional arrangement is presented in Annex 7.



of food and nutrition security under the IDP approach proved to be appropriate, it facilitated engaging beneficiaries, while also promoting the involvement of all family members in the IDP support.

59. **The institutional implementation arrangements, while complex and weighty, proved successful.**

The Project's complex institutional arrangements were identified as a risk for implementation; their success was possible to the extent that they responded to the socio-political and institutional context of the Caribbean Coast of Nicaragua. Although significant capacity strengthening was needed during implementation, the institutional arrangements were actually one of the main factors contributing to the quality and timely achievements of project objectives. The sector institutions involved ensured the delivery of technical assistance focused on innovative technologies appropriate to Caribbean Coast climatic conditions, improving production productivity and nutrition values. The markets for technology dissemination promoted by INTA were particularly successful.

60. **The Food Safety and Animal Health Institute (IPSA) mobilization of sanitary and phytosanitary services and technical assistance were especially important.**

And INPESCA's efforts to reach out to a large number of artisanal fishermen/women living in areas facing extremely difficult access were also noteworthy. The Ministry of Agriculture (MAG) was instrumental in the delivery of the technical capacity-building activities under Component 3, as well as MINSA with respect to the nutritional-sensitive activities. The roles of the two Autonomous Regional Governments and the Indigenous Territorial Governments and Indigenous Communal Governments were performed as envisaged, ensuring close contact with the communities, respect for their cultural aspects and consistency of the project with government program priorities. Additionally, MEFCCA and its three regional delegations properly executed the administrative and operational functions and ensured proper and timely coordination of the multiple governmental entities involved. The "*juntas directivas*", as a decentralized coordination arrangement under the IDPs, were also essential in facilitating several aspects related to the management of IDP implementation.

61. **Logistics.** Dispersion of beneficiaries in a significantly large territory and some deficiencies in the secondary road network, created a substantial challenge for the Project to ensure timely and quality distribution of seeds, vegetative material and goods. Essential public investments in the region were undertaken in parallel to the Project, contributing to its implementation and results by improving regional connectivity. This is particularly significant with respect to investments in the roads network (some of them supported by World Bank-financed projects) and expansion of the electricity grid, infrastructure and services. The improvements facilitated are providing technical services to a larger number of beneficiaries, establishing reliable and frequent communication with them (number of WhatsApp users quickly and significantly increased), and providing equipment requiring electricity services, key for improving agricultural practices.

62. **Promoting appropriate technologies.** The identification of appropriate technologies for the Caribbean Coast required significant effort from the sector institutions involved. This was particularly critical with respect to improved seeds production and promotion of improved agricultural practices, which project support contributed to enabling. It resulted from coordinated actions implemented by IPSA, INTA, INPESCA, MAG and MEFCCA.

**Factors subject to World Bank control:**



63. **The Bank’s resourceful implementation support was critical for strengthening capacity to implement the IDPs.** Essential actions included efficient assistance through periodic missions focusing either on overall project support or to address specific technical aspects, such as: strengthening the client’s capacity to coordinate and implement project activities, including to maximize synergy between MEFCCA, INTA, IPSA, MAG, and INPESCA; establishing the financial management system; providing recommendations for developing the project baseline and for establishing the M&E system; designing and implementing the impact evaluation study for the mid-term review; improving and implementing the safeguards instruments; reviewing and updating the Project Operational Manual; supporting IDP preparation and implementation; and, assisting in incorporating smart agricultural practices in IDP design. Also, Bank assistance was crucial in the dialogue with multiple institutions implementing the IDPs to improve their coordinated actions supporting IDP preparation and implementation.

#### IV. BANK PERFORMANCE, COMPLIANCE ISSUES, AND RISK TO DEVELOPMENT OUTCOME

##### A. QUALITY OF MONITORING AND EVALUATION (M&E)

###### M&E Design

64. The key features of M&E design were as follows:

- **M&E was logical as explained in the PAD, and the PDO and Results Framework (RF) were consistent.** The PDO and the RF were properly aligned and there was adequate correspondence between expected outcomes and PDO indicators. The M&E framework was critical for the decision-making process, for defining implementation priorities and course adjustments; and, for ensuring transparency with respect to implementation results, which was key for the dialogue and cooperation within multiple participating institutions. It facilitated identification of implementation bottlenecks and actions needed to address these.
- **The PAD described the main project indicators in detail and the quality of the Results Framework was appropriate.** The PDO Indicators were adequate and properly covered the integrated PDO statement (“enhance food and nutritional security”), by including Outcome Indicators focusing on: technologies adopted; production volume increase; and, increase in DDS. The RF was clear and presented the information in a consistent manner.
- **M&E scope was complex and demanding in line with project design.** The M&E system and project designs were consistent, and in both, the IDP was central. Monitoring and evaluating the IDPs were demanding given: the large territory targeted; a large number of beneficiaries and their dispersion; the IDP preparation and implementation cycle required monitoring in different stages of that cycle; including the monitoring of a control group, for which project support was provided in a later implementation year; and the difficulties in accessing the beneficiaries within a time schedule given the poor condition of the roads. Two essential elements of the M&E system were the Baseline study and the Beneficiary Monitoring System (BMS). The M&E also included an impact evaluation study initiated at the time of the baseline preparation.

###### M&E Implementation

65. The Baseline study and BMS developed and implemented during project implementation, constituted an important support to the decision-making process. Developing the Baseline study and the BMS also improved the measurement procedures supporting two of the PDO Outcome Indicators (3 and



4). The Baseline study and BMS details described below show the robustness of these two instruments as well as the sizeable effort in design and implementation involved.

- **Baseline Study.** The high-quality Baseline study was jointly developed by MEFCCA, the Central Bank of Nicaragua, the National Institute for Information on Development (*Instituto Nacional de Información de Desarrollo, INIDE*), assisted by the World Bank. It was developed early in project implementation, following a methodology establishing a sample of IDP beneficiaries for more in-depth monitoring and informing the evaluation studies. It was also a key element of the impact evaluation study that was started at the early project implementation stage. The overall process involved a thorough organizational process, and selecting, hiring and training 68 consultants external to the Project to carry out the survey's campaigns, supervision, registration and analysis of data. It was not only for developing the baseline, but also for the preparation of an impact evaluation analysis, which was carried out in two phases: to inform the project mid-term review and consolidated at the project closure. The support from the World Bank and the GAFSP were also critical in guiding the overall process.
- **Beneficiary Monitoring System (BMS).** This was an innovative, real time, geo-referenced system allowing each community to track IDP progress in their area, as the GASFSP grant required. The BMS<sup>44</sup> was robust and its design required: (i) developing the entire system, including software and manuals; (ii) implementing the BMS in MEFCCA and training the teams from the multiple institutions supporting the IDPs to produce, register and process the data; (iii) registering the data from the baseline aggregated by IDPs; (iv) data collection performed by specialists and project teams in MEFCCA's decentralized regional offices (*Delegaciones Regionales*); and (v) issuing reports by IDPs, communities, municipalities and regions for supervision oversight performed by MEFCCA and the multiple institutions supporting the IDPs, as well as to the two IDP Technical Revision Committees, responsible for approving key steps of the IDP process.
- **The M&E system deserves special commendation**, including its sound foundation and thorough baseline which – along with the innovative, geo-referenced real-time BMS – stands out as best practice. The M&E system, including the institutional experience gained with the Project's impact evaluation, have been adopted by MEFCCA for its overall programs.
- **The monitoring reports were of good quality** and delivered on time.

#### M&E Utilization:

66. **Project monitoring data and progress reports were a valued input into management decision-making, and key research and reporting deliverables.** These include the ICR, the Borrower Completion Report, the project economic and financial analysis, supervision Aide Memoires, information provided to the beneficiaries on the progress of the IDPs, impact evaluation studies, and project results dissemination activities (stakeholders' information, institutional planning and coordination) including regular progress reports, seminars and workshops. However, the comprehensive data generated by the Baseline study and BMS implementation after effectiveness were not used to adjust the target of two project indicators which were found to not be in line with the data collected. Also, it was only at the end of the project implementation, when the execution of all IDPs concluded, that the data regarding the achieved targets became clear and firm. Nevertheless, the differences between the estimated target at appraisal and the

<sup>44</sup> The BMS was organized around six menus: (i) Administration; (ii) Beneficiaries; (iii) Agro-industrial; (iv) Specific reports; (v) Project Results Framework; and, (iv) Scale: allowing for managing data aggregated at local, regional and central levels.



achieved target were as follows:

- **PDO Outcome Indicator “Increased agricultural / livestock productivity among all direct beneficiaries.”** During project preparation, the indicator target was set at 10 percent. However, during implementation, the Baseline study and BMS revealed that agricultural / livestock productivity rates reported by IDP beneficiaries were actually much lower than estimated during project preparation. This information should have prompted a significant increase in the target above 10%. Leaving it unchanged resulted in the target being exceeded by 680 percent by project closure, which is mathematically correct and properly reflects the project’s impact but also reflects the greatly overstated beneficiary agricultural productivity rates estimated at appraisal.
- **Intermediate Results Indicator “Increased production volume.”** A similar situation described above applies to this indicator. The indicator target was 15 percent, while the results were 123 percent (target exceeded by 720 percent). The reason for this high result is that the target set at project preparation was significantly underestimated, and it did not properly reflect the low productivity levels that the economic and financial analysis, at the preparation stage, adequately presented. This was also confirmed by the Baseline study and the BMS.

#### Justification of Overall Rating of Quality of M&E

67. **Quality of M&E is rated Substantial for the following reasons:**

- **M&E design was strong and logical.** Also, the PDO and RF were consistent and well-aligned. The Project’s theory of change was clear and adequate indicators were identified in the RF to monitor progress toward the PDO using effective M&E arrangements.
- **Implementation of M&E was satisfactory,** delays at the start were addressed and the system’s two main elements (Baseline study and the BMS) were developed to best practice standards and provided the envisaged support to project implementation, including solid beneficiary and stakeholder participation.
- **M&E utilization was a meaningful input for project implementation,** but some aspects of M&E utilization were weak, with implications for end of project measurement. as mentioned above. Nevertheless, M&E informed the decision-making process and the preparation of reports and impact evaluation studies.

## B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE

### Environmental

68. **The Project was classified as Category B (partial assessment) and triggered Environmental Safeguards:** OP/BP 4.01 Environmental Assessment, OP/BP 4.04 Natural Habitats, OP/BP 4.36 Forests, OP 4.09 Pest Management, and OP/ BP 4.11 Physical Cultural Resources. An Environmental Assessment (EA) and Environmental and Social Management Framework (ESMF) to address and manage all environmental risks and impacts were prepared, consulted, and disclosed following the World Bank’s policies and directives. The Project was designed to have an overall positive environmental impact through the promotion and application of climate-smart agriculture and sustainable production/fishing practices. Despite the anticipated positive environmental impacts, the Project environmental risk was considered *Substantial*, as it posed some environmental risks related to small scale contamination from inadequate or even prohibited use of agrochemicals or deficient management of animal manure. To comply with the



ESMF requirements, 58 Environmental Social Management Plans (ESMPs) were prepared for each one of the IDPs. The approved ESMPs were disclosed in the country on October 28, 2019, and by the World Bank on December 12, 2019.

69. **Through the implementation of the ESMPs, the institutional capacity for environmental management was strengthened** and the technologies aligned with recommended adaptation and mitigation measures responding to climate change vulnerability, and climate-smart agricultural practices. It promoted the use of sustainable agricultural practices, including the production and use of green fertilizers and pesticides, and encouraged the use of sustainable fishing practices. The Project's environmental safeguards team comprised officials from MEFFCA and the sector agencies, as well as environmental specialists at the central level and decentralized regional offices. The quality of the ESMP documents was appropriate and they were submitted on time in compliance with WB requirements. Overall, the Project's compliance with triggered environmental safeguards was satisfactory. The main actions carried out in compliance with the Environmental Safeguards triggered were: (i) OP/BP 4.01 Environmental Assessment: Applying the ESMF, an environmental screening was carried out for each of the 58 IDPs and tailored ESMPs were prepared addressing all the OPs/BP triggered; (ii) OP 4.09 Pest Management: Included adoption of appropriate technologies such as improved seeds more resistant to diseases, and integrated crop management; (iii) OP/BP 4.36 Forests: Included IDP support for protecting existing forest covered areas and integrated crops management to expand those; (iv) OP/BP 4.04 Natural Habitats: Included IDP support creating incentives for preserving natural habitats; (v) OP/BP 4.11 Physical Cultural Resources: Chance find procedures were included in the ESMF and were screened under the ESMPs.

## Social

70. **The Project triggered the social safeguard policy OP/BP 4.10 Indigenous Peoples.** The Social Assessment conducted during project preparation recognized that the Project was going to operate within multiple complex social, geographic and political contexts that presented a substantial risk of elite capture. To manage risks: a communication and public engagement plan was prepared and implemented; and, a participatory IDP design process was developed and adopted (as the 2003 Regional Autonomy Statute, Law No. 28, requires), ensuring opportunities for indigenous beneficiary group inputs at key decision points. An Indigenous Peoples Planning Framework (IPPF) was prepared, discussed and disclosed in accordance with World Bank guidelines. The implementation of the social safeguard was guided by the ESMF. A total of 33 Indigenous Peoples Plans (IPP) were prepared, benefitting 4,901 IPs, of which 2,218 were women. These IPPs were prepared and reviewed with stakeholders in public consultations in their respective communities, translated to indigenous or afro-descendent languages (Misquito, Mayagna and English/Creole). The IPPs were disclosed on two different dates: a first group, by MEFFCA on February 1<sup>st</sup>, 2017, and a second group in October 21, 2019. The World Bank dates were August 27, 2017, and October 22, 2019. Implementation of the IDPs and IPPs included the participation of more than 170 traditional authorities and high levels of involvement and ownership of indigenous and afro descendant beneficiaries. Overall, project compliance with the social safeguard policy triggered was satisfactory.

71. **Grievance Redress Mechanism:** The Project developed a Grievance Redress Mechanism (GRM) in consultation with communities, which was implemented effectively. A GRM report was generated every three months summarizing grievances received, how they were addressed and resolution status. During



field visits carried out by social safeguards specialists, the communities confirmed that they were aware of the mechanism and explained its functioning. WhatsApp was the channel most used to convey their questions and concerns to MEFCCA, and they informed the safeguard specialists that the answers received were promptly provided. In December 2019, MEFCCA submitted a final GRM report describing its functioning, communications strategy and implementation. It also identified key implementation challenges and lessons learned. A total of 129 incidents were recorded, 81 of which were complaints; all were satisfactorily resolved before project closing. This report is available in the project files.

