

# CLIMATE INVESTMENT FUNDS

PPCR/SC.21/6  
November 13, 2017

---

Meeting of the PPCR Sub-Committee  
Washington D.C.  
Tuesday, December 12 – Wednesday, December 13, 2017

Agenda Item 6

**PPCR STRATEGIC PROGRAM FOR CLIMATE RESILIENCE FOR HONDURAS**

## **PROPOSED DECISION**

The PPCR Sub-Committee, having reviewed the document PPCR/SC.21/6, *Strategic Program for Climate Resilience (SPCR) for Honduras* [endorses] the SPCR.

The Sub-Committee encourages the Government of Honduras and the MDBs to actively seek resources from other bilateral or multilateral sources to fund further development and implementation of the projects foreseen in the strategic plan.

Tegucigalpa F.M. November 10, 2017

OFFICIAL DOCUMENT No. SSE-MA-041- 2017

Honorable Mrs.  
**MAFALDA DUARTE**  
Climate Investment Funds (CIF)

Dear Mrs. Duarte:

On behalf of the Government of the Republic of Honduras, I would like submit the Strategic Program for Climate Resilience of Honduras, for the endorsement of the Climate Investment Fund (CIF) Administration Unit, for approval of the Climate Resilience Program sub Committee (PPCR).

The climate resilience strategy was developed through broad consultation processes open to all representatives of national institutions, leaders of civil society organizations, organized ethnic groups representatives, representatives of non-governmental organizations, academic authorities, national experts on this topic, and the public in general. The program obtained a favorable opinion for its strategic alignment with the long term national plans, through a note issued by the maximum national authority of the Government General Coordination Secretariat. The SPCR of Honduras, supports the implementation of the national contributions determined (NDC) by Honduras, and contributes to the achievement of the sustainable development goals. The strategy also intends to improve investments in development infrastructure to improve the resilience capacity of the population, aimed at reducing poverty in the urban and rural communities by increasing the human resilience capacity and reducing the carbon print in a sustainable manner.

Honduras focused its strategy on four pillars during the consultation processes: Strengthen the management of meteorological knowledge and climate data to inform decision-making; enhancing water security through resilient water resources management, water supply, and water governance; climate smart (resilient) agriculture and sustainable food security; and Institutional strengthening and capacity building of human resources for climate change adaptation. Fifth subprogram is proposed for coordination, M&E purposes and certification of national institutions to access green funds.

The SPCR will be implemented through a comprehensive programmatic approach, with an overall estimated budget of USD 228 Million, were USD 102 Million will be requested though the PPCR grant; the rest is being leveraged from other initiatives in water, agriculture and forest, which are already in pipeline or negotiations between the GoH and the MDBs and other partners. The first Phase of the SPCR has prioritized Water Resources and Agriculture, with the view to revisit the SPCR periodically over the medium term and include additional sectors as part of the

programmatic approach.

In view of the above, I write to express the interest of the Government of Honduras's to acquire a grant of USD 102 Million from the PPCR portfolio.

These funds will enable the Government of Honduras to reduce the financing gap and help the country's aspiration of improved climate resilience and to achieve the Country Vision and National Plan and SDGs. Details of the SPCR and accompanying annexes are attached herewith.

Without any further, I reiterate our highest and distinguished consideration,

Truly yours,

  
  
**Ing. Elvis Yovanni Rodas Flores**  
Under Secretary of Energy and Natural Resources  
PPCR Honduras Political Focus Point

Cc: Archivo



# CLIMATE INVESTMENT FUNDS



*Strategic Program for Climate Resilience  
(SPCR)*

**HONDURAS**

*"Strengthening institutions role in CCA and promoting resilience through Integrated Water Resource Management for the benefit of clean Water, Sustainable Agriculture and Livelihood of the poorest families"*

**Phase 1**

## ACKNOWLEDGEMENT

*The SPCR was developed with inputs, contributions, and participation of many interested parties from the private and public sectors, academia, professional associations, cooperation civil society organizations, representatives of indigenous and Afro-Honduran groups, and local community groups. MiAmbiente and the Presidential Office for Climate Change are very thankful for the efforts of the entire multidisciplinary technical teams from different participating institutions during the preparation of the Honduras' SPCR. In particular, the Government of Honduras deeply appreciates the support of our counterparts, including the Inter-American Development Bank (IDB), World Bank (WB) and the International Financial Corporation (IFC) for their invaluable contribution in the preparation of the SPCR.*

*We thank the task force that led the preparation under the leadership of Mi Ambiente technical teams linked to the NAP; Clima+ Office, the Invest H, the World Bank Water team, CIF counterparts, as well as Agriculture and DRM specialists and consultants, and the independent reviewer, allowing through their contributions refocusing, enriching and consolidating this proposal. Most importantly, we thank the participants of the different consultation workshops and meetings, who provided valuable contributions that have made of this SPCR a comprehensive, inclusive and innovative strategy that will serve as an umbrella to develop synergies with the different planning processes at the national and local levels, focused on the country's priority intervention areas, sectors and the development needs of the citizens.*

*We thank the Ministries, their departments, the Academia and development and donor agencies for their commitment, time and knowledge contributions during the development of this SPCR. Finally, our special thanks to the Climate Investment Fund (CIF) for their support during the preparation of the SPCR and their respective endorsement.*



**Elvis Yovanni Rodas Flores**  
Undersecretary of State in the Office  
of Energy and Natural Resources  
Political Focal Point for the PPCR-Honduras

# Table of Contents

<b>ACKNOWLEDGEMENT</b> .....	<b>III</b>
<b>FOREWORD</b> .....	<b>10</b>
<b>SUMMARY OF THE SPCR</b> .....	<b>11</b>
<b>PART I – BACKGROUND AND RATIONALE</b> .....	<b>19</b>
1.1    HONDURAS FACING CLIMATE CHANGE .....	19
<i>Country Context</i> .....	19
<i>Development and Climate Risks</i> .....	19
<i>Climate Characteristics of Honduras</i> .....	23
<i>Projections of Climate Change Risks</i> .....	26
<i>Current and future vulnerabilities to climate change</i> .....	30
Impacts on Water Resources .....	31
Impact on the Agricultural Sector .....	31
Impact on the Quality of Life .....	32
Other impacts: Forest, Coral Reefs, Tourism and others .....	32
Disaster impacts .....	32
Hydroelectric sector .....	32
Ecosystems .....	33
Forests .....	33
Tourism.....	33
<i>Overview and linkage to existing development plans and programs</i> .....	34
The Country Vision (2012-2030) .....	34
National Plan (2010-2022) .....	34
National Climate Change Strategy 2010 (ENCC) .....	34
Honduras’ National Determinant Contributions (NDCs) .....	35
The National Adaptation Plan.....	35
Water Supply and Sanitation Plan-PLANASA (2014-2022) .....	35
<i>Programs of MDBs and Development Partners</i> .....	36
1.2    RATIONALE FOR PPCR SUPPORT .....	37
1.3    INSTITUTIONAL ANALYSIS: REGULATORY AND INSTITUTIONAL FRAMEWORK TO ADDRESS CLIMATE RISKS .....	38
<i>Primary Agencies</i> .....	38
<i>Regulatory Framework in Place for CCA</i> .....	41
<i>Interinstitutional Coordination Platforms</i> .....	41
<i>Shortcomings that Affect the Institution Coordination</i> .....	42
<i>Mi Ambiente Role as Focal Point of the GCF</i> .....	43
1.4    OUTLINE OF THE STRATEGIC PROGRAM FOR CLIMATE RESILIENCE .....	43
<i>Programmatic Approach to Enable Sustainability of the SPCR</i> .....	43
<i>Priorities defined for SPCR</i> .....	44
<i>PPCRs alignment with National Strategies</i> .....	46
<i>Territorial intervention Strategy for the SPCR</i> .....	47
<i>General Objectives and Components of the SPCR</i> .....	48
<i>Brief Description of each Sub Program, Division of Labor and Implementation Calendar</i> .....	49
<i>Links with ongoing and/or planned MDB programs</i> .....	51
IADB.....	51
World Bank .....	52
IFC.....	52
USAID.....	52
1.5    PARTICIPATION PROCESS.....	52
<i>Learning Mechanisms Proposed for the SPCR</i> .....	54
<b>PART II – PROPOSED INVESTMENT PROGRAM COMPONENTS FOR PPCR FINANCE</b> .....	<b>55</b>
2.1    SUMMARY OF THE STRATEGIC SPCR PROGRAMS FOR HONDURAS .....	55
<i>PPCR Prioritized Areas of Interventions and Subprograms</i> .....	55
Strengthen the management of meteorological knowledge, water resources and climate data to inform decision-making. ....	55
Resilient water management through strengthening governance .....	56
Climatically resilient agriculture and sustainable food security.....	56
Institutional strengthening and capacity building of human resources for adaptation to climate change.....	57