## Procurement

72. **Procurement was carried out by MEFCCA at the central level, as well as by the three decentralized regional offices.** In the case of the IDPs, this reflected the “delegated administration arrangement”. The two other acquisition arrangements (options) foreseen during project preparation (“shared administration” and “direct transfer of funds”) were not mobilized. Some delays occurred at project start-up, caused by the significant volume of acquisition processes managed by few specialists, given the initial difficulties the project faced in hiring specialists in the area. However, the gradual strengthening of capacity (specialists, equipment, including servers allowing on-time connection between the three decentralized regional offices and central project unit) and the increase in the number of IDPs prepared, resulted in sound procurement processes. Overall, the performance by the Project was satisfactory as was overall project procurement performance.

## Financial Management (FM)

73. Through the implementation stage of this Project, FM performance ranged from moderately satisfactory to satisfactory. Project bi-annual interim unaudited financial reports (IFR) were generally submitted to the Bank with some delays but were considered acceptable. Independent audit reports were consistently submitted to the Bank on time<sup>45</sup> and included unqualified (clean) opinions. Some minor weaknesses in internal controls were observed by the auditor and internal control recommendations were made and adequately addressed. At the beginning of the implementation period and as assessed through the preparation stage, the financial information system (*‘Sistema Integrado de Administracion Financiera’*, SIAF) was not completely developed, but as implementation continued, this in-house developed system was strengthened and became fully functional, allowing adequate recording and control of the Project’s financial information (including Subprojects’ financial information), and production of IFRs.

74. Regarding the three modalities for flow of funds<sup>46</sup> to the IDPs beneficiaries envisaged during preparation, in practice the most appropriate and applicable – and the one which was utilized throughout – was the “delegated administration modality”, in which MEFCCA carried out the IDP’s fiduciary administration. The limited presence of formal producers’ organizations in the targeted area was the main factor explaining this decision.

<sup>45</sup> The final financial audit report is scheduled for June 2020.

<sup>46</sup> The three modalities were: (i) fiduciary administration of IDPs by MEFCCA, or “delegated administration”; (ii) shared administration of IDPs, in which the procurement process/decisions would be taken by the beneficiary groups, but payment would be made by the project/MEFCCA; and, (iii) direct transfer of IDP funds to formalized/legalized groups of beneficiaries (cooperatives, associations, community-based organizations, and others).



## C. BANK PERFORMANCE

### Quality at Entry

75. **Key elements of the Project's quality at entry show a generally strong picture with minor shortcomings, as follows:**

- **The Bank supported the GAFSP proposal which supported the strategic priorities of the country and prepared a timely, relevant operation targeting the rural poor in the Caribbean Coast.** It properly identified the significance of the expected project results, targeting smallholder producers, Afro-descendant and Indigenous communities. It designed the institutional framework needed and properly assessed the conditions for more efficiently assisting a very poor region of the country.
- **PDO design focused on enhancing food and nutrition security through an integrated approach leveraged by the IDP support.** This element of project design assumed correctly that the integrated IDP approach would lead to the envisaged outcomes.
- **Project design assumed correctly that a complex institutional arrangement was appropriate.** The arrangements were properly described, including the detailed role of each institution.
- **Bank inputs and processes were adequate,** and the Project was designed (and supervised) by an experienced Bank team, with a good knowledge of country conditions and needs.
- **Environmental and social aspects were adequately assessed,** and the involvement of Indigenous communities was reflected in safeguards and activities. A quality IPPF was prepared and guided the appropriate preparation of 33 IPPs during implementation.
- **Gender aspects including the Project's strategy for ensuring that women received IDP support was key in project design.** The strategy sought to promote significant engagement of women in the IDP process.
- **The project risk analysis was adequate** and sound provisions for mitigating risk were incorporated.
- **Readiness to implement however, was uneven.** Some operational elements were not ready causing delayed implementation, such as those related to the financial management procedures. Fiduciary elements were not improved and completed until the second year of project implementation. These were addressed once the additional units and capacity were in place within MECCA and its three, involved decentralized regional offices.

### Quality of Supervision

76. **Key features of supervision quality are as follows:**

- **Supervision focused heavily in the early years on facilitating the technical and operational base for developing and implementing IDPs.** This support was fundamental to the project's ability to implement and maximize its development impact.
- **Strong collaboration with the GAFSP Coordination Unit strengthened the quality of supervision.** It involved close monitoring leading to joint decision-making, as well as knowledge-sharing events.
- **Measurement of development impact was a supervision priority,** starting with the opportune identification of issues to be addressed, a timely Baseline study, the high quality BMS, including impact evaluation studies (to which an additional trust fund from GAFSP contributed), and the close involvement of health and nutrition specialists from the Bank, facilitating a small trust fund for training of MECCA specialists.



- **Regularly timed, scheduled missions addressed overall supervision and specific technical aspects.** The frequent and timely presence of the team providing overall supervision - in particular taking advantage of the fact that part of the team was country-based - as well as timely support from specialists (FM, Procurement, M&E, Safeguards), enabled the project to address implementation constraints and ensure timely achievement of project objectives. Ten missions were carried out by specialists, plus thirteen supervision missions (in which some specialists also participated).
- **The Bank's resourceful assistance was critical to strengthening capacity to implement the IDPs.** An international and national team of specialists with proven experience in the Caribbean Coast provided support throughout the project cycle.
- **Performance reporting was high quality,** candid, comprehensive and a valuable input to the ICR.
- **Bank team staffing was stable from preparation through closing.** This continuity of the TTL and key specialists, undoubtedly contributed to the Project's success in achieving its objectives.
- **However, needed update of some RF targets was not done,** with implications for overachievement of some project results.

#### Justification of Overall Rating of Bank Performance

77. **The Bank's overall performance is rated Satisfactory.** This takes into consideration minor shortcomings in the Quality at Entry, balanced against a generally strong Quality of Supervision. Shortcomings are not assessed as sufficiently weighty to merit an overall rating of Bank performance below Satisfactory. This is also aligned with the project Outcome rating of Satisfactory.

#### D. RISK TO DEVELOPMENT OUTCOME

78. **The sustainability outlook is promising.** The risks to development outcome include risks affecting the sustainability of the adopted changes if the beneficiaries of the supported IDPs return to their previous production practices. Key elements fortified by the Project are likely to contribute significantly to lowering these risks to development outcome. MEFCCA's plan<sup>47</sup> to continue supporting these strengthened activities will further contribute to reducing risks. The key elements strengthened by the Project that are likely to contribute to lowering the risk to development outcome are: (i) strengthening of the promoters' network; (ii) organizational strengthening of the beneficiaries; (iii) promotion of the beneficiaries' alliance with private sector stakeholders along the value chains; (iv) improving post-harvest practices; and, (v) advancing coordination among the institutions that support producers in the Caribbean Coast through various programs. Other relevant elements contributing to the sustainability of development outcomes are the noteworthy strengthening of the sector institutions supporting agricultural activities in the Caribbean Region; and, the support provided to improve the production of improved seeds and vegetative material adapted to the region, as well as to improve sanitary and phytosanitary services.

79. MEFCCA's plan - expected to foster sustainability and discussed with the Bank - includes:

- Further strengthening beneficiary organizations by continuing technical support to organizations already created, completing the structuring of some organizations, and fostering new community organizations.

<sup>47</sup> MEFCCA, *Informe final de ejecución y resultados comprendidos entre el 23 de febrero del 2015 al 30 de diciembre del 2019*. Tabla No. 54. Riesgos futuros y medidas a implementar, page 113.



- Further, targeted assistance to IDP-supported agro-industrial ventures and microenterprises, to ensure that business standards acquired are maintained and that they can access the financing programs available to such organizations.
- Continued promotion of appropriate agricultural technologies through supported extension programs and phytosanitary services.
- Continued/increased availability of support from INTA, IPSA and MEFCCA through: (i) existing Seed Banks and Research and Innovation Farms, which also provide capacity building and validation of new technologies; (ii) the Germplasm Banks supported by INTA Development Centers; (iii) capacity building on nutrition/agricultural technologies targeting women; and (iv) boosting the technical and operational capacity of those lead institutions themselves, in the Caribbean Coast region.
- Continued involvement of the promoters' network, given their wide capillarity in the rural communities and capacity to disseminate appropriate agricultural technologies.

## V. LESSONS AND RECOMMENDATIONS

80. **Flexible implementation arrangements proved an appropriate approach for a project targeting a culturally diverse population.** This approach, plus the fact that most of the project instruments were in place and ready for project launching, and the existence of clear selection criteria for beneficiary definition made it possible for the Implementing Agency and its Delegations to carry out a highly efficient and ultimately successful implementation process. It is recommended that similar projects provide flexibility permitting adaptation to diverse beneficiary characteristics and situations, and that key instruments and eligibility criteria be agreed and in place – to the extent possible – pre-effectiveness.

81. **The existence of MEFCCA's regional offices (Delegations), accountable for project monitoring and fiduciary aspects, brought several benefits under complex implementation arrangements.** The deployment of qualified personnel in the field (including, with strong local expertise and knowledge of local languages), the decentralization of decision-making, the establishment of an efficient inter-agency coordination mechanism with agencies of the National System of Production, Consumption, and Commerce (see Annex 7), the close coordination with the two Caribbean Autonomous Regional Governments at both strategic and technical levels, the existence of a comprehensive monitoring system and a robust financial management system (SIAF) improved supervision capacity and accelerated project implementation. Also, it helped to inspire trust, increased the level of engagement of regional authorities, and facilitated the envisaged direct support to beneficiaries, thereby building ownership. It is recommended that teams take advantage of opportunities to decentralize project implementation.

82. **Decisive government leadership, effective communication strategy with Caribbean autonomous regional authorities and indigenous communal governments, and the longevity and stability of the Bank and government teams, made the difference.** These features, combined with technical and managerial strengthening of the diverse involved institutions, clearly contributed to addressing beneficiaries' needs, utilizing and further building institutional memory/capacity and accountability, and unlocking bureaucratic difficulties. It is recommended that the design of similar projects carefully consider the Project's command and control structure and how that serves targeted beneficiaries.

83. **Participatory processes are key for the proper functioning of the decentralized coordination**



**structures at the beneficiary level, envisaged as part of project implementation arrangements, in the context of different levels of autonomy of indigenous governments in the Caribbean Coast of Nicaragua.** Inducing these structures to adopt fair procedures (in full compliance with Nicaragua’s regional autonomy legislation), acknowledged by all participants, is crucial for the structures to fulfill their foreseen functions. Designing these procedures is not a simple task, but a multifaceted one. It is recommended that it be undertaken, to the extent possible (given that the reality on the ground might not be fully known until implementation), during the project preparation phase.

84. **IDP support needs procedures tailored to the diverse groups of beneficiaries targeted.** Support for a group of family agriculture producers is quite different from support addressing smallholder agro-processing ventures, for example. It is recommended that designing the way these supports will be provided must reflect these differences, and be tailored accordingly, considering not only the technical aspects but the cultural context, as well as the different support period needed and complexity. This lesson is relevant for any similar operation.

85. **Addressing enhanced food and nutrition security based on an integrated strategy proved a successful approach.** It combines key elements appealing to the targeted families (such as increased production volume, of improved nutritional quality) and facilitates the engagement of the family members: the comprehensive approach ensured a meaningful role for each family member in integrating the food production and food delivery/family nutrition objectives. The results this approach was able to achieve are highly significant for projects with similar objectives. New, similar projects should consider how integration of these two major, related themes might strengthen outcomes.



**ANNEX 1. RESULTS FRAMEWORK AND KEY OUTPUTS**

**A. RESULTS INDICATORS**

**A.1 PDO Indicators**

**Objective/Outcome:** To enhance food and nutritional security in selected communities of the Caribbean Coast of Nicaragua

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Clients who have adopted an improved agr. technology promoted by the project	Number	0.00 25-Nov-2014	8000.00 30-Dec-2019		10675.00 30-Dec-2019
Clients who adopted an improved agr. technology promoted by project – female	Number	0.00 25-Nov-2014	1600.00 30-Dec-2019		5188.00 30-Dec-2019

**Comments (achievements against targets):**

The target was exceeded by 33%. Target 8,000. Results: 10,675. Source: BMS.

The target of female clients was exceeded by 224%. Target 1,600. Results: 5,188. Source: BMS.

A total of 10,675 IDPs beneficiaries adopted a least one improved agricultural technology promoted by the Project, while the large majority reported to have adopted from one to four technologies. The technology “Chicken HY LINE BROWN” was adopted by 10,675 IDPs beneficiaries (91.1 percent of the total number of beneficiaries that adopted a technology). The two technologies “Chicken HY LINE BROW” and “Beans INTA ROJO” were adopted by 8,909 IDPs beneficiaries (76.1 percent of the total number of beneficiaries that adopted a technology). The three technologies “Chicken HY LINE BROWN”, “Beans INTA ROJO”, and “Maize NB 9043” were adopted by 4,871 IDPs beneficiaries, (41.6 percent). The three technologies “Chicken HY LINE BROWN”, Beans INTA ROJO, and “Maize NUTRINTA AMARILLO” were adopted by 2,746 IDPs beneficiaries (23.4 percent).

The technologies, accordingly with the frequency of adoption, were: “Maize NB-9043”, 6,031 IDPs beneficiaries; “Maize NUTRINTA AMARILLO (biofortified)”, 6,154 IDPs



beneficiaries; “Beans INTA ROJO”, 9678 beneficiaries; “Rice INTA DORADO”, 4,105 IDPs beneficiaries; Cassava INTA PERLA, 3,178 IDPs beneficiaries; Chicken HY LINE BROWN, 10,675 IDPs beneficiaries.

The information on the number and frequency of technologies adopted was made available through the BMS and was assessed by the impact evaluation study financed under the Project. The assessment targeted the IDPs beneficiaries whose IDP support concluded in the previous agricultural cycle, thus allowing to identify producers who adopted a technology promoted through the IDP support. The assessment highlighted that results obtained during the IDP support regarding, in particular, higher productivity gains and practices improving the overall production system in the farm, were among the main reasons that encouraged the producer to adopt a technology promoted.

Detailed information regarding the technologies adopted by the IDP beneficiaries (including female beneficiaries) is presented in Annex 6.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Increased agricultural/livestock productivity among all direct beneficiaries	Percentage	0.00	10.00		78.00
		25-Nov-2014	30-Dec-2019		30-Dec-2019

**Comments (achievements against targets):**

The target was exceeded by 680 %. Target:10%. Results: 78%. Source: BMS.

As a direct result of the Project, the increase in agricultural/livestock productivity among all direct beneficiaries, was 78.25 percent. This result was obtained in a group of 37 IDPs - Family Agriculture type, which included 11,713 beneficiaries. The productivity increase reflects the performance of the following crops and livestock: corn, beans, rice, yucca, bananas, and pork. The significant increase in productivity achieved also reflect the extremely low productivity rates reported by the producers when the baseline information was prepared, which was also captured in the economic and financial analysis carried out at appraisal. These extremely low productivity rates, well below the national average, were a consequence of: (i) almost no appropriate technologies were used; (ii) the agricultural activities were driven by the family subsistence levels requirements; (iii) the continued use of seeds of very poor genetic quality; (iv) the Caribbean Coast agroecological characteristics; and, (v) the high poverty levels, hampering access to agricultural technologies and inputs.

The significant increase in productivity achieved was also combined with an increase in diversification of crops and livestock. Both access to food and availability of food increased simultaneously. The results in increased productivity were influenced by: transfer of improved seeds variety more resistant to diseases and provided with high nutritional value; transfer and implementation of technologies promoting organic crop management (organic fertilizers, bio inputs, and integrated crops management); Implementation of Good Agricultural Practices; technical assistance and frequent monitoring.



Detailed information regarding the increase in agricultural / livestock productivity supported by the Project is presented in Annex 6.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Increase in Dietary Diversity Score (DDS) for women and children of direct beneficiary families	Percentage	0.00	80.00		91.00
		25-Nov-2014	30-Dec-2019		30-Dec-2019

**Comments (achievements against targets):**

The target was exceeded by 13%. Target 80%. Results 91%. Source: BMS.

As a direct result of the Project, the DDS increased to 91 percent. This result was monitored in a group of 16,770 beneficiaries, including women in fertile age (15 to 49 years old) and children younger than five years old, which benefited from 56 IDPs. Detailed information on the DDS obtained is presented in Annex 6. It is important to highlight that the DDS results were obtained through a sample of women and children evaluated twice during the project implementation. First, as part of an impact evaluation assessment carried out for informing the project Mid-Term Review. Second, as part of a complementary impact evaluation assessment carried out for informing the Final Report of the Project prepared by MEFCCA.

**A.2 Intermediate Results Indicators**

**Component:** Innovation Development Plans for Strengthening Natural and Non-Natural Resource-Based Productive and Marketing Capacity

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Families who implement IDPs	Number	0.00	14000.00		14826.00
		25-Nov-2014	30-Dec-2019		30-Dec-2019
Families led by women, who implement IDPs	Number	0.00	2800.00		6994.00
		25-Nov-2014	30-Dec-2019		30-Dec-2019



**Comments (achievements against targets):**

The target was exceeded by 6%. Target: 14,000. Results: 14,826. Source: BMS.

The target for female led families was exceeded by 149%. Target: 2,800. Results: 6,994. Source: BMS.

The number of families who implemented IDPs increased in a slower pace than anticipated during project preparation but exceeded the end-target and in line with the original closing date. The IDPs preparation started in the first year of the project implementation, but these were ready for implementation on the project second implementation year. In the Project's third implementation year, approximately 80 percent (11,563) of the total number (14,826) of families were implementing IDPs. The increase in number of families implementing IDPs, during the project five-year implementation period, is presented in Annex 6.

The number women leading the IDPs implementation was 6,994. It largely exceeded the end-target (2,800). The increase in number IDPs led by women followed the same gradual trajectory as describe above. The significant increase achieved resulted in particular from: the project communication strategy that focused on promoting the engagement of women in the Project, compounded by the implementation of activities aligned with the gender strategy of GON and implemented through the country Nacional Human Development Program (2018 – 2021), which promotes both women and men participation in development initiatives.

It was also leveraged by the following: (i) the project gender strategy defined a target of minimum 20 percent of women leading IDPs, but the actions promoted led to a larger achievement given, in particular, the large number of families led by women; (ii) the full adoption of the Project and the GON principles promoting women participation by the officials of the several institutions involved; and (iii) the high level of relevance attributed by the Project to this target, given its importance in improving food and nutrition security amongst poor families. The number of families led by women, who implemented IDPs, is presented in Annex 6.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Increased production volume (of fisheries and agriculture products)	Percentage	0.00	15.00		123.00
		25-Nov-2014	30-Dec-2019		30-Dec-2019

**Comments (achievements against targets):**

The target was exceeded by 720%. Target: 15%. Results: 123%. Source: BMS.

The increase in production volume was 123 percent (agriculture products and fisheries), obtained from the monitoring (through the BMS) of IDPs implemented by 11,713 beneficiaries. To calculate the increase in production volume the priority crops were considered (maize, beans, and rice) obtained from 37 IDPs – Family agriculture type, as well as the main fishery products (fisheries, shrimps, and lobster) obtained from 8 IDPs – Artisanal fishery type. Information on increased production volume is presented in Annex 6.



The main factors contributing to the crop production volume increase were: (i) increase in the production area by incorporating resting areas and practices of crops rotation; (ii) crops diversification within the same area; (iii) adoption of improved seeds more resistant to diseases and high nutritional value (which replaced the low quality local seeds); (iv) adoption of organic technologies for crops management (green fertilizers, integrated crops management); (v) adoption of good agricultural practices; (vi) technical assistance and monitoring. The main factors contributing to the artisanal fishery production volume increase were: (i) improvements in the fishing capacity (provision of boats and fishery equipment); (ii) production diversification; (iii) increase in the fishing efficiency and selectivity (adoption of mandatory technical norms (*Norma Técnica Obligatoria Nicaragüense* (NTON 03045-08)); (iv) commercialization agreements achieved with the industrial plants; (v) improvements in the navigation security measures; and (vi) technical assistance and monitoring.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Agribusiness adopting Good Manufacturing Practices (GMP)/Good Hygienic Practices (GHP) (of the total agribusiness & fisheries IDPs)	Percentage	0.00	50.00		52.00
		25-Nov-2014	30-Dec-2019		30-Dec-2019

**Comments (achievements against targets):**

The target was exceeded by 4%. Target: 50%. Results 52%. Source: BMS.

Out the total of 5 IDPs – Agricultural/agro-industrial type (encompassing 23 agri-business ventures), 52 percent of those adopted practices promoted by the Project. These 23 agri-business were provided with a license confirming the good quality of their products, which was achieved through: (i) observing the sanitary license procedures; (ii) complying with all requirements including: location, lightning, sanitation facilities, water supply, waste disposal; (iii) developing manuals and technical forms; (iv) training workers, interchanging of experience, on-the-job training; (iv) tailored trainings modules; (v) provision of personal health certificates; and (vi) developing and observing environmental management plans focused on waste management and occupational health.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Increased market access	Percentage	0.00	40.00		71.00
		25-Nov-2014	30-Dec-2019		30-Dec-2019



Increased market access - female	Percentage	0.00	40.00	71.00
		25-Nov-2014	30-Dec-2019	30-Dec-2019

**Comments (achievements against targets):**

The target was exceeded by 77%. Target: 40%. Results: 71%. Source: BMS.

The female market access target was exceeded by 77%. Target: 40%. Results: 71%. Source: BMS.

The result achieved was obtained by assessing 14 IDPs (of two types: Family agriculture and Artisanal fishery) which promoted commercial strategies. The main examples of commercial arrangements reached are coffee bean selling agreement with a trading company; artisanal fishery selling agreements with processing industry; grain processing deals; street market commercialization; cacao processing agreements; artisanal fishery commercial agreements with exporting trades, supermarket and street market. In addition, 57 small agri-business benefited from value added procedures.

It was observed that the IDPs beneficiaries usually undertake commercial activities based on a verbal, unwritten agreement. Most of the IDPs beneficiaries did commercialized their products at the local level, or with the grain collector individuals/companies. The street markets supported by MEFCCA have provided a reliable commercialization option for the IDPs beneficiaries.

Among the beneficiaries of the IDPs assessed, 497 were female beneficiaries who achieved a steady access to the market. The commercial activities involved 57 small business involving a group of people and 130 small business held by one individual. The Project provided support to: identification of potential buyers; contact with processing plants and potential buyers for knowledge sharing; participating in events held by MIPYMES (the Nicaraguan agency supporting micro and medium enterprises) to learn about products in demand; increasing capacity on aggregated value and commercialization; participation in farmers' markets to promote and commercialize products.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Diversified production	Percentage	0.00	15.00		45.00
		25-Nov-2014	30-Dec-2019		30-Dec-2019

**Comments (achievements against targets):**

The target was exceeded by 200%. Target: 15%. Results: 45%. Source: BMS.



The results reflect the information gathered from 5,576 beneficiaries covered by 20 IDPs targeting family agriculture oriented to self-consumption. The diversified production was achieved by incorporating varieties of high nutritional value in the overall crops' varieties. The diversified production involved: basic grains, roots and tubers, vegetables, perennials (cacao), and semi-perennial. Complementary information is presented in Annex 6.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Volume of farm produce under improved post-harvest management	Percentage	0.00	30.00		66.00
		25-Nov-2014	30-Dec-2019		30-Dec-2019

**Comments (achievements against targets):**

The target was exceeded by 120%. Target 30%. Results: 66%. Source: BMS

The volume of farm produce under improved post-harvest management achieved 66 percent of the agricultural products (including: corn, beans, and rice). This was based on the results attained by 40 IDPs – Family agriculture type, involving 11,713 beneficiaries who received post-harvest management. The increase in farm produce volume under improved post-harvest management was the direct result of an overall increased production volume, and the availability of post-harvest management technologies. Also, the need to secure food for the family along the next production cycle was another important element. The main factors that enabled achieving the end-target were: (i) the adoption of improved technologies for grain selection, drying, and storage; (ii) having the means for grain drying (drying granary), storage (bags, metallic silos, barrels) allowing the family to better plan for the family food, seeding needs, and commercialization when the prices are higher; (iii) losses reduction supported by the improved production technologies; and, (iv) availability of technical assistance focused on improving practices such as for products cleaning, drying, storage and diseases control. Additionally, the technologies promoted lead to an increase in the production of: (i) vegetables; bananas, and tubers; and, (ii) homemade sauces, conserves, and flour for the family consumption. Overall, the results achieved promoted food and nutrition security.

**Component:** Strengthening service provision for sustainable production, food security, and nutrition

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
IDPs adopting nutrition sensitive practices	Percentage	0.00	50.00		100.00
		25-Nov-2014	30-Dec-2019		30-Dec-2019

**Comments (achievements against targets):**



Target was exceeded by 100%. Target 50%. Results: 100%. Source: BMS.

100 percent of the IDPs – Family agriculture type monitored, constituted by 11,713 beneficiary families adopted nutrition sensitive practices, which included: bio-fortified seeds, orchards, fruit trees, and livestock. In summary, all the IDPs – Family agriculture type adopted nutrition sensitive practices. The nutrition sensitive practices most adopted were: family orchards (carrots, tomato, melon, passion fruit, watermelon, onions, beets, cucumber, cabbage); fruit trees (papaya, avocado, orange, lemon), livestock (improved breeds of poultry and pork); improved seeds (Rice INTA DORADO, Maizs NB-4093 and NB-6, Beans INTA ROJO and INTA SEDA); Crops nutritional improved / biofortified (Rice L8 and L9, maize NUTRINA AMARILLO and NUTRANDER, cassava INTA AMARILLA, beans INTA NUTRITIVO, and NUTRITIVO RENDIDOR). Additional information is available in Annex 6.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Nutrition-related training	Number	0.00	2000.00		10838.00
		25-Nov-2014	30-Dec-2019		30-Dec-2019
Nutrition - related training (men)	Number	0.00	800.00		5721.00
		25-Nov-2014	30-Dec-2019		30-Dec-2019

**Comments (achievements against targets):**

The target was exceeded by 441%. Target: 2,000. Results: 10,838%. Source: BMS.

The target was exceeded by 615%. Target: 800. Results: 5,721%. Source: BMS.

The nutrition training activities supported by the Project included workshops and hands-on training, which promoted participation of men and women, in particular of men, given that they were not usually involved in nutrition related activities. The thematic areas addressed included: (i) Nutritional food security pillars: availability of and accessibility to food, consumption and the biological use of food, while highlighting the link of these pillars with the IDPs designs and implementation; (ii) The nutritional value of different food, highlighting the importance of these by groups of foods and the nutrients they provide and the importance of these ingredients for the family, in particular children younger the 5 years old; (iii) appropriate feeding procedures for children younger than 5 years old, complying with Norm 029/MINSA, addressing types of food, portion size, texture of the food accordingly with different groups of children ages; (iv) appropriate feeding procedures for women in fertile age, complying with Norm 029/MINSA, and accordingly with the pregnancy phases as well as newborn care; (v) appropriate food hygienic manipulation procedures, describing basic and simple procedures to prevent diseases; (vi) practical procedures for food preparation as well as to maintain food quality; and (vii) appropriate procedures for water consumption, considering methods for water disinfection.



IDPs beneficiaries (men) participated in the nutrition training (workshops and hands-on training) promoting the importance of nutrition-sensitive agricultural production, the properly balanced food habits, and the family hygiene and health. The production practices the IDPs promoted were emphasized including the importance of: the family orchard, the reintroduction of the native fruits, the small livestock, the organic fertilizers, among others.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Technological Development Centers (TDC) upgraded	Number	0.00	2.00		2.00
		25-Nov-2014	30-Dec-2019		30-Dec-2019

**Comments (achievements against targets):**

Achieved: 100%. Target: 2. Results: 2.

Two Technological Development Centers, in the municipalities of Kukra Hill and El Recreo, were upgraded supporting innovation on species and varieties increasing agriculture productivity, as well as sustainable natural resources management, and climate change adaptation. These centers provide services to farmers aimed at improving and maintaining the biodiversity of agricultural species, through the rescuing, preservation, characterization and evaluation of native germplasm contribution for food and medicine purposes, as well as defining procedures for the local agriculture genetic improvement. The centers make available to farmers a variety of germplasms (appropriate to the Caribbean Coast), including cacao, Musaceae, avocado, robust coffee beans, bamboo, citric, etc. Regarding the livestock, studies are ongoing focused on the food concentrates. The project investments on the TDC are contributing to improve the agricultural and livestock varieties appropriate to the region, and the agriculture and livestock productivity. These based on sustainable natural resources technologies and climate change adaptation procedures. The centers also provide capacity building activities for farmers including field journeys and knowledge sharing.

**Component: Project management, monitoring and evaluation**

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Audits carried out	Number	0.00	5.00		4.00
		25-Nov-2014	30-Dec-2019		30-Dec-2019

**Comments (achievements against targets):**



Achieved: 100%. Target 5. Results: 5. Four financial audits have been carried out. The final audit is under preparation to be concluded by June, 2020, as required.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Evaluations carried out	Number	0.00	2.00		3.00
		25-Nov-2014	30-Dec-2019		30-Dec-2019

**Comments (achievements against targets):**

The target was exceeded by 50%. Target: 2. Results: 3.