<i>Description of SPCR and its Subprograms</i> .....	57
<i>Prioritized Area of Intervention</i> .....	58
<i>Multi-Institutional Intervention</i> .....	58
<i>SPCR Alignment to National Strategies</i> .....	58
2.2 PERFORMANCE FRAMEWORK WITH COUNTRY SPECIFIC METRICS.....	61
<b>PART III – REQUEST FOR PROJECT PREPARATION GRANTS</b> .....	<b>63</b>
<b>ANNEXES</b> .....	<b>75</b>
ANNEX 1. DESCRIPTION OF SUBPROGRAM 1: STRENGTHEN THE MANAGEMENT OF METEOROLOGICAL KNOWLEDGE, OF WATER RESOURCES AND CLIMATE DATA TO INFORM DECISION-MAKING .....	75
Component 1: Strengthening of Climate Services, Weather Forecasts and Temperature and Precipitation Scenarios Component, managed by CENAOs. ....	76
Component 2: Strengthening of Information for Hydrological Planning of Water Resources Component, administered by the DGRH. ....	76
Component 3: Develop the Aligned Water Balance to the Priorities of the ABS Plan Component. ....	76
ANNEX 2. DESCRIPTION OF SUBPROGRAM 1: RESILIENT WATER RESOURCES MANAGEMENT THROUGH STRENGTHENING WATER GOVERNANCE. ....	83
Component 1. Water storage: Technology, financing mechanisms and water governance as a strategy of climate resilience. ....	85
Component 2: Water storage, its technology and financing mechanisms to increase access to water as a strategy of climate resilience. ....	85
Component 3: Promote safe water and climate resilience mechanisms in the distribution of Potable water and sanitation services in addition to the Water and Sanitation Sustainability Project in Honduras. ....	85
Component 4: Institutional strengthening for decision-making in the management of water resources at central and local level. ....	86
ANNEX 3. DESCRIPTION OF SUBPROGRAM 3: CLIMATICALLY RESILIENT SMART AGRICULTURE AND SUSTAINABLE FOOD SECURITY. ....	93
Component 1: Sustainability in Agricultural Production and Adaptation to the Effects of Climate Change. ....	94
Component 2: Technologies for Adaptation to Climate Change. ....	94
Component 3: Comprehensive and Multi-Ethnic Support for the Sustainability of Enterprises of Chains Compatible with Agroforestry Systems, Agro-silvo-pastoral and Sea Products with a Gender Focus. ....	95
ANNEX 4. DESCRIPTION OF SUBPROGRAM 4: INSTITUTIONAL STRENGTHENING AND CAPACITY BUILDING OF HUMAN RESOURCES FOR ADAPTATION TO CLIMATE CHANGE.....	104
Component 1: Instruments and Mechanisms to Strengthen Institutional Processes of ACC. ....	105
Component 2: Harmonization, Updating and Design of Public Policy Instruments for Sustainable Water Resource Management. ....	105
Component 3: Promotion of the National Strategy for Adaptation to Climate Change for the Agro-food Sector of Honduras (2014-2014). ....	105
Component 4: Promotion of the National Plan for Adaptation to Climate Change. ....	105
ANNEX 5. DESCRIPTION OF SUBPROGRAM 5: TECHNICAL AND ADMINISTRATIVE MANAGEMENT, MONITORING AND EVALUATION OF THE SPCR .....	111
ANNEX 6. INDEPENDENT EXPERT REVIEW .....	114
ANNEX 7. PROJECTS IN PIPELINE FROM MDBS AND PARTNERS WITH INTERVENTIONS THAT WILL CONTRIBUTE TO THE SPCR SUBPROGRAMS. ....	126
ANNEX 8. LIST OF PARTICIPANTS OF THE FIRST WORKSHOP.....	129
ANNEX 9. AGENDA OF THE WORKSHOP OF THE FIRST JOINT MISSION .....	134
ANNEX 10. AGENDA FIRST JOINT MISSION TO DISCUSS THE SPCR DOCUMENT. ....	136
ANNEX 11. IMAGES OF THE TECHNICAL WORKSHOPS PREPARING THE SPCR DOCUMENT.....	139
ANNEX 12. AGENDA SECOND JOINT MISSION TO VALIDATE THE SPCR DOCUMENT .....	140
<b>BIBLIOGRAPHY</b> .....	<b>158</b>

## Index of Figures and Tables

FIGURE 1. DRY CORRIDOR.....	21
FIGURE 2. FLOOD CORRIDOR .....	22
FIGURE 3. INDEX OF FOREST FIRE SEVERITY (2000-2011) .....	22
FIGURE 4. ANNUAL PRECIPITATION MAP .....	24
FIGURE 5. THREATS BY TROPICAL CYCLONES .....	25
FIGURE 6. GEOMORPHOLOGICAL MAP OF FLOOD SUSCEPTIBILITY .....	25
FIGURE 7. MAP OF PRECIPITATION ANOMALIES DURING PERIODS OF EL NIÑO MODERATE IN AUGUST.....	26
FIGURE 8. WEATHER AND PRECIPITATION CLIMATE PROJECTION MAPS UNDER THE SRES A2 EMISSION SCENARIO IN HONDURAS. .....	28
FIGURE 9. INDEX OF ARIDITY FOR SCENARIO A2 FOR THE YEARS 2010, 2025, 2050.....	29
FIGURE 10. REPRESENTATIVE KEY RISKS FOR EACH REGION, INCLUDING THE POTENTIAL FOR RISK REDUCTION THROUGH ADAPTATION AND MITIGATION AND THE LIMITS OF ADAPTATION.....	30
FIGURE 11. PROGRAMMATIC STRUCTURE OF THE CCA AGENDA.....	42
FIGURE 12. STRATEGIC FRAMEWORK FOR CLIMATE RISK MANAGEMENT IN THE PPCR- HONDURAS CONTEXT.....	44
FIGURE 13. DRY CORRIDOR ZONE MAP AND THE MUNICIPALITIES OF THE NEW PROGRAM IN WATER AND SANITATION SERVICES IN HONDURAS. ....	48
FIGURE 14. INTER-INSTITUTIONAL COORDINATION AND INTERFACE OF CLIMATE-QUALITY ECOSYSTEM GOODS AND SERVICES....	54
FIGURE 15. LARGER WATERSHEDS OF HONDURAS .....	78
FIGURE 16. COMPETITION IN THE USE OF WATER.....	87
FIGURE 17. MAP OF THE MAIN CROPS BY MUNICIPALITY, ACCORDING TO CNA 1993 AND PROJECTION ACCORDING TO THE NET GAIN OR LOSS FOR 2030 .....	96
FIGURE 18. CANÍCULA STARTING PERIOD 2014.....	98
TABLE 1. CLIMATIC PROJECTIONS OF TEMPERATURE AND PRECIPITATION IN HONDURAS UNDER THE SCENARIOS OF EMISSIONS SRES A2 AND B2.....	27
TABLE 2. PROJECTS AND PROGRAMS FROM DONORS WITH INTERVENTIONS IN CLIMATE CHANGE ADAPTATION .....	37
TABLE 3. ALIGNMENT WITH NATIONAL STRATEGIES AND DOCUMENTS CONSULTED.....	46
TABLE 4. REQUIREMENTS OF DATA AND INFORMATION OF INSTITUTIONS PROVIDING INFORMATION THAT OPERATE STATION NETWORKS.....	79
TABLE 5. ESTIMATE OF AGRICULTURAL PRODUCTION AND ESTIMATED LOSSES, 2014.....	97
TABLE 6. WBG PROJECTS IN PIPELINE WITH INTERVENTIONS IN CLIMATE RESILIENCE .....	126
TABLE 7. IDB PROJECTS IN PIPELINE WITH INTERVENTIONS IN CLIMATE RESILIENCE .....	127

## GLOSSARY

A1B	Emissions Scenario type A1B
ABS	Forest, Soil & Water
ACC	Adaptation to Climate Change
ACICAFOC	Indigenous and Small Farmer Coordinating Association of Community Agroforestry of Central America,
ACT	Joint Churches Action
AHPPER	Honduran Association of Small Renewable Energy Producers
AHPSAS	Honduran Association of Potable Water and Sanitation Providers
AID	International Agency for Development
ALIDES	Alliance for Sustainable Development
ANAFAE	National Association for the Promotion of Ecologic Agriculture
AR4	Fourth Assessment Report
AR5	Fifth Assessment Report
ASONOG	Association of Non-Governmental Organizations
BANASUPRO	National Basic Commodity Supplier
BCH	Central Bank of Honduras
CABEI	Central American Bank for Economic Integration
BMD	Multilateral Development Banks
CATIE	Tropical Agricultural Research and Training Center
CC	Climate Change
CCAFS	Climate Change, Agriculture and Food Security
CCCMA-31,	Canadian Center for Climate Modeling and Analysis
CELADE	Latin American and Caribbean Demographic Center
CEPAL	Economic Commission for Latin America and the Caribbean
CEPREDENAC	Central American Coordination Center for Natural Disaster Prevention
CGIAR	Consultative Group for International Agricultural Research
CIF	Climate Investment Fund
CIMMYT	International Corn and Wheat Improvement Center
CLIFOR	Adaptation to Climate Change in the Forestry Sector
UNFCCC	United Nations Framework Convention on Climate Change (UNFCCC)
CNRM-CM3	National Climate Research Center
CONADEH	National Human Rights Commission
CONASA	National Potable Water and Sanitation Council
COPECO	Permanent Committee on Contingencies
COSUDE	Swiss Development Cooperation
CRGR	Regional Coordination for Risk Management in Central America
CRRH	Regional Committee for Water Resources
CRSP	Collaborative Research Support Program
CTICC	Inter-institutional Technical Committee on Climate Change
CTICC	Inter-institutional Technical Committee on Climate Change
CZER	Zamorano Renewable Energy Center
DICTA	Directorate of Agricultural Science and Technology
DIPECHO	European Commission Disaster Preparedness Program
DNCC	National Directorate of Climate Change
ECADERT	Central American Rural Territorial Development Strategy
ECADERT	Central American Rural Territorial Development Strategy
ECAGIRH	Central American Strategy for the Comprehensive Management of Water Resources
ECHAMS	Model of general circulation

ENCC	National Climate Change Strategy
ENOS	El Nino Southern Oscillation
ERAS	Regional Agro-Environmental and Health Strategy
ERCC	Regional Strategy for Climate Change
ERCC	Regional Strategy for Climate Change
ERSAN	Regional Strategy for Food and Nutrition Security
ERSAPS	Regulating Entity for Potable Water & Sanitation Services
ESNACIFOR;	National School of Forestry Sciences
FAO	Food and Agriculture Organization of the United Nations
FHIA	Honduran Agricultural Research Foundation (FHIA)
FIDA	Investment Fund for Agricultural Development
FIPAH	Foundation for Participatory Research with Honduran Farmers
FUNAPIB	Pico Bonito National Park Foundation
GoH	Government of Honduras
GEI	Greenhouse Gasses Effect
GIZ	German International Cooperation Agency (GIZ)
GRD	Risk and Disaster Management
HADGEMI;	Copy License for free content for use of data from the Geophysical
GFDL CM2.0	Laboratory of fluid analysis
ICADE	Institute for Cooperation and Self-Development
ICF	Institute of Forest Conservation
IDAMHO	Institute of Environmental Law of Honduras
IDH	Human Development Index
IHCAFE	Instituto Hondureño del Café
IHCIT	Honduran Institute of Earth Sciences
IHMA	Honduran Institute of Agricultural Marketing
IICA	Inter-American Institute for Cooperation on Agriculture
IISD	International Institute for Sustainable Development
INDC	Predicted and Determined National Contribution
INFOAGRO	Agro-food Information Service
IPCC	Intergovernmental Expert Panel on Climate Change
IRC	Global Climate Risk Index
ITCZ	Inter-Tropical Convergence Zone
MAGICC- SCENGEN	Model for the assessment of climate change induced by greenhouse gases, a regional generator of climatic scenarios
MAREA-TNC	Program for the Management of Aquatic Resources and Economic Alternatives.
MDL	Foundation of Climate Change Initiatives of Honduras
MIACC	Indigenous and Afro-descendants Table on Climate Change
MIAMBIENTE	Secretariat of Energy, Natural Resources Environment and Mines
MIROCMED	Japanese Center for Climate Research
MNIGR	National Table of Advocacy and Risk Management
NBI	Unsatisfied Basic Needs
NCARPCM1	National Atmospheric Research Centre
OFID	Foundation of oil producing countries for International Development
OFRANE	Black Fraternal Organization
ONCC	National Office of Climate Change
ONCCDS	National Observatory of Climate Change for Sustainable Development
NGO	Non-governmental Organization
PACA	Central American Agricultural Policy
PACADIRH	Central American Policy on Comprehensive Management of Disaster Risk