The three evaluations carried out include: (i) the Baseline Study in 2016; (ii) the first impact evaluation in April – May 2018; (iii) an independent Project Impact Evaluation in 2019. **The Baseline** study was developed by MEFCCA with support from the Central Bank of Nicaragua, the National Institute for Information Development (*Instituto Nacional de Información del Desarrollo* (INIDE) and the World Bank. The study targeted the social, cultural and economic aspects of the Caribbean Coast, which were related to the project indicators. It was developed from September 2016 through May 2017. However, it was observed that the information obtained regarding agricultural production in the Caribbean Coast were too high. This was addressed by developing a production baseline information specific for each IDP, which properly reflected the local production conditions. Also, the broader baseline developed a methodology for monitoring the IDPs beneficiaries, which established a control group. The IDP support to this control group was phased along the project implementation and aligned with the impact evaluation methodology. The baseline development and impact evaluation procedures were built on a thorough organizational, preparation and capacitation process. It involved the surveys pollsters, coordinators, supervisors, digitalization, and data analysis, requiring the participation of 68 consultants in total. Local capacity was developed which was again involved in the surveys required for updating the Beneficiary Monitoring System (BMS) and carrying out the evaluation of this system data. Overall, these procedures were essential for the development and implementation of the project M&E system. The **first Impact Evaluation** was carried out in May/June 2018, focused on 1,811 families distributed in 64 communities within the project targeted area, providing the information for the Mid-Term Review, as well as a final survey in October/November 2018. The selection of the surveyed families was based on statistical methodology. Also, procedures for anthropometrical measurements and hemoglobin information were added for children from 0-59 months old and fertile women from 15 to 49 years old. MINSA provided the staff and technical support for that purposes. The **final Impact Evaluation** was carried out in November/December 2019, and its results supported the Final Project Report prepared by MEFCCA. Other studies assessing specific results achieved were also prepared. A summary of four of these studies, which aimed at evaluating the impact of the project are presented in Annex 7.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Project monitoring and	Percentage	0.00	80.00		100.00



evaluation system in place and operating		25-Nov-2014	30-Dec-2019		30-Dec-2019
<p><b>Comments (achievements against targets):</b> The target was exceeded by 25%. Target: 80. Results: 100.</p> <p>The M&amp;E system was developed in 2015-2016 and complemented in 2018. The M&amp;E main feature was the <b>Beneficiary Monitoring System (BMS)</b>, which incorporated the data from all IDPs beneficiaries. It ensured: (i) coordinated participation of all IDPs beneficiaries families; (ii) field data collection during the IDP implementation; (iii) quality control of the information received, requiring corrections and improvements on the procedures carried out on the field; (iv) data recording in excel sheets for later processing; (v) analysis and reporting of the indicators progress; (vi) information for management analysis and decision making; and (vii) continuous data collection and recording during the project implementation timeline.</p>					



B. KEY OUTPUTS BY COMPONENT

Objective/Outcome 1: Enhanced food security	
Outcome Indicators	<ol style="list-style-type: none"> <li>1. Clients who have adopted an improved agricultural technology promoted by the Project.</li> <li>2. Clients who have adopted an improved agricultural technology promoted by the Project – female</li> <li>3. Increased agricultural/livestock productivity among all direct beneficiaries</li> </ol>
Intermediate Results Indicators	<ol style="list-style-type: none"> <li>1. Number of families who implement IDPs: target: 14,000; result: 14,826</li> <li>2. Number of Families led by women, who implement IDPs: target: 2,800; result: 6,994</li> <li>3. Technological Development Centers (TDC) upgraded: target: result:</li> <li>4. Percentage increased production volume (of fisheries and agriculture products): target: 15%; result: 123.67%</li> <li>5. Percentage of the agribusiness adopting Good Manufacturing Practices (GMP)/Good Hygienic Practices (GHP) (of the total agribusiness &amp; fisheries IDPs): target: 50%; result: 52.17%</li> <li>6. Percentage of increased market access: target 40%; result: 71.43%</li> <li>7. Percentage of increased market access - female: target 40%; result: 71.43%</li> <li>8. Percentage of the volume of farm produce under improved post-harvest management: target: 30%; result: 66.25%</li> <li>9. Audits carried out: target: 5; result: 4.</li> <li>10. Evaluations carried out: target: 2; result: 3.</li> <li>11. Project monitoring and evaluation system in place and operating: target: 80%; result: 100%.</li> </ol>
Key Outputs by Component (linked to the achievement of the Objective/Outcome 1)	<p><b>Component 1: Innovation Development Plans for Strengthening Natural and Non-Natural Resource-Based Productive and Marketing Capacity</b></p> <ol style="list-style-type: none"> <li>1. Percentage of increased agricultural/livestock productivity among all direct beneficiaries: target: 10%; result: 78.25%</li> <li>2. Increase in Dietary Diversity Score for women and children of direct beneficiary families: target: 80%; result: 91.44%</li> <li>3. Percentage of the volume of farm produce under improved post-harvest management: target: 30%; result: 66.25%</li> </ol>



	<p>4. Percentage of the agribusiness adopting Good Manufacturing Practices (GMP)/Good Hygienic Practices (GHP) (of the total agribusiness &amp; fisheries IDPs): target: 50%; result: 52.17%</p> <p>5. Percentage of IDPs beneficiaries adopting nutrition sensitive practices: target: 50%; result: 100%</p> <p>6. Percentage of increased market access: target 40%; result: 71.43%</p> <p>7. Percentage of diversified production: target 15%; result: 45.51%</p>
<b>Objective/Outcome 2: Enhanced nutritional security</b>	
<b>Outcome Indicators</b>	<b>Increase in Dietary Diversity Score (DDS) for women and children of direct beneficiary families</b>
Intermediate Results Indicators	<p>1. Percentage of IDPs beneficiaries adopting nutrition sensitive practices: target: 50%; result: 100%</p> <p>2. Percentage of diversified production: target: 15%; result: 45.51%</p> <p>3. Number of nutrition related training: target: 2,000; result: 10,838</p> <p>4. Nutrition related training – men: target: 800; result: 5,721.</p>
Key Outputs by Component (linked to the achievement of the Objective/Outcome 2)	<p><b>Component 1: Innovation Development Plans for Strengthening Natural and Non-Natural Resource-Based Productive and Marketing Capacity</b></p> <p>1. Percentage of IDPs beneficiaries adopting nutrition sensitive practices: target: 50%; result: 100%</p>
	<p><b>Component 2: Strengthening Service Provision for Sustainable Production, Food Security, and Nutrition</b></p> <p>1. Number of nutrition related training: target 2,000; result: 10838</p>

## ANNEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION

### A. TASK TEAM MEMBERS

Name	Role
<b>Preparation</b>	
Augusto Garcia	Task Team Leader(s)
Francisco Rodriguez	Procurement Specialist(s)
Enrique Antonio Roman	Financial Management Specialist
Sofia De Abreu Ferreira	Counsel
Fernanda Balduino de Oliveira	Team Member
Eli Weiss	Team Member
Tuuli Johanna Bernardini	Social Specialist
Mayela Murillo	Team Member
Luz Berania Diaz Rios	Team Member
Sandra Monica Tambucho Perez	Team Member
Maria Virginia Hormazabal	Team Member
Jason Jacques Paiement	Social Specialist
Norman Bentley Piccioni	Team Member
Claudia Rokx	Team Member
<b>Supervision/ICR</b>	
Augusto Garcia	Task Team Leader(s)
Monica Lehnhoff, Carlos Lago Bouza	Procurement Specialist(s)
Enrique Antonio Roman	Financial Management Specialist
Luis Barajas Gonzalez	Financial Management Specialist
Claudia Rokx	Team Member
Maria Virginia Hormazabal	Team Member

Juan Carlos Parra Osorio	Team Member
Pablo R. Valdivia Zelaya	Task Team Leader(s)
Mayela Murillo	Team Member
Paula Andrea Rossiasco Uscategui	Social Specialist
Brenda Mendieta-Arroyo	Team Member
Fernanda Balduino de Oliveira	Team Member
Sofia Keller Neiva	Team Member
Fabiola Maria Lucia Mercado Jaldin	Environmental Specialist
Paula Dias Pini	ICR Main Contributor

#### B. STAFF TIME AND COST

Stage of Project Cycle	Staff Time and Cost	
	No. of staff weeks	US\$ (including travel and consultant costs)
<b>Preparation</b>		
FY14	17.320	169,860.00
FY15	33.790	172,756.30
FY16	0	59,510.61
<b>Total</b>	<b>51.11</b>	<b>402,126.91</b>
<b>Supervision/ICR</b>		
FY16	22.991	155,870.67
FY17	21.679	248,019.23
FY18	14.968	201,340.68
FY19	13.765	196,417.27
FY20	14.673	157,501.97
<b>Total</b>	<b>88.08</b>	<b>959,149.82</b>



**ANNEX 3. PROJECT COST BY COMPONENT**

Components	Amount at Approval (US\$M)	Actual at Project Closing (US\$M)	Percentage of Approval (%)
Innovation Development Plans for Strengthening Natural and Non-Natural Resource-Based Productive and Marketing Capacity	31.85	33.49	105.15
Strengthening service provision for sustainable production, food security, and nutrition	6.42	4.84	75.42
Project management, monitoring and evaluation	3.73	5.47	146.53
<b>Total</b>	<b>42.00</b>	<b>43.80</b>	<b>104.29</b>

**Project Cost by Components and Source of Funds**

Components	Project PAD				Project closure			
	Total	GAFSP	GON	Beneficiaries contribution	Total	GAFSP	GON	Beneficiaries contribution
Innovation Development Plans for Strengthening Natural and Non-Natural Resource-Based Productive and Marketing Capacity	31.85	26.50	3.09	2.26	33.49	26.93	2.73	3.84
Strengthening service provision for sustainable production, food security, and nutrition	6.42	4.10	2.32		4.84	2.86	1.98	
Project management, monitoring and evaluation	3.73	3.30	0.43		5.47	4.23	1.24	
<b>Total</b>	<b>42.00</b>	<b>33.90</b>	<b>5.84</b>	<b>2.26</b>	<b>43.80</b>	<b>34.02</b>	<b>5.94</b>	<b>3.84</b>



## ANNEX 4. EFFICIENCY ANALYSIS

1. The Project objective was to enhance food and nutritional security in selected communities of the Caribbean Coast of Nicaragua (CCN). It aimed to improve food access and availability; diversification and improvement of agricultural production, productivity, and the rescue of indigenous technology. To achieve the objective, the Project promoted the development of Innovative Development Plans (IDPs) seeking to strengthen productive and marketing capacities based on natural and non-natural resources by supporting participatory design, financing, and monitoring of IDPs.
2. The PAD presented in its Annex 5 an assessment of: (i) the financial benefits of the proposed Project interventions for the beneficiary families, community organizations, and microenterprises that would be adding value to primary products; (ii) the aggregate economic benefits of the Project; and (iii) the economic impact analysis of the overall Project. Based on representative crop and activity models, farm and microenterprise IDP models developed through the Project support, the beneficiaries' income changes were assessed including the individual farms and their post-harvesting initiatives, fisheries models, and four models representing agro-processing and marketing IDPs for strengthening relevant value chains supported through farmers associations.
3. Family income was expected to grow between 1.5 and 6-fold with an increase in family employment in the sustained activities reducing their dependence on off-farm income. The Financial Internal Rate of Return (FIRR) for the agro processing models ranged from 28 percent for a dairy products processing plant, and more than 100 percent for a rice milling plant. The overall Project economic analysis estimated an Economic Rate of Return (ERR) of 17 percent and a Net Present Value (NPV) of Nicaraguan *Córdoba*s (NIO) 418 million using a 10 percent discount rate. All project costs were included in the analysis except for those from subcomponent 2.2, covering nutrition communication & education activities that were treated separately.
4. Section II below presents the financial benefits of the Project estimated at closing, including the expected increase in family income for beneficiaries, their organizations and other relevant income generating activities. Aggregated results are summarized in Section II, including the evolution of aggregate production and employment and the expected increase of the value of production, compared to the situation without the Project. The economic analysis of the Project at closing is presented in Section III, as well as a description of the methodology and result indicators with a sensitivity analysis to variations in benefits, including the expected sustainability of beneficiaries adopting the proposed changes and achieving the estimated benefits, and to variation in prices of all main products.
5. Besides enhancing the productive and marketing capacities of farmers and rural enterprises through supporting the design, financing, and implementation of IDPs providing cross-cutting services to IDPs of beneficiaries in the areas of technology transfer, the Project delivered nutritional education and communication for improving the diet of women and children. Financial indicators using market prices at Project closing were assessed for this ICR to verify if the incurred investments are attaining the expected results through the increase in net family income, creation of employment, and the FIRR and NPV of benefits compared to the situation without the Project (WOP). Also, as in the PAD the economic indicators included the ERR and NPV for the Nicaraguan economy. The period for the analysis was also 20 years and a 10 percent discount rate was used.
6. Through 58 IDPs, the Project benefited 14,826 beneficiaries of which 11,711 corresponded to agricultural activities, 1,500 to fishing activities, 509 beneficiaries under agro industrial activities and 1,104



beneficiaries under small business IDPs. Table 1 below shows beneficiaries by IDP type. It also shows that 47 percent were men, 53 percent women, and 32 percent were young people.

**Table 1 Project Beneficiaries per type of IDP and Gender**

Type of IDP	No IDPs	Beneficiaries	Gender and Youth		
			Men	Women	Youth
Agriculture	37	11,713	6,054	5,659	3,883
Fisheries	8	1,500	999	501	376
Agroindustry	5	509	278	231	166
Small Business	8	1,104	513	591	415
<b>Total</b>	<b>58</b>	<b>14,826</b>	<b>7,844</b>	<b>6,982</b>	<b>4,840</b>

7. The agricultural IDPs sought to improve agricultural activities through sustainable productivity gains and diversification of production for improving their nutrition and income. These IDPs supported 11,713 rural families organized in solidarity groups, cooperatives and/or associations. They were subdivided into subsistence farmers (5,576), and commercially-oriented farmers (6,137). Inputs, tools, equipment, training and technical assistance services were provided for improving production practices and for post-harvest value addition. Activities supported included: basic grains, cocoa, roots and tubers, coffee, Musaceae, agroforestry models and smaller livestock production activities.

8. Through the fisheries IDPs, the Project strengthened the productive capacities for 1,500 families of small artisanal fishermen, by enhancing productivity of small-scale fisheries operations, and promoting environmentally friendly aquaculture businesses. Partnerships with existing processing plants were mobilized to attain better market conditions, including ice supply and several other value-addition activities. Fishermen organized into cooperatives or small associations were provided with the resources needed for the purchase of boats, supplies, and fishing tools, and trained in the use of improved technologies and diversification for food security. Funding for training and technical assistance activities through the IDPs was always included.

9. Agroindustry IDPs supported value addition activities such as manual or semi-mechanical processing of some relevant products such as rice, cocoa and, maize providing grants to strengthen activities for improving quality, security, and investments in infrastructure and equipment for enhanced production and/or marketing. Training and technical assistance were also provided. These IDPs involved 509 families structured also into associations, cooperatives and/or solidarity groups.

10. Small business IDPs were developed to support family-owned rural ventures linked to agriculture and non-agricultural activities, including community enterprises. They sought to strengthen market access capabilities and self-employment opportunities, with an emphasis on targeting women and youth. IDPs provided technical assistance and training for production, marketing, environmental management, and investments in equipment and inputs to strengthen the productive capacities of 1,104 families.

11. The Project objective was to enhance food and nutritional security in select communities of the Caribbean Coast of Nicaragua (CCN). Design and implementation were adequate and was flexible, and no issues were affecting or imposing a major burden on implementation (e.g., readiness, staff turnover, procurement issues, cost overruns, need for extensions of the closing date, cancellations of funds, etc.), which could have affected efficiency. Most of the PDO targets were exceeded. The project implementation efficiency is assessed as substantial.

**I. Financial Analysis**

12. All supported IDPs were developed in a comprehensive way including: (i) technical and financial support, (ii) training and technical assistance from formulation to implementation and closure; (iii)



transfer of technologies, (iv) promotion of climate smart agriculture to improve processes, (v) phytosanitary inspections and implementation of Good Agricultural Practices (GAP), (vi) strengthening public partnerships and the links of farmers with other actors in the production chain, (vii) support services for enhancing productive linkages and marketing, and (viii) technical and financial support for the required environmental and social management aspects. All these activities result in an improved business environment and in higher incomes for beneficiaries. The aggregation of these benefits permits assessment of the financial and economic impact of the Project.

13. **Crop, Activity and Farm Models.** The financial analysis was based on representative farm and off-farm production or processing systems including the main activities of typical beneficiaries. Tables 1 to 7 in the Appendix<sup>48</sup> present the relevant detailed crop or activity budgets with the existing and new technologies being applied by the average beneficiary. The resulting main financial indicators are summarized in Table 2 below. They represent average budgets of real cases identified as typical by the project staff from the Ministry of Family, Communal, Cooperative and Associative Economy (MEFCCA) and the relevant supporting implementation agencies<sup>49</sup> during the ICR mission in December 2019. Models represent also many other types of supported activities in response to the actual demand of the communities in the project area. Budgets show both the existing technology “without” (or before) the project (WoP), and the new technologies introduced “with” the project (WP), and the subsequent improvement of productivity and net benefit from the main crops and activities involved.

14. Table 2 below summarizes the main parameters for these models including: average yields, gross revenues, input and labor costs, and net income obtained after labor costs for each of the analyzed activities. According to the impact assessment performed at project closing,<sup>50</sup> yields of beans, maize and rice improved by an average of 8 to 13 quintals (qq) per manzana (mz) in the case of beans, from 10.7 to 17 qq/mz in maize, and from 24 to 40 qq/mz in rice<sup>51</sup>. *Revenues before labor costs* are the most relevant indicator to show financial benefits to farmers since family labor is generally used within the farms and generally has no opportunity cost in the project areas. Revenues before labor costs would be increasing by about 60 percent: from NIO 5,730 to NIO 9,370 for beans, from NIO 5,582 to NIO 8,906 for maize, and from NIO 10,162 to NIO 16,530 for rice. For banana (plantain), this indicator would be growing from NIO 26,880 to NIO 37,680. Models showing the introduction of new activities (coffee, pork and egg production) are also presented below.

**Table 2 Main Indicators & Results for Crops (per mz) and Activities (per module)**

Crops	Average Yields (qq/ha or module)		Gross Revenue (Cordobas/ha)		Input & Labor Costs (Cordobas /ha)		Net Income After Labor (C\$/ha)	
	Without	With	Without	With	Without	With	Without	With
Beans (Table 1 in Appendix)	8	13	8,000	13,000	10,070	11,830	-2,070	1,170
Maize (Table 2 in Appendix)	10.7	17	6,420	10,200	8,438	9,294	-2,018	906
Rice (Table 3 in Appendix)	24	40	12,000	20,000	12,638	14,270	-638	5,730
Platano (Table 4 in Appendix)	8.96 <sup>1/</sup>	12.56 <sup>1/</sup>	26,880	37,680	9,800	11,400	17,080	26,280
Coffee (New) (Table 5 in Appendix)	-	40	-	34,400	-	17,400	-	17,000
Pig Production (Table 6 Appendix)	-	45 head	-	67,500	-	61,900	-	5,600
Egg Production (Table 7 Appendix)	-	4400 eggs	-	16,200	-	13,200	-	3,000

<sup>1/</sup> in '000 banana units

<sup>48</sup> GAFSP\_ICR\_EFA February 8 2020.xls in Project Files.

<sup>49</sup> Ministry of Agriculture (MAG), Nicaraguan Institute of Agricultural Technology (INTA), National Fisheries Institute (INPESCA), and National Forest Institute (INAFOR).

<sup>50</sup> Yields and other parameters in the models differ from those estimated at appraisal since there was no baseline survey available at the time. The new estimates are in line with the data shown in the Caribbean Coast Security Project Impact Assessment prepared for the MEFCCA by independent consultants and presented in September 2019.

<sup>51</sup> With improved seeds, some compost, adjusting seeding dates, IPM practices and some other technology improvements, significant yield increases are being attained specially when departing almost from a below zero situation.



15. **Five farm models** (Tables 8 to 12 in the Appendix) represent the 11,713 beneficiaries of agricultural IDPs. They were each assumed to have an average farming area of 3.35 mz (1.5 ha) of land, mostly food cropping areas: basic grains, root crops, fruit trees and some cover crops. The models include maize, beans, and rice with about 1 mz each, and other crops such as Musaceae (banana and plantain), cocoa and/or coffee. With the Project, some diversification was introduced. Beneficiaries represented by these models would increase their net family income between 2 to 6 times from an average of about US\$320 to US\$1,300 per year. Similarly, the fishermen’s production models show an increase of family income from about US\$2,680 to US\$8,150 per year. Table 3 below summarizes the main indicators for the agricultural and fisheries models.

**Table 3. Farm and Fishing Models: estimated Income Increases (in NIO/farm)**

Typical agricultural and fisheries models	Beneficiaries’ Net Income		Average Grant Support	Income Increase	Income Increase (%)
	WoP	WP			
Farms Bilwi adding small animals (Table 8 in App.)					
Farms Las Minas adding small animals (Table 9 in App.)					
Farms Las Minas without small animals (Table 10 in App.)	9,704	56,613	50,000	46,909	483
Farms Bluefields adding small animals (Table 11 in App.)	8,394	54,226	50,000	45,835	546
Farms Bluefields adding coffee & poultry (Table 12 in App.)	8,394	24,426	50,000	16,032	191
Fishing flake & shrimp Bluefields & Bilwi (Table 13 in App.)	14,277	56,143	50,000	41,866	293
Fishing lobster in Bluefields (Table 14 in App.)	14,277	32,303	50,000	18,026	126
Fishing lobster in Bilwi (Table 15 in App.)	119,740	166,000	79,350	46,260	39
	115,060	525,200	79,350	410,140	356
	42,560	152,280	79,350	109,720	258

16. **The fisheries models** summarized in Table 3 show the average income increase being attained through improving their fishing capacity and working conditions. The models assumed that beneficiaries were grouped in IDPs composed of several artisanal fishermen. By improving their productivity their income grew significantly as their fishing capacity was strengthened by providing them with technical assistance, training, additional nets and other fishing implements, improved boats, and refrigerator boxes to preserve the quality of the captured fish, shrimp, lobsters, etc. Their net income is increasing by about 39 percent in some cases, and up to more than 350 percent in others.

17. **Two small business models** (Tables 16 and 17 in the Appendix) were also prepared to represent the eight IDPs supported by the project under the small business label favoring 1,104 farmers. They present production and processing of chicken into poultry meat in the first case, and the production of eggs as a small business rather than just eggs production mainly for household consumption. The amount of investment supported by the project grants was NIO 1.2 million and NIO 0.205 million respectively, favoring about 35 and 6 families respectively. The average grant support per family in the small business IDPs was about US\$ 1,000. The value of poultry and eggs being sold through these supported IDPs improved significantly with the value added, generating new jobs and significant returns per day worked by farmers’ family members in the new market-oriented activities. From the detailed Tables 16 and 17 in the Appendix it is evident that the FRR of these two cases, before labor costs, but after the grant, is more than 100 percent, while their ERR is 8 and 20 percent, respectively.

18. **Two other agro-processing models** representing the four supported agroindustry IDPs show the processing of 150-pound pigs into meat products; and paddy rice into white polished and packed rice. They characterize a number of agro-processing operations that add value to their primary products,



supporting 509 beneficiaries. Infrastructure, equipment, machinery and working capital for the purchase of initial supplies were financed together with technical assistance and training for adequate start-up. In the case of pork meat processing, the net value of the pigs is increased by about 30 percent after an investment of NIO 4.7 million (US\$ 136,230) benefiting about 60 farmers. In the rice milling activity, an investment of about NIO 6 million (US\$174,000) was provided benefitting about 70 rice producers to process their paddy, allowing for an improvement of about 20 percent in the net price for the product. The FRR for these models was estimated at over 100 percent, while the ERR was 34 and 20 percent, respectively<sup>52</sup>. The performance indicators for each of the small business and agroindustry representative models are summarized in Table 4 below. The high FRRs attained from the point of view of beneficiaries respond to the fact that most of the investment is financed by the non-reimbursable project grants.

**Table 4 Financial Results for Farmer Associations Implementing Small Businesses and Agro-industrial Schemes (in NIO '000 Cordobas)**

Typical Agricultural and Fisheries Models	Beneficiaries' Income (Annual in '000 NIO)		Average Grant Support	Financial IRR (%)	Economic IRR (%)
	Gross Revenue	Net Revenue			
Poultry Processing into poultry meat (Table 16 in Appendix)	1,579	336.6	1,190	186	8
Egg Production market-oriented (Table 17 in Appendix)	1,335	318.9	205	128	20
Pig Processing into pork meat (Table 18 in Appendix)	6,087	666.0	4,560	406	34
Paddy Processing into white rice (Table 19 in Appendix)	10,800	1,441.0	6,000	752 <sup>53</sup>	20

## II. Project Aggregated Results

19. The Project supported beneficiaries' participatory, identified investments - including training and technical assistance - reached 14,826 farmers and fishermen grouped in 58 IDPs from the NCC selected areas, and included indigenous communities and afro-descendant residents of the areas (33 percent) and mestizos (67 percent). With the Project's support they have introduced changes and improvements in their productive activities as described in previous sections, generating significant benefits. The gradual incorporation of the beneficiary families adopting these changes is shown in the following Table 5.

<sup>52</sup> The FRR is relevant for determining the results at the level of beneficiaries and hence, to verify if beneficiaries will be willing to undertake the activity for improving their income. If most of the investment is financed by project grants the disbursement from beneficiaries is only 10 or 20% of investment, so the FRR to the amount that they invest is huge (100% or even more). Different is the perspective of the ERR where besides using shadow prices, grants (as other transfer of payments as taxes) do not enter as outflows or inflows in the cost and benefits analysis. Without the grants, of course, the ERR considering the overall investment would not be higher than 30 – 40%. Hence, grants received by beneficiaries are the main reason why both indicators show such a huge difference.

<sup>53</sup> When there is no rice milling facility in an area it is not possible to sell the produce (paddy) with the required presentation and/or quality demanded beyond the local community (white polished rice). With proper processing (milling) it is possible to reach new markets, and farm prices for paddy improve significantly.



**Table 5 Incorporation of Beneficiaries in the 58 IDPs supported by the Project**

FARM DISTRIBUTIONS (In Units)	Without Project	With Project				
	1 to 20	1	2	3	4	5
<b>Number of Farms or Activity Models Participating</b>						
Agriculture IDPs in Bilwi, (2,627 beneficiaries with small animals)	-	-	958	2,362	2,627	2,627
Agriculture IDPs in Bluefield (1,090 beneficiaries with coffee and poultry)	-	-	172	961	1,090	1,090
Agriculture IDPs in Bluefield (1,773 beneficiaries with small animals and plantain)	-	-	280	1,564	1,773	1,773
Agriculture IDPs in Las Minas (5,823 beneficiaries with small animals)	-	-	1,987	4,733	5,623	5,623
Agriculture IDPs in Las Minas (400 beneficiaries without small animals)	-	-	200	500	600	600
Fisheries IDPs - fish and shrimp, (1,081 beneficiaries: 691 in Bluefields & 390 in Bilwi)	-	-	145	497	1,081	1,081
Fisheries IDPs - lobster (178 beneficiaries in Bilwi)	-	-	155	178	178	178
Fisheries IDPs - lobster (241 beneficiaries in Bluefields)	-	-	-	63	241	241
Small Business: Processing Poultry Meat (540 beneficiaries)	-	-	-	252	540	540
Small Business: Egg Production (564 beneficiaries)	-	-	-	282	564	564
Agroindustrial IDPs Rice Processing (232 protagonistas)	-	-	-	154	232	232
Agroindustrial IDPs Pig Meat Processing (277 beneficiaries)	-	-	-	185	277	277
<b>Total Beneficiaries</b>	-	-	<b>3,897</b>	<b>11,731</b>	<b>14,826</b>	<b>14,826</b>

20. **Total value of production** from beneficiaries was estimated to grow by about 3.8 times compared with the situation before the Project, from NIO 390 million to NIO 1,495 million (US\$ 11.3 million to US\$ 43.3 million); and employment was estimated to increase by 73 percent, from 1.9 a 3.3 million person-days of work per year with the new activities developed with project support. Besides the increased employment of family labor supported by the Project, the average returns per beneficiaries’ family-day of work is showing an increase by 32.5 percent, from NIO 323 to NIO 428.

21. **Project Costs at closing** were US\$ 43.80 million (104.29 percent of estimated at appraisal) of which US\$ 34.02 was financed by GAFSP (77.67 percent of total costs), US\$ 5.94 million by the Government of Nicaragua (GON, 13.56 percent of total costs) and US\$ 3.84 million by beneficiaries (8.77 percent of total costs) as shown in Table 6. As seen in Table 7, about US\$ 26.0 million (59.71 percent) were invested in direct productive investments through project grants (USD\$22.2 million) and beneficiaries’ contributions (US\$ 3.8 million). The other US\$ 17.6 million (40.29 percent) was invested for strengthening public and private service providers and training activities for farmers and fishermen, as well as for implementation, monitoring and evaluation. All project costs involving the several co-implementing GON agencies were included for the economic analysis of the Project.