PARCA	Environmental Plan of the Central American Region
PARCA	Environmental Plan of the Central American Region
PCGIR	Central American Policy on Integrated Risk and Disaster Management
PCM	President at the Council of Ministers
GDP	Gross Domestic Product
PNA	National Adaptation Plan
UNDP	United Nations Development Program
PPCR	Climate Resilience Pilot Program
PRESANCA II	Regional Food Security and Nutrition Program
PROCAMBIO	Sustainable management of natural resources with a focus on adaptation to climate change
PROMECAFE	Regional Cooperative Program for Technological Development and Modernization of Coffee Production
PROMOSAS	Modernization Project for the Water and Sanitation Sector
PRONAGRO	National Agro-Food Development Program
PRRD	3. Regional Disaster Reduction Plan
PSAN	Long-Term Food Security and Nutrition Policy
PTCN	Third National Communication Program
REDD+	Reducing Emissions from Deforestation and Forest Degradation
REGATTA	Regional Network of Technology Centers Latin America and the Caribbean
RENACAMIH	National Network of Communities Affected by Mining in Honduras
SAG	Secretariat of Agriculture and Livestock
SANAA	National Autonomous Service of Aqueducts and Sewers
SDE	Secretariat of Economic Development
SECPLAN	Secretariat of National Planning
SEFIN	Finance Secretariat
SENASA	National Agricultural and Livestock Security Service
SEPLAN	Secretariat of Planning
SERNA	Secretariat of Natural Resources
SETCO	Technical Secretariat and of Cooperation
SICA	Central American Integration System
SICTA	Integration System of Agricultural Technology Centers
SINAGER	National Risk Management System
SISAG	Information System of the Secretariat of Agriculture and Livestock
SMN	National Meteorological Service
SPCR	Strategic Program for Climate Resilience
SREX	Extreme event risk management
TROCAIRE	Foreign Cooperation Agency of the Catholic Church in Ireland
UGEFC	Economic and Financial Management for Climate Change
UKHADCM3	Model of general circulation United Kingdom
UNAH	National Autonomous University of Honduras
UNAM	National Autonomous University of Mexico
UNISDR	United Nations Office for Disaster Risk Reduction
UPEG	Planning, Evaluation and Management Unit
UPG	Management Planning Unit
USAID	United States Agency for International Development
WSS	Water Supply and Sanitation

## FOREWORD

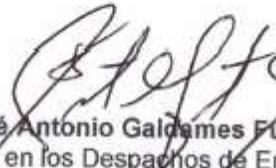
The Government of Honduras (GoH) reiterates its commitment to promote the integration of Adaptation to Climate Change and the reduction of climate risk in the national and sector development processes. In this regard, the Strategic Program for Climate Resilience (SPCR) represents an opportunity to strengthen the country's Climate Change institutional platform and its legal framework, including the Climate Change Law. The SPCR provides the opportunity to have a strategic action framework as an instrument to strengthen the National Climate Change Strategy. The National Adaptation Plan and the Water, Forest and Soil Master Plan, become a negotiation tool to generate local or regional partnerships with international, public or private organizations, to leverage financial and technical resources and ensure sustainability of the SPCR.

By adopting climate resilience as part of the country's development approach, it becomes instrumental to achieve and monitor progress on the objectives and goals of social inclusion, equal opportunities and redistribution of wealth. All of which already embedded in the Country's Vision and National Plan and in the Sustainable Development Goals, establishing the importance on accessing climate-resilient goods and services to reduce poverty, increase the participation of at least 35% of women as direct beneficiaries of the actions of the SPCR and the recovery and acknowledgment of ancestral practices as mechanisms to address climate resilience. We are convinced that through the combination of the abovementioned aspects, the Central Government is also provided with the opportunity to reflect a human side ("rostro humano") to the effects and responses to climate change and variability.

The inter-institutional coordination, the collaborative processes and the shared leadership, are some of the key characteristics that distinguishes the Strategic Program for Climate Resilience of Honduras, as the country's first and innovative effort to develop an integral approach framed within the Water, Forest and Soil Master Plan (ABS Plan) and the National Adaptation Plan to Climate Change; main public strategies guiding the country's efforts to address climate variability, complemented in this first phase by specific sector strategies such as: water supply and food security policies and reforms, among others. The shared responsibility among the different entities and the lessons learned during the process both in the country or abroad, will serve to enhance the institutional mandate, the institutional expertise and the knowledge exchange through collaborative interventions and partnerships.

The central purpose of the global initiative known as the Pilot Program for Climate Resilience (PPCR) and the Honduras Strategic Program for Climate Resilience (SPCR), is the promotion of inter-institutional cooperation to guide climate-resilient development interventions, promote joint actions and collaborative processes among different actors. The five sub-programs have two functions, the subprograms; 1 "knowledge of risk" and 4 "institutional strengthening", are initiatives that contribute to the delivery of goods and services; through sub-programs 2 and 3, an inter-institutional collaborative safe space is provided to promote water and food security respectively, leaving subprogram 5 for M&E and coordination. The SPCR's programmatic approach allows water resources and food security today, but in the future, other sectors can be easily integrated to be strengthened in climate-resilient processes.

As lessons learned and best practices surface, especially as the SPCR moves forward, the pilot projects will set aside resources to ensure inter-institutional coordination exercises, active participation of public, private, professional, academic and civil society actors. The Strategic Program for Climate Resilience in Honduras and each of its subprograms will be implemented by a responsible entity. Overall, MiAmbiente leads the SPCR in Honduras as focal point in collaboration with Invest-H.

  
José Antonio Galdames Fuentes  
Secretario de Estado en los Despachos de Energía,  
Recursos Naturales, Ambiente y Minas  
MiAmbiente+



## SUMMARY OF THE SPCR

<b>Pilot Program for Climate Resilience Summary of Strategic Program for Climate Resilience</b>		
Country/Region:	Honduras, Central America	
PPCR Funding Request (in USD million):	<i>Grant: \$ 102,000,000.00</i>	<i>Other contributions: \$ 0</i> <i>Government: \$ 0</i> <i>Preparation grant request: \$ 2,500,000.00</i>
National PPCR Focal Point:	Vice Ministry of MiAmbiente, Ing. Elvis Rodas	
National Implementing Agency (Coordination of Strategic Program):	Strategic Investments of Honduras (INVEST-H)	
Involved MDB	World Bank Group and International Development Bank	
MDB PPCR Focal Point and Project/Program Task Leader Team (TTL):	<i>Headquarters-PPCR Focal Point: Kanta R. Riguad, Lead Environmental Specialist Gloria Visconti, Climate Change Lead Specialist - IDB</i>	<i>TTLs: Marco Agüero Senior Water and Sanitation Specialist Omar Samayoa, Climate Change Specialist, IDB</i>
<p>Description of SPCR:</p> <p><i>Key challenges related to vulnerability to climate change/variability:</i></p> <p>Description of SPCR:</p> <p><b>Key challenges related to vulnerability to climate change/variability:</b></p> <p>Key risks and vulnerabilities: Honduras a country with multiple risks. Exposed to multiple natural hazards, with great influence of climatic and hydro-meteorological phenomena. The country's multi-hazard condition of exposure to droughts, heat waves, hurricanes, tropical storms and floods make it one of the countries with the highest climatic risk worldwide. In addition, the structural inequalities that create and maintain poverty and limit inhabitants' access to resources, as well as the challenges posed by a growing urban population, are further compounded by increased exposure and vulnerability to climate-related events.</p> <p>Further, projected climate patterns suggest that Honduras' climate vulnerability is on the rise, evidencing a negative impact in water security and providing the underpinnings that suggest the adaptation agenda of the SPCR must have a strong focus on water. Among the climate patterns identified are:</p>		

**Pilot Program for Climate Resilience**  
**Summary of Strategic Program for Climate Resilience**

- By 2020, projections indicate there will be about a 6 percent decrease in the annual rainfall in the west and south of the country, and a 0.8°C increase in the annual average temperature.
- By 2050, a 20 percent to 25 percent decrease in rainfall across most of the country, particularly in the central-western region, and a projected reduction in the rainy season between June and August with a prolonged dry period.
- By 2090, the projected rainfall would amount to just 30 percent - 40 percent of current levels, and average temperatures are projected to increase by 4°C in most parts of the country. An expected increase in atmospheric pressure (of around one hectopascal) is also projected, with an effect in other manifestations of climate change, including rainfall deficits and annual temperature increases.

Climate-related hazards in the region include high temperatures, drought and water deficit in the western, south central, and south-eastern regions (known as the Dry Corridor), where climate variability is affecting 186,311 families which are expected to face even greater shortage of safe water and lower agricultural production in the future due to frequent drought, farther affecting the food security in the region. It is estimated that four percent of the Dry Corridor area in Honduras is under severe drought and the rest (96 percent) is divided between a high and low degree of severity. Other areas are greatly affected by tropical storms and cyclones (which cause flooding and landslides), with greater incidence in the northeast and Caribbean coastal region, known as the flood corridor, specifically the Sula Valley, where much of the economic growth is generated through agro-export, agro-industry, industry and tourism. On average, Honduras loses 2.6 percent of the national GDP each year as a result of climatic events. A third corridor has been identified also highly vulnerable to climate variability, where large areas of forest are lost each year due to uncontrolled fires accelerated by high temperatures and pest infestation; between 2016 and 2017, due to weather changes, the country's pine forests were heavily affected by the bark beetle pest, losing approximately 500,000 hectares of pine forest.