**Table 6 Project Costs and Financing**

No	Components	Actual Costs (Million US\$)			
		Total	GAFSP	Gd N	Beneficiaries
I	Innovation Development Plans	33.4	26.9	2.7	3.8
II	Strengthening of Service Providers	4.8	2.9	1.5	1.9
III	Management, Monitoring & Evaluation	5.4	4.2	0.4	1.2
	<b>Total</b>	<b>43.8</b>	<b>34.0</b>	<b>3.4</b>	<b>5.9</b>



Table 7 Project Costs per Year and sub-component\*

Project Component Costs	Project Year					TOTAL
	1	2	3	4	5	
Comp 1.1 Total Grants (in '000 Cordobas)	-	203,655	400,195	170,035		773,885
Comp 1.1 Total Grants (in '000 USD)	-	5,903	11,600	4,929		22,431
Comp 1.1 Beneficiaries Contribution (in '000 Cordobas)	-	31,802	62,493	26,552		120,848
Comp 1.1 Beneficiaries Contribution (in '000 USD)	-	922	1,811	770		3,503
<b>Other Costs (in '000 Cordobas)</b>						
Comp. 1.2 Apoyo a la Produccion e Inocuidad de Alimentos	7,462	24,684	40,109	35,496	46,474	154,226
Comp. 2.1 Generacion Valid. y Transf. Tecnologias	916	6,909	15,874	24,469	51,927	100,094
Componente 3 Gestion, M&E	13,839	23,217	28,797	31,387	52,013	149,254
Government Contribution	2,222	46,811	69,462	47,103	36,005	201,603
<b>Sub-Total Other Costs (in '000 Cordobas)</b>	<b>24,439</b>	<b>101,621</b>	<b>154,242</b>	<b>138,455</b>	<b>186,419</b>	<b>605,177</b>
<b>Sub-Total Other Costs (in '000 USD)</b>	<b>708</b>	<b>2,946</b>	<b>4,471</b>	<b>4,013</b>	<b>5,403</b>	<b>17,541</b>
<b>TOTAL PROJECT COSTS (in '000 Cordobas)</b>	<b>24,439</b>	<b>337,078</b>	<b>616,931</b>	<b>335,042</b>	<b>186,419</b>	<b>1,499,909</b>
<b>TOTAL PROJECT COSTS (in '000 USD)</b>	<b>708</b>	<b>9,770</b>	<b>17,882</b>	<b>9,711</b>	<b>5,403</b>	<b>43,476</b>
<b>Mano de Obra (en Millones de jornales)</b>	<b>1.9</b>	<b>1.9</b>	<b>2.1</b>	<b>2.6</b>	<b>3.0</b>	<b>3.2</b>

\* Information from April, 2020.

### III. Economic Results

22. The estimated impact of the Project was higher than envisaged at appraisal, as shown by the ERR and NPV indicators presented below. While the project ERR at appraisal was estimated at 17 percent, the estimation at closing was a project ERR of 22.6 percent. Similarly, the NPV was US\$ 15.6 million at appraisal while at closing it was US\$ 34.1 million. Table 8 shows the main aggregated details of the economic analysis at project closing. Incremental net benefits were estimated including annual net incremental income of the 14,826 beneficiaries with farmers, fishermen, non-farm and off-farm value addition investments. Other medium- and long-term indirect benefits such as the improved physical work capacity, cognitive development, school performance and health of thousands of small farm families and/or villagers including women with children under five years of age or who were pregnant, or lactating were not quantified for this analysis<sup>54</sup>.

23. Economic benefits were valued mostly at market prices. All incremental production costs, as well as the costs of project implementation including investments and operating costs were also valued at market prices. Only the family labor costs were corrected by a conversion factor of 0.85 given the high unemployment rate in the region. The economic net value of benefits being generated annually would be growing fourfold from NIO 146 million to NIO 586 million (US\$ 4.2 million to US\$ 17 million).

<sup>54</sup> The recurrent economic crisis in Nicaragua and its potential impact on the poor make Project investments in child nutrition more urgent than ever to protect and strengthen the country's human capital in the most vulnerable and poorer regions of the Caribbean Coast. Through subcomponent 2.2 the Project invested US\$ 0.87 million in sustainably enhancing food and nutritional security in these highly vulnerable communities, covering thousands of small farm households and/or villagers including women with children under five years of age or who were pregnant or lactating. All stakeholders received nutritional education by: (i) improving food availability and secure access to food through increased productivity of agriculture and other non-agriculture rural activities; and, (ii) improving nutritional security through diversified diet/nutrient intakes and feeding/caring practices. Benefits are expected to be significant, including enhanced human capital productivity, economic development, and poverty reduction. Medium- and long-term benefits will include improved physical work capacity, cognitive development, school performance and health.



	stmens									
	Without Project	Year								
	1 to 20	1	2	3	4	5	6	7	8 to 20	
<b>Main Production</b>										
Fruits	98.0	98.0	96.8	100.3	113.1	116.8	116.8	116.8	116.8	116.8
Staples (grains, roots)	276.8	276.8	276.8	303.6	385.5	461.1	482.3	484.7	485.2	485.2
Coffee	-	-	-	1.1	7.3	14.0	18.2	18.7	18.7	18.7
Fish and Shrimps	87.5	87.5	87.5	89.2	95.0	105.7	112.1	112.1	112.1	112.1
Lobster	54.1	54.1	54.1	54.1	64.3	117.6	186.5	186.5	186.5	186.5
White lobster	15.4	15.4	15.4	28.0	38.6	39.9	39.9	39.9	39.9	39.9
Pigs (80kg)	103.6	103.6	103.6	106.8	115.9	132.4	138.9	138.9	138.9	138.9
Eggs	-	-	-	94.9	340.9	607.3	787.2	823.3	823.3	823.3
Hens	-	-	-	5.4	43.7	98.0	141.4	161.5	161.5	161.5
Pig Meat Processed	-	-	-	-	10.2	16.3	17.9	18.3	18.3	18.3
Poultry Meat Processed	-	-	-	-	5.8	15.7	21.2	23.7	23.7	23.7
<b>Sub-total Main Production</b>	<b>635.4</b>	<b>635.4</b>	<b>634.2</b>	<b>783.4</b>	<b>1,220.3</b>	<b>1,724.6</b>	<b>2,062.3</b>	<b>2,124.3</b>	<b>2,124.8</b>	<b>2,124.8</b>
<b>On-Farm Consumption</b>										
Fruits	19.9	19.9	19.9	20.4	21.9	22.9	23.0	23.0	23.0	23.0
Agricultural Inputs	170.6	170.6	170.6	175.9	185.1	187.4	187.4	187.4	187.4	187.4
Fish and Shrimps	41.5	41.5	41.5	42.4	45.2	50.0	51.9	51.9	51.9	51.9
Lobster	13.0	13.0	13.0	13.8	14.6	15.8	16.2	16.2	16.2	16.2
Pigs (80kg)	-	-	-	29.0	107.0	197.2	258.3	270.6	270.6	270.6
Eggs	-	-	-	15.3	48.4	64.4	66.7	66.7	66.7	66.7
Hens	-	-	-	4.1	11.5	13.3	13.3	13.3	13.3	13.3
<b>Sub-Total On-Farm Consumption</b>	<b>244.9</b>	<b>244.9</b>	<b>244.9</b>	<b>300.9</b>	<b>433.6</b>	<b>551.0</b>	<b>616.9</b>	<b>629.2</b>	<b>629.2</b>	<b>629.2</b>
<b>Net Value Of Production</b>	<b>390.4</b>	<b>390.4</b>	<b>389.3</b>	<b>482.5</b>	<b>786.7</b>	<b>1,173.6</b>	<b>1,445.4</b>	<b>1,495.1</b>	<b>1,495.6</b>	<b>1,495.6</b>
<b>Production Cost</b>										
<b>Investment</b>										
Agricultural Inputs	-	-	3.8	9.7	2.5	0.1	-	-	-	-
Machinery Services and Tools	-	-	0.6	1.3	0.3	-	-	-	-	-
Other Investments	-	-	196.6	392.4	194.1	13.9	2.0	-	-	-
Labor costs	-	-	9.3	21.7	17.2	7.0	1.2	-	-	-
<b>Sub-total Investment Costs</b>	<b>-</b>	<b>-</b>	<b>210.2</b>	<b>425.1</b>	<b>214.1</b>	<b>21.1</b>	<b>3.2</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Operating</b>										
Agricultural Inputs	25.0	25.0	25.0	30.0	43.8	54.9	57.3	57.3	57.3	57.3
Machinery Services and Tools	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9
Pigs (80kg)	-	-	-	-	4.3	7.0	7.8	8.1	8.1	8.1
Other costs	53.0	53.0	53.0	55.3	69.7	95.3	98.7	100.0	100.0	100.0
Other Investments	49.8	49.8	52.4	119.1	311.9	548.4	696.0	730.4	730.4	730.4
Labour costs	341.6	341.6	384.2	469.7	534.2	589.4	599.8	602.3	602.3	602.3
<b>Sub-total Operating Costs</b>	<b>489.3</b>	<b>489.3</b>	<b>534.5</b>	<b>694.1</b>	<b>988.0</b>	<b>1,327.7</b>	<b>1,497.5</b>	<b>1,537.7</b>	<b>1,538.1</b>	<b>1,538.1</b>
<b>Sub-Total Production Cost</b>	<b>489.3</b>	<b>489.3</b>	<b>744.7</b>	<b>1,119.2</b>	<b>1,202.1</b>	<b>1,348.8</b>	<b>1,500.7</b>	<b>1,537.7</b>	<b>1,538.1</b>	<b>1,538.1</b>
<b>Other Project Costs</b>										
Comp. 1.2 Production Support and Food Security	-	7.5	24.7	40.1	35.5	46.5	-	-	-	-
Comp. 2 Strengthening Service Providers	-	0.9	6.9	15.9	24.5	51.9	-	-	-	-
Comp. 3 Project Management, M&E	-	13.8	23.2	28.8	31.4	52.0	-	-	-	-
Government Contribution	-	2.2	25.8	48.5	26.1	15.0	-	-	-	-
<b>Sub-Total Other Costs</b>	<b>-</b>	<b>24.4</b>	<b>80.7</b>	<b>133.3</b>	<b>117.5</b>	<b>165.5</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>OUTFLOWS</b>	<b>489.3</b>	<b>513.7</b>	<b>825.4</b>	<b>1,252.5</b>	<b>1,319.6</b>	<b>1,514.2</b>	<b>1,500.7</b>	<b>1,537.7</b>	<b>1,538.1</b>	<b>1,538.1</b>
<b>Cash Flow</b>	<b>-98.9</b>	<b>-123.3</b>	<b>-436.1</b>	<b>-770.0</b>	<b>-532.9</b>	<b>-340.7</b>	<b>-55.3</b>	<b>-42.5</b>	<b>-42.5</b>	<b>-42.5</b>
<b>Net Economic Benefits</b>	<b>146.1</b>	<b>121.6</b>	<b>-191.2</b>	<b>-469.1</b>	<b>-99.3</b>	<b>210.3</b>	<b>561.6</b>	<b>586.6</b>	<b>586.7</b>	<b>586.7</b>

**IRR = 22.6%, NPV = 1,176 Million NIO (USD 34.1 Million)**

24. Based on the availability of information and the results of the biomass estimation with the Normalized Difference of Vegetation Index (NDVI), the emission and absorption balance of Green House Gas (GHG) generated by the PAIPSAN project interventions was estimated<sup>55</sup> using the EX-ACT carbon balance tool developed by the Food and Agriculture Organization of the United Nations (FAO). It was concluded that the Project contributed to financing investments and technical assistance for the establishment of agroforestry systems, management of small livestock and the implementation of climate-smart agriculture in 5 years. The calculations generated by EX-ACT estimated the mitigated emissions to be attained over 20 years since implementation started in 2015 at (-1,141,499 tCO<sub>2</sub>e), considering that an historical average of 57,075 tCO<sub>2</sub>e would be mitigated annually.

25. The use of shadow price of carbon in the economic analysis is a World Bank corporate commitment for all new IBRD/IDA investment project financing that are subject to GHG accounting<sup>56</sup>. In line with the guidelines of the World Bank and the High-Level Commission on Carbon Prices, this economic

<sup>55</sup> Estimate of the balance of greenhouse gas emissions resulting from the application of agricultural practices and technologies in the Project area. PAIPSAN – CCN P148809/TF 018703. Jorge Rodríguez Rubí. Managua, DICIEMBRE 2019.

<sup>56</sup> GHG emissions are global externalities. As such, it is recommended for new projects that the scenarios considered in the economic analysis be done both with and without the shadow price of carbon. The analysis with the shadow price of carbon reflects the global impacts of a project, shared with other countries, while the analysis without the shadow price of carbon conveys the impacts of the project without considering climate change. Although not necessary for ICRs the team has prepared this analysis to show that the project would be contributing to reducing GHG emissions.



analysis used a low and high estimate of the carbon price starting at US\$40 and 80, respectively, in 2020 and increasing to US\$50 and US\$100 by 2030. Given that the High-Level Commission report does not prescribe any specific carbon price values beyond 2030, the low and high values on carbon prices were extrapolated from 2030 to 2034 using the same growth rate of 2.25 percent per year that is implicit between the 2020 and 2030, leading to values of US\$54.7 and \$109.3 by 2034. To incorporate the carbon externalities into the economic analysis, the annual shadow price of carbon (US\$/tCO<sub>2e</sub>) was multiplied by the annual GHG emissions reductions (tCO<sub>2e</sub>) over the economic lifetime of the Project. The calculations were done using the template for applying the Shadow Price of Carbon. By adding the GHG emission mitigation, the ERR of the Project increases from the estimated 22.6 percent to 47 and 33 percent when using the high and low shadow price of carbon, respectively.

26. **A sensitivity analysis** assessed the Project's exposure to risks affecting the sustainability of the adopted changes by beneficiaries and assessed the overall result if 15 and 30 percent of the supported IDPs would return to their previous production practices, while the post-harvest schemes would also fail in similar proportions. The sensitivity analysis showed the following:

- (i) If 15 percent of the assisted beneficiaries were not to maintain the recommended, agricultural practices, diversifying crops, and/or adding value to the relevant value chains, the ERR would drop from 22.6 percent to 19.5 percent.
- (ii) If 30 percent of the assisted beneficiaries were not to be sustained, the ERR would drop from 22.6 percent to 16 percent.
- (iii) If the average agricultural prices considered for the analysis were to drop by 10 percent from their current levels, the ERR would drop to 14.5 percent.
- (iv) If the average agricultural prices considered for the analysis were to drop by 15 percent from their current levels, the ERR would drop to 9.8 percent.

27. Based on this assessment, the Project has achieved and surpassed its economic and financial targets and it can then be concluded that the Project's efficiency is **Substantial**.



## ANNEX 5. BORROWER, CO-FINANCIER AND OTHER PARTNER/STAKEHOLDER COMMENTS

### A. Borrower Completion Report: Executive Summary

1. The Caribbean Coast Food Security Project (PAIPSAN-CCN) - TF 18703- NI is part of the family economy strategy in line with the National Human Development Plan (PNDH 2012 - 2016) policies and strategies, its updated version (2018-2021) and the National Food and Nutrition Security Policy (Act N° 693).
2. The PAIPSAN-CCN Project, whose objective is to enhance food and nutrition security in selected communities of the Caribbean Coast of Nicaragua, has been implemented over the past five years through three key components: i) Innovation Development Plans (IDPs) to enhance the production and marketing capacities of farmers and rural enterprises by supporting natural and non-natural resource-based activities and services; ii) Strengthening Service Provision for Sustainable Production, Food Security, and Nutrition; and iii) Project Management, Monitoring, and Evaluation.
3. Component 1 implemented 58 IDPs targeting 14,826 families, broken down as follows: 37 family agriculture IDPs, 8 artisanal fishery IDPs, 5 agricultural/agro-industrial venture IDPs and 8 non-agricultural microenterprise IDPs. The IDPs resulted from a participatory design that brought together comprehensive plans aimed at accomplishing improvements and innovations in production and market linkages being for the benefit of food and nutritional security of the beneficiary families, considering their poverty situation, nutritional status, and production potential. These incorporate investments and technical conditions for: i) technical assistance, ii) training, iii) technology transfer and promotion of good practices for production processes, iv) technical support for strengthening the business and organizational skills of beneficiary groups, in line with the communities' particular and culturally appropriate forms and intergenerational and gender-sensitive practices, v) support for the procurement of goods, inputs, equipment, and construction works; and vi) marketing.
4. Component II aimed at strengthening sectoral capacities for the provision of services/support to the 14,826 beneficiary families in the areas of technology generation/validation and transfer for production through INTA, development of nutrition-sensitive agriculture and nutritional education and communication, interlinked with the strategy implemented by each IDP with the support of MINSA.
5. Component III focused on financing incremental and operating costs, equipment and goods for the MEFFCA for the project implementation, including project evaluations, reporting, and comprehensive Monitoring and Evaluation (M&E) aspects. Activities included data management, project baseline, final evaluation, and rapid impact evaluation, financial management (including project audits) and procurement.
6. The Project displays very satisfactory results in terms of food and nutrition security, based on the successful completion of the targets and indicators under the Results Framework. It benefited 14,826 beneficiary families, who accounted for 106 percent of the planned targets in 15 municipalities and 536 of the 246 communities planned to be served on the Caribbean Coast. According to key PDO indicators, the targets achieved included: i) number of beneficiaries who have adopted an improved agricultural technology promoted by the project, that is 10,675 (133.4%); ii) Number of female beneficiaries who adopted an improved agricultural technology, that is 5,188 (324%); iii) Increased agricultural/livestock productivity among all direct beneficiaries, improved by 78.25% versus 10% as planned; and iv) Increase in Dietary Diversity Score (DDS), raised by 91.4% versus 80% as planned.



7. The execution of the Global Agriculture & Food Security Program Fund (GAFSP) accounts for 99.7 percent of the US\$ 33.9 million GAFSP grant; 169.9 percent of the US\$5.84 million in-kind beneficiary contribution and 57.88 percent of the US\$ 5.84 million fund contributed by the GON, allocated indicatively for this project.

8. The report outlines the assessment by the Ministry of Family, Communal, Cooperative, and Associative Economy (MEFCCA), based on the implementation of different strategies, inputs from the Beneficiary Monitoring System (SSP), analysis of PDO Level Results Indicators, studies and lessons learned during project implementation. This report is structured in 9 chapters: i) Executive Summary, ii) Project Context, Project Development Objectives and Project Design, iii) Key Factors Affecting Implementation, iv) Analysis of Project Outcomes, v) Risk Analysis, vi) Analysis of Government and Implementing Agency Roles, vii) Innovation Aspects, viii) Lessons Learned, and x) Annexes.



## ANNEX 6. Innovation Development Plans (IDP) – Information Summary

1. The IDPs were the central, primary element of the Project design linked to the PDO. This annex provides key information further clarifying relevant aspects of the IDPs designs and the results achieved through the IDPs implementation.

### TYPES OF IDPs

2. Four types of IDPs were supported:

- (a) **IDPs targeting family agriculture (including livestock).** The family agriculture IDPs improved productivity that is diversified, sustainable and climate smart. It included a two types of Family Agriculture IDPs: (i) self-consumption; and, (ii) production of surplus/commercial orientation. The self-consumption IDP type supported: inputs and equipment for production, value addition, and reduction of post-harvest losses at farm level; tools and equipment; and, technical assistance and training. The IDPs supporting production of surplus/commercial orientation financed: the same menu as in the self-consumption agriculture IDP, with an additional focus on links/alliance with the market (identification of demand). A mix of short-, medium-and long-term investment models were supported by promoting, among other options: (i) short-term: vegetables and food crops; (ii) medium-term: diversification through perennials crops; and, (iii) agro-forestry/silvopastoral systems. Producers were supported in the use of quality production/management practices and technologies (e.g. storage). For producers with commercialization potential, market linkages were also supported. Overall, these IDPs promoted production development, especially for traditional products that fulfilled food security objectives via self-consumption and including nutritional considerations. Groups of producer families that had the potential to produce – or who were already generating – marketable product surpluses with identified demand and that required strengthening of productive opportunities and market linkages were also supported.
- (b) **IDPs targeting artisanal fisheries.** The artisanal fisheries IDPs promoted partnerships between the small and existing processing plants and distributors were supported to promote product marketing, the supply of ice and value-addition. It included two types of artisanal fishery IDPs: (i) self-consumption; and, (ii) production of surplus. The first financed investments in machinery, equipment and tools, technical assistance and training. The second, financed the same menu as in the self-consumption artisanal fishery type, with an additional focus on links/alliance with the market (identification of demand). Both IDPs types supported: (i) sustained improvements in production through technologically appropriate options for small-scale fisheries and the adoption of environmental management practices; (ii) the generation of value addition and (iii) strengthening market linkages. Though these IDPs, fishers organized into cooperatives, small family businesses and community solidarity groups had access to resources for the purchase of boats, fishing supplies and working capital. The Project supported the acquisition of appropriate and better equipped boats suitable for small-scale fisheries (with more efficient engines, ice deposits and better communication and navigation equipment). Also, the IDPs funded activities to add value to the production and encourage the establishment of partnership between processing plants and beneficiary families, ensuring the commercialization of production, a better price for products and purchase of inputs at affordable prices.
- (c) **IDPs on agricultural/agro-industrial ventures.** These IDPs financed supplies, equipment and machinery, as well as technical assistance and training to improve processes of value addition at the farm and collective level (selection, cleaning, washing, etc.) and fostering market linkages



(partnerships/agreements with buyers). Through these IDPs, resources were allocated to strengthen the business through enhanced quality and safety management investment in equipment for production and marketing.

- (d) **IDPs on promoting innovations for non-agricultural microenterprises.** These IDPs supported innovative non-agricultural small and micro family community enterprises and strengthened their capacity to access market and self-employment opportunities, emphasizing opportunities for women and young adults. They financed supplies, equipment and machinery, as well as technical assistance and training. These IDPs supported gender-sensitive technical assistance and training for production, marketing, business and environmental management, and investments in equipment/supplies needed to strengthen productive capacity of microenterprises.

**Table No 1: Number and Types of IDPs**

Types of IDP	Number of IDPs		Number of Beneficiaries	
	PAD Estimate	Actual	PAD Estimate	Actual
Family agriculture	-	37	11,000	11,713
- Self-consumption		20	-	5,576
- Commercial		17	-	6,137
Artisanal fishery	-	8	1,500	1,500
- Self-consumption		4	-	325
- Commercial		4	-	1,175
Agricultural/agro-industrial ventures	-	5	-	509
Non-agricultural microenterprises	-	8	-	1,104
Total		58	14,000	14,826

**Table No. 2: Number of IDPs beneficiaries by subregions, gender, age, and ethnicity**

Description	Sub regions			Total (number)	Percentage
	Bilwi (number)	Bluefields (number)	Las Minas (number)		
Beneficiaries	3,617	4,196	7,013	14,826	106
Communities	108	152	276	536	272
IDPs	14	21	23	58	
Gender					
Men	1,932	2,485	3,419	7,836	52.9
Female	1,685	1,711	3,594	6,990	47.1
Age					
Adult	2,741	2,839	4,426	10,006	67.5
Young adult	876	1,357	2,357	4,820	32.5
Ethnicity					
Mestizos	578	3,019	6,330	9,927	66.9
Miskitos	2,817	130	505	3,452	23.3
Mayangnas	173	0	178	351	2.4
Creoles	49	669	0	718	4.8
Garifunas	0	35	0	35	0.2
Ulwas	0	196	0	196	1.3
Ramas	0	148	0	148	1.0

**Table No. 3: Technologies most adopted among all beneficiaries**

Number of technologies adopted	Technologies/varieties adopted	Number of beneficiaries	Percentage
1	Chicken HY LINE BROWN	10,675	91.1
2	Chicken HY LINE BROWN	8,909	76.1
	Beans INTA ROJO		
3	Chicken HY LINE BROWN	4,871	41.6
	Beans INTA ROJO		



4	Maize NB 9043	2,746	23.4
	Chicken HY LINE BROWN		
	Beans INTA ROJO		
	Maize NUTRINTA AMARILLO		

**Table No. 4: Frequency of adoption of technology among all beneficiaries**

Crops/livestock	Technologies / varieties	Number of beneficiaries
Maize	NB-9043	6,031
Maize	NUTRINTA AMARILLO (Biofortified)	6,154
Beans	INTA ROJO	9,678
Rice	INTA DORADO	4,105
Cassava	INTA PERLA	3,178
Chicken	HY LINE BROWN	10,675

**Table No. 5: Women Beneficiaries per Type of IDP**

IDP type		Total number of families under IDPs	Families led by women, who implemented IDPs	
			Number	Percentage
Family agriculture	Subsistence	5,576	2,563	46
	Commercial	6,137	3,096	50
Artisanal fishery	Subsistence	325	127	39
	Commercial	1,175	384	33
Agricultural/agro-industrial ventures		509	592	45
Non-agricultural microenterprises		1,104	232	54
Total		14,826	6,994	45

**Table No. 6: Technologies most Adopted by Women Beneficiaries**

Crops/livestock	Number of families led by women
Maize NB-9043	3,076
Maize NUTRINTA YELLOW (Bio-fortified)	3,134
Beans INTA ROJO	4,673
Rice INTA DORADO	2,010
Cassava INTA PERLA	1,581
Chicken HY LINE BROWN	5,188

**Table No. 7: Increase in Productivity for main Crops and Livestock.**

Crops/livestock	Measurement Unit <sup>57</sup>	Baseline	Production Volume	Area (mz)	Productive Yield	Increase (percentage)
Maize	Quintal/Manzana	10.42	130,573	7,640	17.09	64
Beans		8.28	109,954	7,942	13.84	67
Rice		26.48	153,692	3,936	39.04	47
Cassava		79.24	74,394	465	159.92	102
Banana	Unit/Manzana	9017.65	25,651,507	1,943	13,200	47
Pork	Libras/delivered	42,636.00	1,034,073	44,927 <sup>58</sup>	23	142

**Table No. 8: Increase in Production Volume**

Description	Crops / fisheries	Measurement unit	Baseline	Production volume	Increase (percentage)
Agriculture	maize	Quintal/Manzana	122,214	262,231	114
	beans		97,084	187,123	92
	rice		82,199	169,910	106
Fisheries	fish	Libra	2,930,657	5,696,874	94
	shrimp		545,335	1,104,669	102
	lobster		359,445	1,184,746	229

<sup>57</sup> Quintal = 100 lbs.; Manzana = 0.7 hectares; Libra means lbs. or pounds.

<sup>58</sup> Number of piglets produced.



**Table No. 9: Increase in DDS**

Project Implementation Year	PDIs Evaluated (number)	Targeted Population Evaluated			Rating (use of 7 or more Food Groups)		
		Women	Children	Total	Women	Children	Total
Year 3	14	2,918	1,533	4,451	2,419	1,206	3,625
					<b>82.90%</b>	<b>78.67%</b>	<b>81.44%</b>
Year 5	42	8,302	4,017	12,319	7,668	3,596	11,264
					<b>92.36%</b>	<b>89.52%</b>	<b>91.44%</b>
Total	56	11,220	5,550	16,770	10,087	4,802	14,889

**Table No. 10: Agriculture nutrition-sensitive Practices**

Promoted Practices	Description	Number of Beneficiaries
Family garden	Carrot, tomato, watermelon, cucumber, onion	10,002
Tree planting	Papaya, avocado, orange	4,918
Livestock	Chickens, pork production	10,675
Biofortified seeds	Rice L8 and L9 Maize NUTRINTA and NUTRANDER, Beans INTA nutritive,	4,105 7,206 9,678
Biofortified crops	Rice L8 and L9, maize NUTRINTA AMARILLO and NUTRANDER, cassava INTA AMARILLA and beans INTRA NUTRITIVO and NUTRITIVO RENDIDOR	7,961
Organic fertilization	Compost, leaf bio-fertilizers	7,775
Post-harvest practices	Plastic barrels Bag silos Metallic silos	6,353 9,305 504

**Table No. 11: Producers' Organizational Structures Strengthened**

Description	Beneficiaries		
	Men	Women	Total
54 "solidarity groups" created and strengthened	7,341	6,729	14,070
4 existing producers' organizations	490	266	756
Total	7,832	6,994	14,826
<b>Organizations created with project support</b>			
19 cooperatives created	261	180	441
15 cooperatives creation initiated late in project implementation	198	198	396
Total	459	378	837

**Table No. 12: Number of families implementing IDPs during the project implementation years**

Definition	Families who implemented IDPs (number)				
	Year 1	Year 2	Year 3	Year 4	Year 5
Per year	2,285	5,650	10,375	13,800	14,826
Cumulative per year	0	4,076	11,563	14,826	14,826

**Table No. 13: Number of IDPs led by women**

Type of IDPs	Number of IDPs led by women	
Family agriculture	Self-consumption	2,563
	Commercial	3,096
Artisanal Fishery	Self-consumption	127
	Commercial	384
Agricultural/agro-industrial ventures	232	
Non-agricultural microenterprises	592	
<b>Total</b>	<b>6,994</b>	

**Table No. 14: Production of high nutritional value**

Description	Number of beneficiaries	Production Volume (Quintal)	Total production volume (Quintal)	Production volume of high nutritional value (percentage of total)
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				production)
Basic grains	5,521	306,049	70,483.00	22.30
Roots and tuber	2,764	46,230	0.00	0.00
Vegetables	3,524	2,478	1,807.00	72.91
Perennials (cacao)	1	0.05	0.02	50.00
Semi-perennial (papaya)	4	6.04	0.2	4.51