According to the Global Climate Risk Index for 2015 (Germanwatch), Honduras was the country most affected by climate change between 1996 and 2015. The combination of global climate change and increased climatic variability, are likely to exacerbate exposure to hurricanes, floods, erosion, landslides, and droughts. In particular, Corredor Seco – which maintains the highest concentration of social, environmental, economic and productive risks – would require significant efforts as well as engagement of multiple stakeholders working on climate change and risk management.

The abovementioned is coherent with vulnerabilities identified for the Central American Dry Corridor region, were according to the IPCC (2014) and WB (2016), the key risks identified are three, i) less water availability and more floods and landslides, ii) rapid urbanization in the region whose growth exceeds the capacity of cities to provide adequate public services, including water and sanitation; and iii) lower food production and quality and the risk of spreading vector-borne diseases, which are projected despite the fact that availability of information is partial and outdated.

**Institutional challenges:**

Institutions working in the prioritized sectors or leading the NAP initiative present shortcoming in terms of technical and financial capacities. In general, there is a lack of clear mandates, governance among coordinating bodies, and sufficient financial resources, in addition more staff with appropriate skills and knowledge is needed to incorporate adaptation into territorial and sectoral planning. The Government does not yet have a systematic process for planning or preparing the annual budget that includes resources to address climate adaptation. Major efforts were made to prepare the CC Strategy and NAP, but this is still not translated into the implementation of development of strategic plans to address climate adaptation,

**Pilot Program for Climate Resilience**  
**Summary of Strategic Program for Climate Resilience**

defining budget allocations or priority investments with a climate resilience approach. In addition, institutional roles when addressing climate adaptation are not clearly defined, giving rise to duplication of functions and gaps, resulting in the absence of systematic multi-sectoral planning processes and the dispersion of actions between different entities that are not linked to local, regional and national planning processes. Therefore, it is urgent to integrate inter-institutional platforms to expedite the implementation of the country commitments to implement adaptation measures to address the effects of climate change.

**Honduras's response:**

To respond to the growing climatic threats, the GoH launched the Country Vision (2012-2030), National Plan (2010-2022), the National Climate Change Strategy in 2010 and recently the Water, Forest and Land Master Plan for 2017 to 2030, where the common denominator is the need of adequate water resource management, access to water for consumption as a human right, and smart agriculture, calling all public sector institutions and international cooperation for planning efforts to be based on ensuring the sustainability of natural resources, participatory planning process and the reformulation of the national budget structure, in a way that it reflects adaptation efforts in these areas which are the primary focus of the SPCR. The SPCR will be instrumental as it recognizes the need for significant investment and continued efforts to strengthen institutions and ongoing activities to increase its resilience to climate change as well as increase awareness among civil society groups and the private sector regarding the need to address climate change through a government-led process.

So far, the most important progress has been made in formulating policies and institutionalizing them at the central level as well as a progressive approach from the sector level, through the inter-sectoral to reach a comprehensive approach, evidenced though the recently approved Water, Forest, Soil Master Plan (2017). As explained earlier, the challenges arise in the coordination among the different actors at the central and local levels.

**SPCR Innovative Approach:**

The implementation of the SPCR is conceived through a programmatic approach, using the SPCR as a mechanism to leverage funding from MDBs and other donors as well. The first phase of the SPCR consider water and agriculture as the main sectors during the first phase. The programmatic approach provides flexibility to include additional sectors as the SPCR is being implemented.

**Areas of Intervention - sectors and themes:**

The SPCR has three key climate resilience strategic priorities which are responsive to the Water, Forest, Soil Master Plan and National Development Plan, NDC and the forthcoming National Adaptation Plan. These include: 1) strengthen the management of meteorological knowledge, water resources and climate data to inform decision-making; 2) resilient water management through strengthening water governance; 3) agriculture and food security and 4) institutional strengthening and the capacity of human resources and 5) institutional coordination all of which include cross-cutting themes related to livelihood, gender and hydro-meteorological knowledge.

The impacts of mainstreaming the NCCS and the NAP into proposed investment subprograms into the SPCR is apparent. The benefits of climate risk assessments are typically high – in agricultural and water related projects in Honduras, as it takes into account the benefits brought about by improved climate information, changed risk behavior and better risk planning for the selected priority areas. Strengthened information leading to better crop planting decisions or water harvesting could considerably smoothen the effect of climate shocks on household income.

**Pilot Program for Climate Resilience**  
**Summary of Strategic Program for Climate Resilience**

**Expected Outcomes from the Implementation of the SPCR**

1) Strengthen the management of meteorological knowledge, water resources and climate data to inform decision-making.

Increase capacity to develop scenarios of climate change for Honduras, strengthen climate information services through a comprehensive approach to provide timely information at the agricultural, urban planning and risk management levels, among others; and improve surveillance and forecasting, more accurate predictions and early warning of extreme weather phenomena. Including coordination and exchange of effective inter-institutional information. Knowledge outputs developed and disseminated.

2) Comprehensive management of water resources resilient through the strengthening of water governance.

Promote comprehensive water management, with knowledge generation and investment in multiple use water infrastructure (water for human consumption and agriculture). Strengthening of coordination and governance mechanisms among the actors and users of the different water user sectors. Water use optimization under conditions of reduced availability, development of studies for the prioritization of storage infrastructure and multiple use reservoirs.

3) Climate Smart Agriculture and food security.

Increase ability of Program beneficiaries to withstand/adapt to climate variability and change, complement existing investments through the Dry Corridor Alliance Programs, and support the replication and expansion of existing practices that contribute to the improvement of food security, through management of drought tolerant crop varieties and climate variability, effective soil management practices to ensure that climate resistance becomes a comprehensive part of land management and agricultural production. Improve mechanisms for storage and diversification of crops and water harvesting, among other practices proposed as part of the PPCR in Honduras. Search for livelihood security with diversification of income, assets and livelihood means; better infrastructure; access to technology and decision-making forums; greater decision-making capacity; practices related to modified crops, livestock and aquaculture.

4) Institutional strengthening and capacity building of human resources.

Increase capacity to integrate climate change into national and sub-national development plans; the availability of appropriate policies, procedures, guidelines and institutions, enabling them to carry out their functions in a multi-sectoral and sustainable manner. Improve coordination and exchange of information on national Programs and of cooperation, reducing overlap and duplication of efforts.

5) The inter-institutional coordination for the construction of climate resilience.

The SPCR-Honduras has a special added value, the construction of a space of inter-institutional coordination for multisector action for collaborative processes and the multisectoral approach, taking into consideration the territorial attributes, the interests and needs of the actors. This enhancement of inter-institutional coordination as an iterative mechanism to achieve climate resilience is one of the main contributions and learning products of the Honduran experience for the PPCR. Initially, one of the learning mechanisms, among others, will be the pilot projects, which will initially work "the water resources-food security interface", to generate synergies of results and learning in the production of quality ecosystem and climate goods and services, where they will be able to participate during the design, implementation and evaluation phase in areas such as: governance; transparency; articulation of gray work-green work; production-distribution-consumption and waste; territorial compensation; the green and brown agenda;

<b>Pilot Program for Climate Resilience Summary of Strategic Program for Climate Resilience</b>	
sustainable agriculture; production of clean energy; and other processes necessary in the construction of climate resilience, among others.	
Expected Key results from the Implementation of the Investment Strategy (consistent with PPCR Results Framework):	
Result	Success Indicator(s)
<p><b>Expected Transformative Impact of the SPCR (First Phase) in Honduras:</b></p> <p>Improved the quality of life for the people living in the Dry Corridor of Honduras</p>	<p><b>National Indicators Collected by Government that Match with the PPCR core Indicators<sup>1</sup>:</b></p> <p>a. Number of people supported by the PPCR to cope with effects of climate change; including % of households in the Dry Corridor whose livelihoods have improved and % of people with year-round access to reliable and safe water supply, disaggregated by urban and rural</p> <p>b. Degree of integration of climate change in national, including sector planning;</p> <p>c. Evidence of strengthened government capacity and coordination mechanism to mainstream climate resilience; and</p> <p>.</p>
<b>Sub Program 1: Strengthen the management of meteorological knowledge, of water resources and climate data to inform decision-making</b>	
1.1. Use of climate information in decision making routinely applied	<ul style="list-style-type: none"> <li>Evidence showing that reliable and timely meteorological and hydrological information provided to potentially affected populations.</li> </ul>
<b>Subprogram 2: Resilient water resource management through strengthening water governance and improving its usage.</b>	
2.1 Increased resilience of households, communities, businesses, sectors and society to climate variability and climate change benefitted from water interventions in selected areas	<ul style="list-style-type: none"> <li>Decrease in Health Indicators at the community or municipal level of the beneficiary sites related to water borne diseases.</li> <li>Number of pilot projects generate, validate, socialize as lessons learned, instruments of inter-institutional coordination with projects related to increase climate resilience in the water sector.</li> </ul>

<sup>1</sup> As part of the Subprograms 1, 4 and 5, the Government will continue strengthening the M&E system to capture, as objectively as possible, the progress made during implementation and the contribution of the SPCR to the climate adaptation agenda. Additional PPCR core indicators may be included as the results framework is updated and better streamlined during the preparation process.

<b>Pilot Program for Climate Resilience Summary of Strategic Program for Climate Resilience</b>	
	<ul style="list-style-type: none"> <li>• Increased quality and quantity of water resources at target sites</li> <li>• Number of Water and Sanitation Providers in targeted urban area, with performance index above 90%, per the national regulator.</li> <li>• X% of water boards in areas with water deficit that have regularized their legal regime and management plans</li> </ul>
<b>Subprogram 3: Climatically resilient agriculture (smart agriculture) and sustainable food security.</b>	
<b>3.1</b> Increased resilience of households, communities, businesses, sectors and society to climate variability and climate change benefitted from smart agriculture interventions in selected areas	<ul style="list-style-type: none"> <li>• Male and female producers adopting good practices and sustainable production technologies, at least 30 % are women.</li> <li>• Increases in yields of prioritized items in the Dry Corridor.</li> <li>• Number of farmers who adopted good practice / Programmed target number of producers</li> <li>• Increase in the number of Hectares of land for cultivation under the system of water harvests</li> </ul>
<b>Sub Program IV: Institutional strengthening and capacity building of human resources for adaptation to climate change</b>	
<b>4.1</b> Strengthened climate responsive development planning	<ul style="list-style-type: none"> <li>• Number of policy/planning instruments validated, adopted and disseminated to advance adaptation to climate change in key vulnerable sectors.</li> <li>• At least X% of planned budget at national level of government consider effects of CV&amp;CC.</li> </ul>
<b>4.2.</b> Strengthened adaptive capacities implementation and sustainability of production systems (resilient to climate change.)	Formulation of Policies, Strategies, plans to strengthen CC in water resources and agricultural related interventions, based on quality climate information
<b>4.3.</b> Climate responsive investment approaches identified and implemented	<ul style="list-style-type: none"> <li>• Investment criteria in CC defined and endorsed by the ministry of finance</li> <li>• At least % of planned budget to address CC at national level of government, implemented, consider effects of CV&amp;CC.</li> <li>• Increasing the leveraging funding ratio (PPCR funding against public and private investments in climate sensitive sectors)</li> </ul>
<b>Sub Program and Project Concepts under the SPCR:</b>	

Pilot Program for Climate Resilience									
Summary of Strategic Program for Climate Resilience									
Sub Program Concept Title	MDB Multilateral Development Banks		Requested potential PPCR Amount Millions (\$)			Expected co-financing Millions (\$)	Preparation grant request Millions (\$)	Total request for resilience building Millions (\$)	Potential MD B Fee
			TOTAL	Grant	Loan				
Strengthen the management of meteorological knowledge, water resources and climate data to inform decision-making.	WB	10	10	10	0	Gov: 0.25 WB: 10 USAID: 0.5	0.35	11	
	USA ID <sup>2</sup>	0							
Resilient water management through strengthening water governance.	WB	50	45	45	0	Gov: 0.5 WB: 50 IDB: 9	0.90	59.5	
	IDB	9							
Climate resilient smart agriculture and sustainable food security	WB	25	30	30	0	Gov: 0.5 WB: 25 IDB: 17	0.90	42.5	
	IDB	17							
Institutional strengthening and capacity building of human resources for adapting to climate change	WB	0	12	12	0	Gov: 0.25 IDB: 10	0.35	10.5	
	IDB	10							
Political Advocacy, Administrative Management, Monitoring and Evaluation.	WB	0	5	5	0	Gov: 1	0	1	
	IDB	0							
<b>TOTAL</b>		<b>121</b>	<b>102</b>	<b>102</b>	<b>0</b>	<b>115</b>	<b>2.5</b>	<b>124.5</b>	
Timeframe (tentative) - Milestones									
The following dates are only initial estimates:									
Year 0		Year 1		Year 2 to 5		Year 6		Year 5	
• Endorsement of the SPCR		• Preparation of investme		• Implementation of Investment projects		• Closing of Investments Projects		• Balances Lessons Learned	

<sup>2</sup> To be confirmed during preparation phase.

**Pilot Program for Climate Resilience  
Summary of Strategic Program for Climate Resilience**

<ul style="list-style-type: none"> <li>• <b>Baseline Studies</b></li> <li>• <b>Institutional agreements</b></li> <li>• <b>Identification, organization of stakeholders</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Investment projects</b></li> <li>• <b>Diagnoses</b></li> <li>• <b>Protocols</b></li> <li>• <b>Implementation of Investment projects</b></li> </ul>		<ul style="list-style-type: none"> <li>• <b>Lessons Learned</b></li> <li>• <b>Completion Reports</b></li> <li>• <b>Preparation of the 2nd Phase</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Validation of New Processes</b></li> </ul>
<b>Baseline</b>	<b>Launching 1st Phase SPCR</b>	<b>Midterm Evaluation</b>	<b>Closing First Phase of SPCR Program</b>	<b>Final Evaluation</b>
<b>FOLLOW-UP AND MONITORING</b>				

Key national stakeholder Groups involved in SPCR design:  
 Vice Ministry of MiAmbiente;  
 Presidential Office for Climate Change Climate Plus (Climate+);  
 National Directorate of Climate Change;  
 Water Resources General Directorate;  
 Secretariat of Agriculture and Livestock;  
 CENAOS-COPECO;  
 Civil Aviation;  
 General Directorate of Territorial Organization;  
 SANAA;  
 ERSAPS;  
 Municipal Corporations;  
 Male and Female farmer organizations;  
 Private Enterprise.

Other Partners involved in SPCR:  
 Association of Honduran Municipalities;  
 Chambers of Commerce and Industry;  
 Chamber of Tourism of Honduras;  
 National Electric Energy Enterprise;  
 Ministry of Health;  
 Public/Private Universities;  
 International Cooperation.

## PART I – BACKGROUND AND RATIONALE

### 1.1 Honduras Facing Climate Change

#### Country Context

five Hondurans lives on less than US\$1.90 a day; and, according to reports on poverty in 2013<sup>3</sup>, nearly 65 percent of Honduran households live in poverty and 43 percent in extreme poverty.<sup>4</sup> Nearly 80 percent of Hondurans under the age of 15 live in poor households, and approximately one in four suffers from malnutrition, which has negative implications on their learning abilities and future earning capacity. Since the global economic crisis of 2008-2009, Honduras has experienced a moderate economic recovery; however, the fiscal situation in Honduras worsened significantly in 2012 and 2013, bringing a slowdown in GDP growth and an increase in public debt. These challenges have significantly threatened Honduras' efforts towards reducing poverty and promoting shared prosperity.

**In Honduras, poverty and inequality are widespread, creating a large gap between those living in urban and rural settings.** About half of the population lives in rural areas where the incidence of poverty is almost 77 percent, compared to a rate of 56 percent in urban areas, and, of these rural-dwelling families, approximately 72 percent are engaged in subsistence farming on small plots of land. The World Food Program (2012) estimates that 60 percent of Hondurans suffer from food insecurity, and while urban poverty has decreased nationwide, extreme poverty has increased in rural areas by 10 percent (although this is mainly attributable to the devastating effects of Hurricane Mitch in 1998). In Honduras, rural poverty is mainly concentrated in the western and southern regions of the country, known as the Dry Corridor, which represents 70 percent of total poverty and 58 percent of all extreme poverty.<sup>5</sup>

**Honduras' urban population is growing rapidly.** At present, with 3.2 percent the annual growth rate of the urban population is higher than the average national population growth rate and has risen from 2 percent in 2013.<sup>6</sup> According to UN-HABITAT, it is projected that the majority of Hondurans will live in urban areas by 2025 (61.6 percent of 10.7 million inhabitants). To date, urban development has largely been unplanned and without regulation or control, leaving many people to live in areas highly exposed to natural hazards.

#### Development and Climate Risks

Disasters represent a development challenge with heterogeneous impacts, with developing countries accounting for more deaths and greater economic losses. The main messages of IRC 2015, among others, indicate that Honduras, Myanmar and Haiti were the countries most affected by extreme

---

<sup>3</sup> Honduras DNA Economic Analysis, 2015, WBG, <[www.worldbank.org](http://www.worldbank.org)>

<sup>4</sup> World Bank Indicators, 2013. The WB defines "poverty" as one living on less than US\$ 1.25 a day (2005 international prices) and "extreme poverty" as one living below US\$ 1 a day.

<sup>5</sup> Study on the Dry corridor. Rome: FAO, December 2012.

<[http://reliefweb.int/sites/reliefweb.int/files/resources/tomo\\_i\\_corredor\\_seco.pdf](http://reliefweb.int/sites/reliefweb.int/files/resources/tomo_i_corredor_seco.pdf)>

<sup>6</sup> UN-HABITAT, <[habitathn.org/cifras/](http://habitathn.org/cifras/)>

weather events. Of the ten most affected countries (1994-2013), nine are developing countries of the group of countries with low or medium low per capita income. The other country belongs to the group of countries with medium high income. (According to World Bank classification). The fifth report of the Intergovernmental Panel of Experts on Climate Change (IPCC) emphasizes that the risk of extreme weather events will increase further with rising global temperatures (Germanwatch, 2015)

**In the long run, Honduras ranks first among the 10 countries most affected by climate risk (1994-2013).** The long-term Global Climate Risk Index (IRC) indicates in the period between 1994-2013, that Honduras, Myanmar and Haiti were the most affected countries, followed by Nicaragua, the Philippines and Bangladesh. Among the ten most affected countries are the poorest according to the World Bank classification and with less responsibility for climate change. In the IRC, Honduras reaches the highest values of the indicators analyzed in the long term: IRC value 10.33; dead 309.70; deaths per 100,000 inhabitants 4.60; losses in millions of dollars (PPA<sup>2</sup>) 813.56; losses per GDP unit in % 3.30; number of events 69. (Germanwatch, 2015)

**Honduras is a country with multiple risks that include natural hazards, with great influence of climatic and hydro-meteorological phenomena.** The country's multi-hazard condition of exposure to droughts, heat waves, hurricanes, tropical storms and floods make it one of the countries with the highest climatic risk worldwide. The projections in different time horizons indicate that Honduras will have high variability in rain-fall and temperature cycles. In all time horizons, severe negative impacts are projected affecting the different regions of the country in different ways.