**Table No. 15: Production volume under post-harvest management**

Crop	Total production (Quintal)	Production volume under post-harvest management	Percentage
Maize			
1 <sup>st</sup> crop	133,877.74	94,086.90	70.28
2 <sup>nd</sup> crop	128,358.59	84,366.17	65.73
Sub-total	262,231.33	178,453.07	68.05
Beans	187,123.73	108,633.22	58.05
Rice	169,910.15	124,614.97	73.34
<b>Total</b>	<b>619,265.21</b>	<b>411,701.26</b>	<b>66.48</b>

**Table No. 16: Number of IDPs beneficiaries adopting nutrition sensitive practices**

Nutrition sensitive practices	Specifications	Number of IDPs beneficiaries
Family orchards	Carrots, tomato, melon, passion fruits, watermelon, onions, beets, cucumber, cabbage, among others	10,002
Fruit trees	Papaya, avocado, orange, lemon	4,918
Livestock increasing protein availability	Improved breeds of poultry, pork	10,675
Improved seeds	Rice INTA DORADO	4,105
	Maize NB-4093 and NB-6	7,206
	Beans INTA ROJO and INTA SEDA	9,678
Crops nutritional improved / bio-fortified (calories, iron, zinc)	Rice L8 and L9, maize NUTRINA AMARILLO and NUTRANDER, cassava INTA AMARILLA, beans INTA NUTRITIVO and NUTRITIVO RENDIDOR	7,961
Organic fertilizers	Compost	5,278
	Organic leaves fertilizer	7,775
Harvesting management	Plastic barrels	6,353
	Silos in a bag	9,305
	Metallic silos	504



### ANNEX 7. Project Institutional and Implementation Arrangements (Summary)

1. **Implementing agency.** The project implementing agency was the Ministry of Family, Communal, Cooperative, and Associative Economy (MEFCCA). Its institutional mandate is to promote the family economy through integrated attention to micro and small rural and urban production by recognizing the capabilities of Nicaraguan families and distinct forms of participation in the national economy.
2. **Project management.** The General Division of External Cooperation and Projects of MEFCCA was responsible for the project. The Director of this Directorate, supported by the Project Coordinator and the required staff, and in close coordination with the MEFCCA fiduciary divisions, had the overall responsibility for the supervision, planning, organization and implementation of the day-to-day fiduciary and technical activities of the project, including compliance with the Bank social and environmental safeguards and the overall project M&E. Also, was responsible for promoting the coordination and collaborative engagement with the other relevant MEFCCA’s directorates and other relevant agencies of the National System for Production, Consumption and Commerce such as the Ministry of Agriculture (MAG), Nicaraguan Institute of Agricultural Technology (INTA), Food Safety and Animal Health Institute (IPSA), and National Fisheries Institute (INPESCA).
3. **The MEFCCA Regional Delegations.** In the two autonomous regions of the Caribbean Coast, the MEFCCA is represented by three territorial offices (Delegations) located in Puerto Cabezas and Siuna (RACCN), and Bluefields (RACCS). These three Delegations carried out regular administrative and operational functions at the regional level, in addition to overseeing the implementation and execution of MEFCCA programs at the local level, including the Project.
4. **Role of MEFCCA Delegations Technicians.** There are a wide network of technicians working in the MEFCCA under different General Directorates. The General Division of External Cooperation and Projects coordinated the technicians to support the day to day operations of the Project and, along with Project staff, help to: provide technical advice to beneficiaries, disseminate Project information, supervise Project activities with the beneficiaries, train local promoters and leaders, train technicians contracted by producers’ groups with IDP financing, promote coordination with local authorities at all levels, promote local partnerships between beneficiaries and other private sector players, and prepare progress reports for the Project, amongst other tasks.

#### Project coordination mechanisms

5. **Inter-agency Coordination.** The MEFCCA engaged in cooperation agreements with the agencies of the National System of Production, Consumption, and Commerce, as per their defined roles including INTA, IPSA, INPESCA, and MAG. The table below summarizes the cooperation agreements held.

Description	Collaborative Arrangements implemented	
1. IDPs for Strengthening Natural and Non-Natural Resources-Based Productive and Marketing Capacity		
1.1 Investments through IDPs	INTA, IPSA, INPESCA	Artisanal fishing association and fisheries plants in RACCN and RACCS; private agricultural sector companies, farmer’s organizations, Ministry of Health (MINSA), Mayors
1.2 IDP preparation and implementation	INTA, IPSA, INPESCA	Regional governments in RACCN and RACCS



2. Strengthening service provision for sustainable production, food security and nutrition		
2.1 Technology generation /validation and transferring	INTA	Local and international agricultural research institutions, local Universities
2.2 Education and nutrition sensitive agriculture	MAG and MINSA	Ministry of Family (MIFAN)
3. Project Management, Monitoring and Evaluation	MAG, INTA, INPESCA, IPSA	Central Bank of Nicaragua, National Institute of Statistics (INIDE)

6. **A National Project Coordination Committee was the primary Project mechanism** to support cross-sectoral coordination and provide strategic advice and recommendations to the MEFCCA regarding the Project. It was comprised by the ministers and directors (or their delegates) of MAG, IPSA, INTA, INPESCA, Caribbean Coast Development Executive Secretariat (SDCC), Regional Governments of RACCS and RACCN, MHCP and MEFCCA, and was chaired by MEFCCA. The committee could also invite authorities of the North and South Caribbean Indigenous Territorial Governments and municipalities within the Project area to participate in special sessions. This CPCC provided advice and recommendations to MEFCCA in order to: a) ensure consistency of Project activities with the objectives, policies, and strategies of the PNDH and PRORURAL-I; (b) ensure inter-institutional coordination and collaboration around Project activities; (c) foster the necessary dialogue and analysis to support strategic decision-making by MEFCCA during Project implementation; (d) ensure timely and effective dissemination of information to key Project stakeholders and partners; and (e) ensure effective targeting of the Project activities

7. **Two Regional Project Coordination Committees.** These committees served as a forum at the RACCN and RACCS level for local technical, administrative, and organizational coordination of project activities. These committees met at least four times a year to provide strategic advice and recommendations to MEFCCA ensuring alignment of the project investments with regional needs, priorities and opportunities, timely implementation of project activities, and effective monitoring of project activities.

8. **IDP Technical Revision Committees.** Once proposed, the IDP technical committee reviewed and validated the proposals, and MEFCCA approved them. These committees, whose function was technical and whose responsibility was to ensure the transparency of the process, were established in the following MEFCCA territorial offices: Bilwi (RACCN), Las Minas (RACCN) and Bluefields (RACCS). The committees were comprised by MEFCCA (presiding entity), and not less than three technical experts from relevant government agencies (as per the specific types of IDPs evaluated) operating in the region and/or technical experts from recognized institutions. The main functions of the Committee were to: (i) analyze proposed IDPs; (ii) issue a technical recommendation to the MEFCCA on the basis of IDP evaluation and selection criteria established in the Operational Manual; (iii) provide advice to MEFCCA on IDPs' feasibility.

9. **Coordination with Regional Governments.** While the project was implemented through the MEFCCA, consultation with the Regional Governments was undertaken to ensure proper prioritization and coordination with local entities.

10. **Indigenous Territorial Governments and Indigenous Communal Governments.** As the project was also implemented in Indigenous Territories, MEFCCA consulted and coordinated with Territorial and Communal Governments.



## ANNEX 8. IMPACT EVALUATION STUDIES – SUMMARIES

Impact evaluation studies focusing on different aspects of the project design were carried out during the project implementation. A summary of these studies is presented below.

1. **Independent final impact evaluation study**, MEFCCA, Servicios Ambientales y Soluciones Tecnológicas ESTECSA, December 2019. The objective of this study was to present a final evaluation of the project based on its results indicators, strategies and lessons learned. Excluding its introductory summary, the study is structured in 8 chapters: the country context; the project description; evaluation methodology; results achieved; risks analysis; institutional performance; key factors during implementation; innovative aspects; and, lessons learned.

### Summary

The Project is aligned with the pillar “family economy”, established under the policies and strategies of the National Plan for Human Development (PNDH 2012 – 2016), as well as with its current version (2018 – 2021). It is also in line with the National Policy for Food and Nutritional Security (law 693). The project objective was to enhance food and nutritional security in selected communities of the Caribbean Coast of Nicaragua. It was implemented over the last five years and included three components.

The Project achieved satisfactory results in terms of food and nutritional security, based on efficacy, efficiency and effectiveness indexes higher than 100 percent. These are supported by the accomplishment of targets and indicators included in its Results Framework matrix. According with its development objectives indicators, the number of beneficiaries that adopted an improved agricultural technology was 9,814, while the target was 8,000, indicating that the indicator exceeded in 23 percent. Also, the results concerning the number of female beneficiaries (that adopted an improved agricultural technology) was 4,571, while the target was 1,600. The productivity rate reached 72 percent, while the target was only 10 percent. Finally, the increase in the Dietary Diversity Score reached 91 percent, compared to the 80 percent target. Through the implementation of component 1, 14,826 families benefited from the IDPs support, a result 6 percent higher than the target for the 15 municipalities and 536 communities targeted in the Caribbean Coast.

Through the Component 1, 58 IDPs were implemented, including the four its four types: 38 family agriculture, 8 artisanal fisheries, 4 agricultural/agro-industrial ventures, and 8 microenterprises. The IDPs are conceived as integrated plans, oriented to improve the productive potential and the food and nutritional security, considering poverty, nutritional level, and productive potential. They provide investments and define conditions for: technical assistance; training; technology transfer and promotion of good practices for productive processes; technical support for the beneficiaries’ organizations, respecting their culture; financial support for inputs and equipment; and, commercialization. Component 2 focused on strengthening the capacity of the sectoral institutions for the provision of services to the IDPs beneficiaries, with respect to the generation, validation, transfer of technologies, communication and nutritional education, and, nutrition sensitive agriculture. Component 3 financed the incremental costs concerning the project management, the M&E, the final evaluation, procurement and financial management.



2. **Evaluation of the level of technology adoption by the IDPs beneficiaries**, MEFCCA, Orlando José Lanuza Avendaño, December 2020. The objective of this study was to identify the current level of adoption of the technologies promoted by MEFCCA in the Caribbean Coast, through the Project. The study also identified the factors that contributed or not for the adoption level, as well as the potential for adopting the technologies promoted.

### Summary

The methodology used for the study included: surveys, focal groups, structured interviews. They were applied to a sample representative of the beneficiaries that participated in the 11 PDI Family Agriculture type, that were part of the first round of IDPs (2016, 2017). Moreover, at the time this study was carried out the implementation of these IDPs had concluded. They were distributed as follows: 224 in Las Minas, 63 in Puerto Cabezas, and 57 in Bluefields.

The results obtained clarified that almost all those that participated in the study (through surveys, focal groups, and interviews) were also the IDPs beneficiaries, who had the ownership of the productive unit. Almost 60 percent of those lived in that unit for more than 10 years, while 32 percent, from 5 to 10 years. The land ownership varies. 43 percent has some type of legal ownership, and 35 percent work on communal land. Analphabetism is not so high, which helps for the technology transfers. For the 15 percent analphabets, the transfer of technologies required a complex and long process. Access to credit was very low, only about 5 percent, while, between genders, it was higher for women.

The more efficient technologies and that shows higher potential was: Rice INTA DORADO; Beans INTA ROJO; Maize INTA AMARILLO; the three plantain varieties promoted; Cassava INTA PERLA; the leaf biofertilizers; organic fertilizer BOCASHI; composts and coverage crops. Concerning the agroecological technologies, the most adopted were the minimum tillage, the crops rotation, the diseases monitoring, light and odor traps. In the agroforest systems, the Robusta Coffee Beans achieved a 100 percent of implementation in the four municipalities targeted. The technology for post-harvest management most adopted included: plastic bags, and barrels. These are also relevant: the washing of grains, the grain curing (organically), the natural control of diseases, and the washing and selection of vegetables. The crossing of breeds more adopted were: Landrace-Duroc-Yorshire, and Landrace-Topic-Yorshire. The chicken hens breed most adopted was the Hy Line Brown.

3. **Implementation of agriculture-nutrition sensitive practices improving food and nutrition security for families benefiting from the project support: Systematization of experiences**. MEFCCA, Ing. Wilson Calero Borge, December 2019.

### Summary

This analysis was based on information concerning 40 IDPS, which were made available by the Beneficiary Monitoring System (BMS). It also included three focal groups organized for the purposes of this assessment, as well as interviews and field visits.



The assessment concludes that the success in implementing agriculture-nutrition sensitive practices was directly related to quick results ensured by the technologies promoted, responding to the family needs. Among the results ensured, the following stands out: food security; production increase; access to the markets. The beneficiaries also highlighted the importance given to the community cultural identity, and the respect for the traditional knowledge.

**4. Agroecological production under the smart agriculture approach: practices systematization.**  
MEFFCA, Ing. José Juan Aguillar Meneses, December 2019.

### **Summary**

The applied practices provided relevant contribution to achieving the objectives related to productivity, adaptation and mitigation of climate impacts. Also, they resulted economically attractive for the beneficiaries' families. The practices found the most "climate smart" are soil and water conservation; integrated crops management; organic agriculture; selective fishing and environmental practices.



## ANNEX 9. SUPPORTING DOCUMENTS

- Project Appraisal Document (PAD), Report No: PAD1196, dated February 10, 2015
- Grant Agreement, GAFSP GRANT NUMBER TF018703, dated February 23, 2015
- Implementation Supervision Reports (ISRs) 2015 – 2019
- Progress Reports (MEFCCA)
- Supervision Aide Memoires
- Project Mid Term Review Evaluation Reports, 2018
- Social and Environmental Safeguards reports
- GAFSP Proposal, 2016
- Procurement Supervision Reports
- Financial Management Supervision Reports
  
- Borrower Completion Report – MEFCCA, 20120
  
- Sistematización de experiencias en la implementación de prácticas de agricultura sensibles a la nutrición que mejoran la seguridad alimentaria y nutricional de las familias protagonistas del proyecto, MEFCCA, Ing. Wilson Calero Borge, diciembre, 2019
  
- Evaluación del grado de adopción de tecnologías por los protagonistas que participaron en el PAIPSAN-CCN, MEFCCA, Orlando José Lanuza Avendaño, diciembre, 2019
  
- Estimación de balance de emisiones de gases de efecto invernadero producto de la aplicación de prácticas y tecnologías agropecuarias en área del Proyecto, MEFCCA, Jorge Rodríguez Rubí, diciembre, 2019
  
- Evaluación Final Independiente, MEFCCA, Servicios Ambientales y Soluciones Tecnológicas ESTECSA, diciembre, 2019
  
- Informe del Desempeño Socio Ambiental del Proyecto PAIPSAN-CCN – MEFCCA, noviembre 2019
  
- Estudio de Línea de Base – MEFCCA, 2017