**The prolonged, severe and cyclical droughts have caused significant losses in the availability of water for human consumption and agricultural production, threatening the food and nutritional security of the population, especially in the Dry Corridor.** The inadequate land use practices, together with ordinary climatic variability and ENSO phenomena, trigger what is now known as the Dry Corridor, whose immediate manifestation is cyclical food insecurity, especially of basic grains. It is estimated that four percent of the Dry Corridor area in Honduras is under severe drought and the rest (96 percent) is divided between a high and low degree of severity (FAO, 2012) . Between 2016 and 2017, due to weather changes, the country's pine forests have been heavily affected by the pest of the bark beetle by approximately 500,000 hectares, (Delegación Presidencial Cambio Climático, 2017)

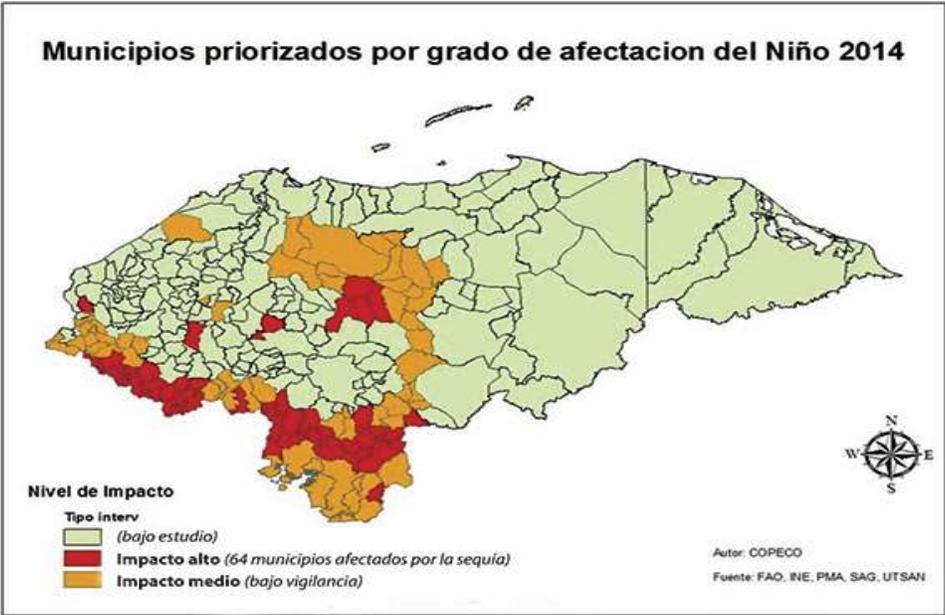
**The country is already facing the consequences of extreme weather events that generate current problems of water, forest and soil resources.** These problems are related to water shortages, deforestation and forest degradation, loss of the productive capacity of the soil and its degradation, loss of crops, sedimentation and contamination of bodies of water and flooding and landslides. Although these problems have always been present, in recent years there has been an increase in its magnitude due to extreme weather events that have directly impacted the country. (Delegación Presidencial Cambio Climático, 2017)

**By geographical location and geomorphology, Honduras is exposed to different phenomena caused primarily by hydro-meteorological threats and then by geotectonic type.** The latter, despite not observing a visible occurrence, is present given the geological-tectonic conditions of the region and may be capable of causing damage. The events that cause the highest losses and that are reported the most, are of the hydro-meteorological type. In the year 2013, 1202 events were reported in the analyzed period, followed by the drought that reports 368 events that caused losses and in third position 254 landslides were reported. (UNISDR, CEPREDENAC , 2013)

**The complex context of seasonal and climatic viability is shaping three major territorial scenarios of risk: drought, flood and fire.** The first, which are the greatest configuration and studies

of the impacts that have already affected the population is called 1) Dry Corridor, (Figure 1) whose impacts are related to the shortage of safe water, and then to food security by the effects of drought on the production of basic grains, affecting small and medium producers and the rural economy, mainly subsistence and on which the majority of the rural population depend, 2) The Flood Corridor, (Figure 2) affecting coastal areas and low lying areas. The successive floods of the Sula Valley (main contributor to the GDP), the Caribbean coast and the coast of the Gulf of Fonseca, the extreme North and South ends of the so-called central corridor of development and support of economic growth by having much of the agro-export, agro-industry, industry and part of the tourist infrastructure, and 3) What can be configured as a Fire Corridor (Figure 3) of the forest area, most of the surface of the country and where coffee is produced, is affected by forest fires and problems of erosion and landslide during rainy seasons (Caballero Zeitún E.L. et al, 2015).

*Error! Reference source not found.  
Figure 1. Dry Corridor*



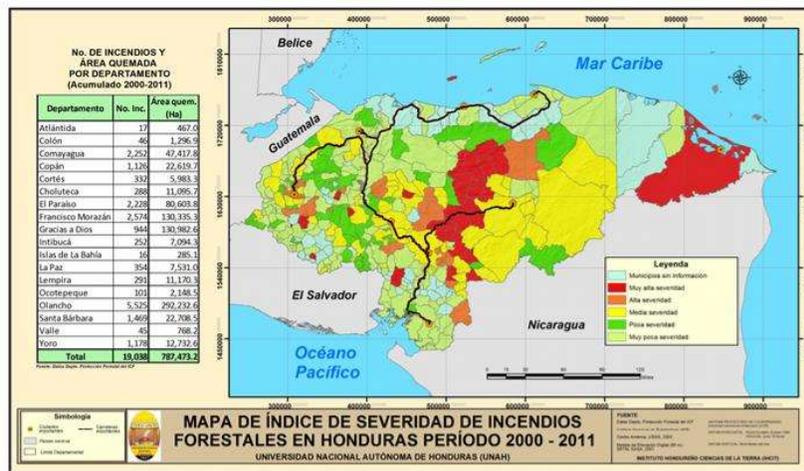
Source: FAO, INE, PMA, SAG, UTSAN, 2014

Figure 2. Flood Corridor



Source: IHCIT, 2012. Climate Atlas and Risk Management of Honduras, Pending Authorization by the Government entity in charge of Risk Management matters in the Country.

Figure 3. Index of Forest Fire Severity (2000-2011)



Source: IHCIT, 2012. Climate Atlas and Risk Management of Honduras, Pending Authorization by the Government entity in charge of Risk Management matters in the Country.

**There is a need to review the underlying causes that have given rise to the current situation of risk, to better understand the effects that climate change is and will continue to cause in the Honduran society.** Among these are an inadequate planning of land use according to their natural vocation, lack of up-to-date and accurate information to support decision making to target investments in critical territories, low levels of involvement in decision making of local actors and the private sector in actions promoted by government entities, the non-alignment of international cooperation towards common objectives and the weak inter-institutional coordination to deal comprehensively with the problem, all of which result in duplication of efforts and in the absence of protocols and procedures that ensure an effective linkage of actions with local governance structures (Delegación Presidencial Cambio Climático, 2017).

**The level of risk in Honduras is not only determined by the conditions of nature, in addition to the insufficient capacity for preparedness, response and recovery after an event.** Assuming the

HDI as an indirect indicator of vulnerability and under the assumption that a better HDI improves the resilience capacities of the population. The effort that has been made so far is not enough, because there are still many tasks pending for the Honduran population to enjoy a decent life and with opportunities. There is inequality between the dimensions of human development, since, in all Departments, regardless of their HDI value, there is a greater achievement in dimensions of health and education while there is a lag in income. It has been shown that, although progress in human development has diminished territorial inequity in the last decade, at least in the dimensions of health, education, access to water and sanitation, the territorial gaps remain considerable. The country still ranks 121 out of 187 in terms of the human development level. (PNUD , 2011)

**The clarification of individual but complementary responsibilities at both the sectoral and territorial levels should be the starting point for the definition of a portfolio of strategic investments, that consolidates the efforts already initiated and that creates opportunities to cover the outstanding aspects. (IPCC, 2014).** Climate change, coupled with other factors such as deforestation, inadequate water use, land and agriculture practices, lack of land and environmental management, among others, will increase risk conditions in the future and therefore the associated losses. Taking into account that both the CCA and the DRG are not sectors as such, but policies for safe development, it is advisable to integrate these processes in the key sectors of development, with a greater impact on the reduction of exposure and vulnerability, at urban areas, and in rural especially in agriculture, water, environment, health, energy and coastal marine resources.

### **Climate Characteristics of Honduras**

The climate of Honduras is characterized by the thermal and rainfall regimes of the North Caribbean and South Pacific (Figure 4). Median temperatures in December, the coldest month, range from 8° C in the mountains to 28° C in the southern valleys. In April, the warmest month, temperatures range from 10° C to 31° C (Argeñal, 2010). The Caribbean region, the rainiest area, has year-round rainfall, with relative minimums in April and May, and highs in December. In the Pacific region, there are two well-defined seasons, the dry season from December to March and the rainy season between April and November. During the rainy season, there is relatively less rainfall in July and August, known locally as the "canícula". In the Pacific, the rainiest months are May-June and September-October (MIAMBIENTE, 2014).



Figure 5. Threats by Tropical Cyclones



Source: UNAH, 2012 de Argeñal, 2010b.

**Hurricanes and tropical storms produce heavy rains that cause flooding throughout the country, with coastal and flat areas generally the ones most affected.** The flood season usually runs from August to November, when the ITCZ is more active causing depressions, storms and hurricanes (Kawas, Documento del país Honduras. VI Programa DIPECHO, 2010)(Kawas, 2011), Kawas identifies the area's most susceptible to flooding in coastal areas of the Caribbean and Pacific and in the Department of Olancho, along major rivers (Figure 5). The method used by Kawas is only geomorphological and does not take into account the probability of flooding or the frequency of past events. In fact, the recorded impacts of flooding are not limited to areas identified as susceptible, but also to other areas of the country, such as the Central District.

Figure 6. Geomorphological Map of Flood Susceptibility

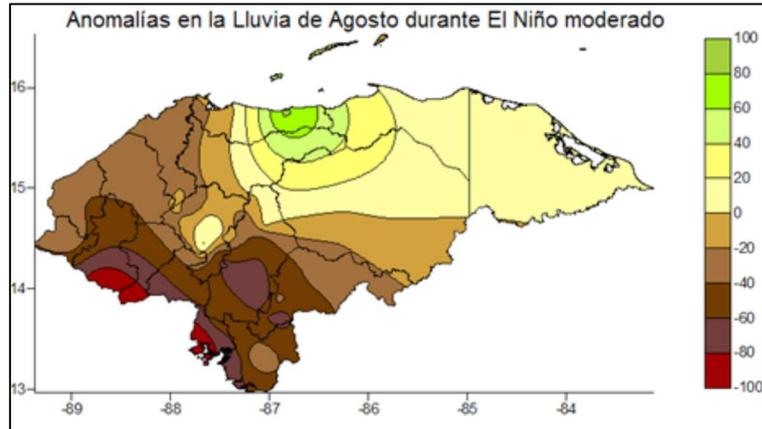


Source: Kawas et al, 2011.

**Prolonged Dry Periods and Drought: recurrent phenomena in southern, central, southwest and southeast of Honduras.** The El Niño phenomenon causes a decrease in rainfall causing significant impacts to the water and food security of the country's most vulnerable communities, distributed along the Honduran side of the Central American Dry Corridor. The mountainous areas and the Pacific Coast of Honduras are characterized by annual dry periods ranging from November to April, and frequently in July and August during the so-called canícula period. The El Niño periods cause an

increase in temperature and decrease of rain-fall up to 80% in July and August, extending the heat season, which can cause significant water stress up to 40% in October (Argeñal F. , 2010a). Figure 7 shows how the areas of the West and South have the greater anomalies of rain-fall during El Niño.

Figure 7. Map of Precipitation Anomalies During Periods of El Niño Moderate in August.



Source: Argeñal, 2010a

**Observations over the last 30 years show that drought patterns are difficult to predict.** For example, when El Niño is weak, it rains early in April and May in the South and when it is moderate, it rains more in June and there is a deficit in the Central, South-western and Western regions of the country. The ENOS marks long-term tendencies in the behavior of the rains and temperatures according to the El Niño and La Niña cycles and their influence in the different areas of the country. In April and August temperatures increase by more than 0.6° C in the referred regions and is extended into the period of rains decrease (canícula), during the rainy season. During El Niño, the presence of cold fronts in the Honduran Caribbean is lower in February with a probable increase in March as compared to the average. When La Niña is weak, a decrease in precipitation is observed in the months of November, December, January, February and March; while, if the intensity of La Niña is moderate, in December it causes the entry of polar fronts on the Honduran Caribbean coast. (SERNA, 2010, pág. 22)

*This reality is also linked to other anthropogenic impacts such as inadequate water use, increased deforestation of forests, which put more pressure to increase soil erosion and degradation, reducing its water retention capacity, loss of fertility, loss of infiltration capacity, and therefore loss of crop yields. As for the availability of water for human consumption, there will be less water suitable for human consumption at the surface level, thus reducing the capacity of aquifers, which act as reservoirs that regulate the water infiltrated, increasing in the future the conditions of risk and therefore the associated losses.*

### Projections of Climate Change Risks

**The projections of climate change in different time horizons indicate important variations in rainfall and temperatures, affecting not in a similar manner the different regions of the country.** Research of projections of rain-fall, temperature and atmospheric pressure for 2020, 2050 and 2090

using the MAGIC-SCENGEN V5.3 model were obtained in studies of future climatic scenarios for Honduras (Argeñal, 2010, 2011) and the results of the general circulation models, combined with the results of climate scenario generators, under the scenario of medium-high emissions (A2), referred to as pessimistic, and medium-low emissions scenario (B2), referred to as optimistic (SERNA, 2010). Table 1 summarizes the main results.

Table 1. Climatic Projections of Temperature and Precipitation in Honduras under the Scenarios of Emissions SRES A2 and B2.

	SRES A2		SRES B2	
	T (°C)	P (%)	T (°C)	P (%)
2020	+0.40 to +0.65	-3.0 to -5.5	+0.50 to +0.75	-5.0 to -10.5
2050	+1.30 to +1.95	-8.5 to -14.0	+1.05 to +1.75	-7.5 to -13.0
2090	+2.80 to +4.30	-20.0 to -31.0	+2.00 to +3.10	-13.0 to -22.0

Source: Argeñal, 2010a, 2011.

**Other studies in the Central American region confirm trends in temperature behavior and long-term precipitation.** The TOR model predicts that average temperatures will increase by 1° C during the period from 2010 to 2039, and by 2° C during the period from 2040 to 2069. The minimum and maximum daily temperatures will increase, and the lack of water will increase due to lower rainfall and higher evapotranspiration rates (Eitzinger, Sonder, & Schmidt, 2012). CEPAL (2012) for Central America, with projections of three different climate simulation models (HADGEMI Models, GFDL CM2.0 and ECHAMS), under the scenario of medium-high emissions (A2), indicate increases in temperatures for all future horizons, and in the case of rains, a greater variability regarding the period 1980-2000. In the case of Honduras, projected changes indicate that the average annual temperature would increase in the following ranges: 0.4-0.9°C in 2020, 0.8-1.0°C in 2030, 1.8-1.9°C in 2050, and 2.7-2.8°C in 2070 and 3.8 -4.6° C in 2100. In the case of average annual precipitation, the changes would range in the following ranges: from +8.2 to -7.6% in 2020, from + 29.3 to -16.2% in 2030, from +10.6 to -39.2% in 2050, +15.7 to -57.0% in 2070 and from +2.7 to -66.8% in 2100 (UNAM-CEPAL, 2011). (CEPAL, 2012)

The greenhouse gas emission scenarios, the optimal B2 and the pessimistic A2, show very similar changes of magnitude in rainfall, temperature and atmospheric pressure parameters for the years 2020 and 2050, the differences of magnitude of both scenarios, are most important for the year 2090.

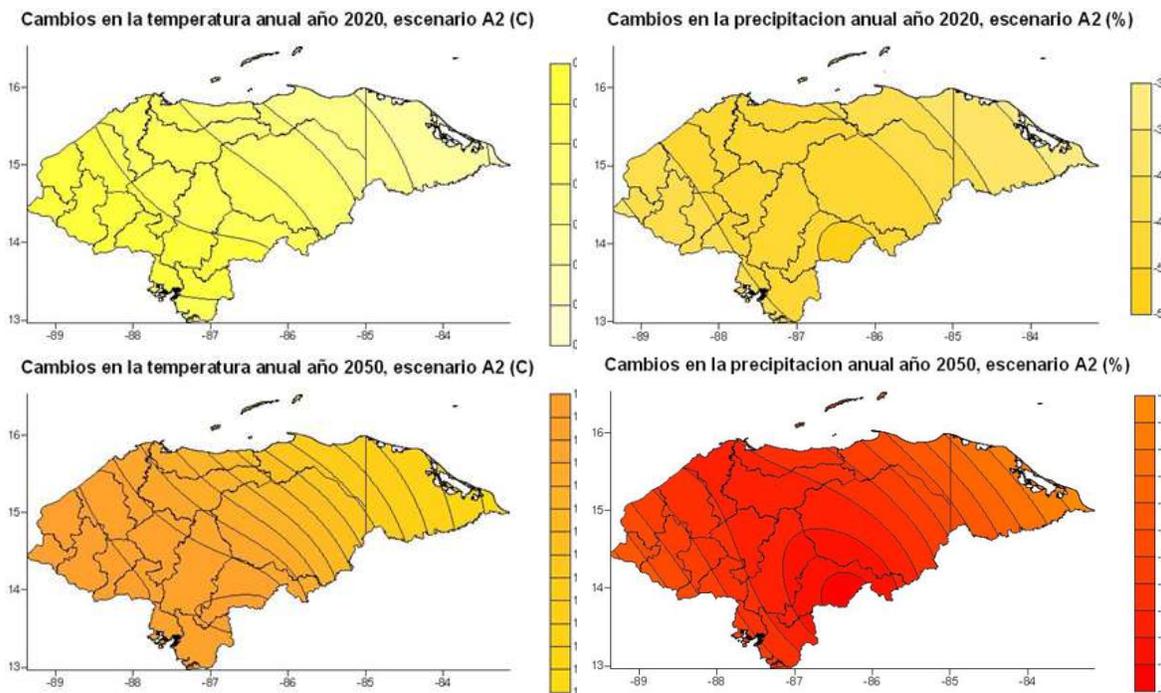
**By 2020, the expected changes in rain-fall and temperatures are close to 6%.** A decrease in annual precipitation is expected in the Departments of Cortés, Santa Barbara, Copán, Ocotepeque, Lempira, Intibucá, Comayagua, La Paz, Francisco Morazán, El Paraíso, Valle and Choluteca. An increase of 0.8°C in the average annual temperature especially in the Departments of the West and South of the country, including the Southern part of the Departments of Comayagua, Francisco Morazán and El Paraíso. In the East of the department of Colón and Olancho and all the Department of Gracias a Dios the decrease in rain-fall and the increase of the temperature is smaller. By 2050, a decrease in precipitation is estimated with values of 20% to 25% in most of the country between the

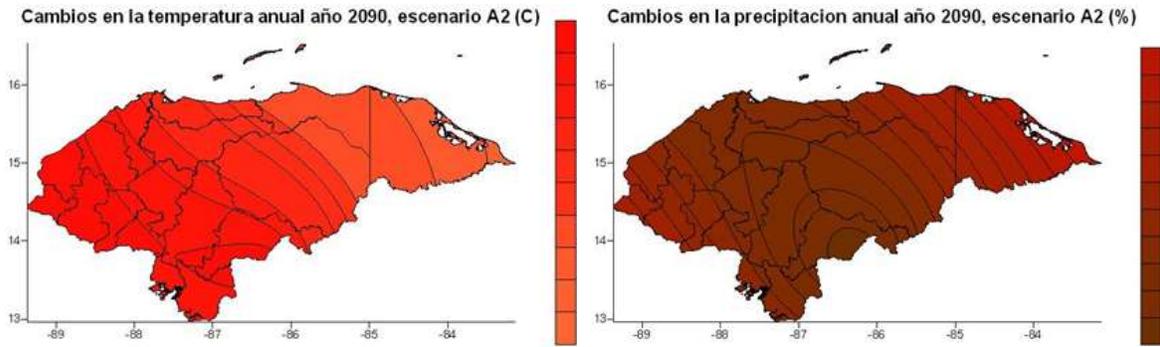
<sup>7</sup> The general circulation models that best correlated with the climate of the region and particularly in Honduras, were the Canadian CCCMA-31, the French CNRM-CM3, the Japanese MIROC MED, the United States NCARPCM1 and United Kingdom UKHADCM3; for precipitation and atmospheric pressure. And for temperature, CCCMA-31, CNRM-CM3 and UKHADCM3 were the most correlated. (Argeñal, Francisco. 2010. Climate Variability and Climate Change in Honduras. SERNA, UNDP).

months of June to August, however, the most important decrease is in the months of July and August when the deficit exceeds 30% for most of the country, especially the Departments in the Western half of Honduras, suggesting that the heatwave (a decrease in rainfall occurring in the middle of the rainy season in most of the country) will become longer, hot and dry compared to what we currently know. By 2090, the projections are very concerning, in the months of July and August it would be raining only 40% or 30% of what it is currently raining and the temperature can increase by more than 4° C in most of Honduras, and a higher increase in the atmospheric pressure of almost one hectopascal (Argeñal F. , 2010a)

**The intensities of climatic variation and climate change will have different behavior, but with marked trends in the different time horizons per geographical areas.** In the SERNA (2010) study, under the two scenarios and time horizons, the temperature increase is 50% faster in the Southwest than in the Northeast of the country (Figure 8). Per the simulations, precipitation reduction is more significant in the Southeast. The increase of temperature and the reduction of precipitation vary during the year, as June, July and August are the most affected months, in the framework of the canícula seasons. During this season in the South of the country, temperatures could rise from 1°C in 2025 and 2°C in 2050 and rainfall decrease from 18% in 2025 and 38% in 2050. By 2090 the temperature could rise to 5° C and precipitation reduced to 86% (IISD, 2013 and others).

Figure 8. Weather and Precipitation Climate Projection Maps under the SRES A2 Emission Scenario in Honduras.

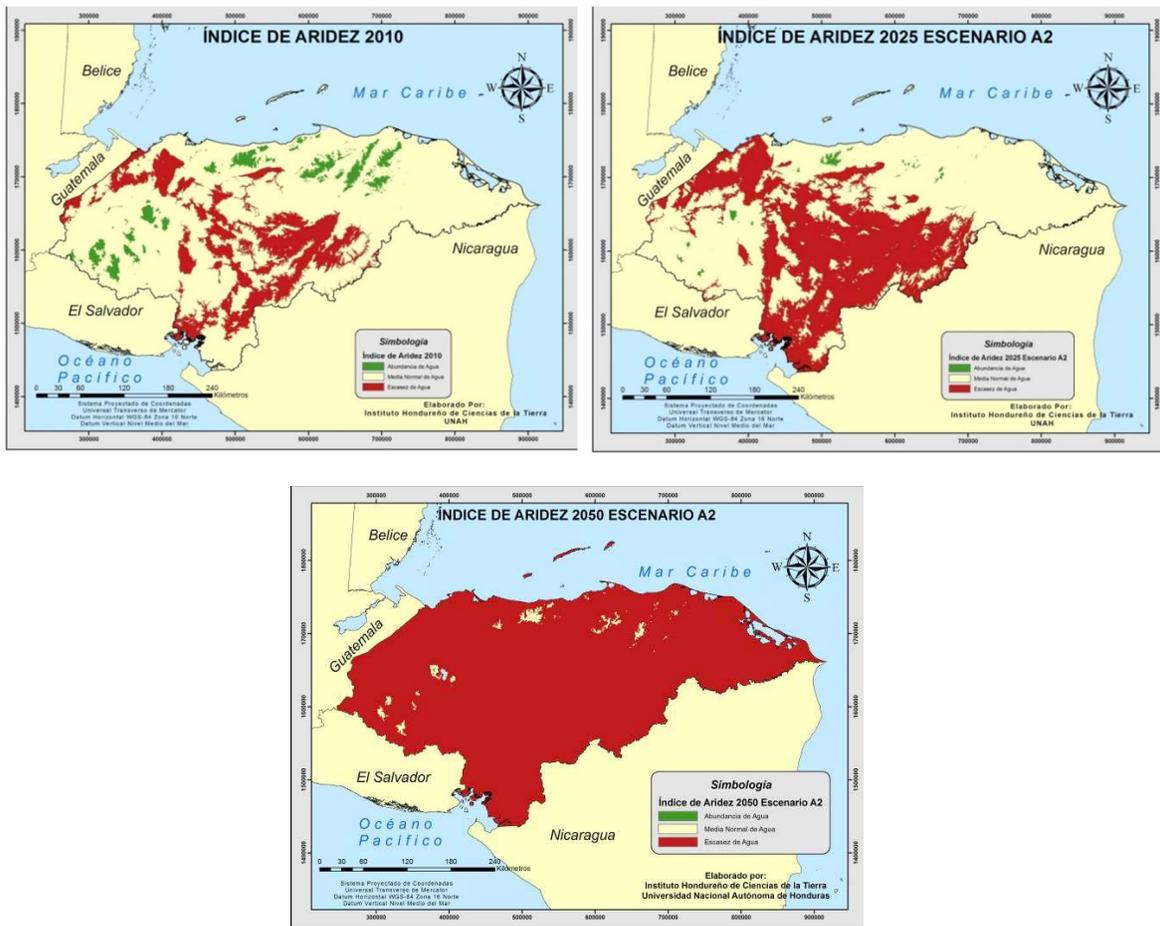




Source: Argeñal, 2010a

The increase in temperature, along with increases in irradiation and evapotranspiration, will increase the threat of drought, with intensity in the Dry Corridor. The simulations developed by Kawas et al. (2011) show how the country could be subjected, almost in its entirety, to water stress by 2050. Figure 10 shows the geographic distribution of the arid land projected according to the Thornthwaite index for the years 2010, 2025 and 2050, under the emission scenarios A2 and B2. The Difference between Projections A2 and B2 is very limited, (see Figure 9).

Figure 9. Index of Aridity for Scenario A2 for the Years 2010, 2025, 2050.



Source: Kawas et al. 2011.

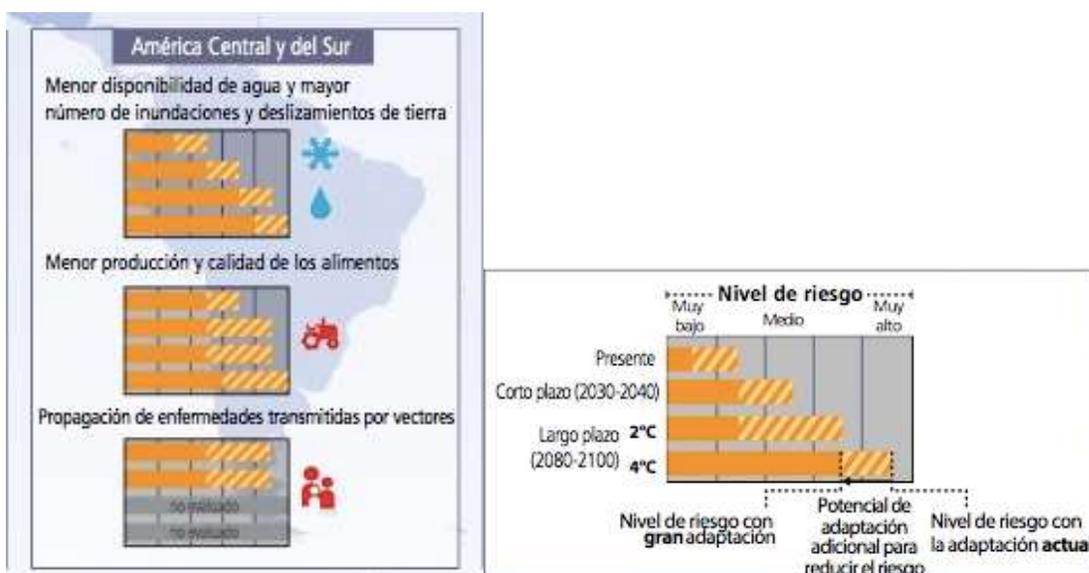
**While annual average variations are more robust, the variation in the frequency and magnitude of extreme events in Honduras due to climate change is still more uncertain.** According to a recent report, the intensification observed in the ENSO event over the past 50 to 100 years and future projections could be being reinforced or disguised by climate responses to the increase of GHGs in the atmosphere, responses that resemble El Niño conditions (IPCC-SREX 2012). The rainfall deficit and high temperature conditions during July and August are analogous to the conditions that occur under the influence of the Southern Oscillation El Niño phenomenon, suggesting that this could be evidence that this phenomenon could be more frequent and intense due to global warming, (Argeñal F. , 2010a)

### Current and future vulnerabilities to climate change

**The impacts of recent extreme events related to climate, such as heat waves, droughts, floods, cyclones and forest fires, highlight an important vulnerability.** In all the emission scenarios evaluated, projections indicate that surface temperature will continue to increase throughout the 21st century. It is very likely that heat waves occur more frequently and last longer, and that episodes of extreme precipitation are more intense and frequent in many regions. The ocean will continue to heat and acidify, and the average global sea level will continue to rise. (IPCC, 2014)

The IPCC report (2014), (Figure 10) reports that the key risks for Central and South America are three, i) less availability of water and more floods and landslides; ii) lower production and quality of food, which present a high level of risk at present, at short term (2030-2040) and for the long term (2080-2100), and the risk iii) spread of vector-borne diseases, which has only been estimated for the present and the short term, with current adaptation (IPCC, 2014)

Figure 10. Representative Key Risks for each Region, including the Potential for Risk Reduction through Adaptation and Mitigation and the Limits of Adaptation



Source: IPCC, 2014.

**Variation in the availability of water resources coupled with the average increase in temperature and evapotranspiration will affect all water-dependent sectors, including agriculture and hydroelectric power generation.** The factors that will increase the vulnerability of the agricultural sector are the increase in the demand of land for agricultural production, the consequent expansion of the agricultural frontier towards areas of forest vocation and change in the use of the land with alteration of the hydrological cycle. In addition, increased monoculture practices and standardization of ecosystems, agro-ecosystems and habitats will also contribute to increased vulnerability. In fact, it is estimated that the strongest impacts will affect the Dry Corridor, which is the area with the highest rural poverty and extreme poverty in the country.

**The impacts of climate change are affecting the populations and human systems and socio-economic sectors more severely in conditions of greater vulnerability,** such as larger urban areas (including their peri-urban areas), small urban localities, rural communities, communities of indigenous peoples, Afro-descendants, and small farmers in situations of social and economic disadvantage, small agro-livestock producers and human groups living in multi-risk areas.

#### *Impacts on Water Resources*

**Water resources in Honduras are very vulnerable to climate change and anthropogenic activity.** Deforestation, unsustainable agricultural production systems, discharge of wastewater, disrespect of watercourse protection areas, poor engineering practices, lack of environmental and territorial order, among other factors, increase the vulnerability of water resources in the country. The reduction of precipitation will cause a lack of surface water for all uses throughout the country, limitation of aquifer replenishment, reduction of ecological flows and consequent deterioration of water quality due to the reduction in the dilution capacity of contaminants. The areas of water deficit are the valleys of Quimistán, Sula, Comayagua, Otoro and Orica, and because of climate change and other anthropogenic factors by 2025, Naco, Leán, Alto Aguán, Lapaguare, Catacamas, Jamastrán and Morocelí and Amaratéca will be added (ENCC, 2010).

#### *Impact on the Agricultural Sector*

**The agricultural sector is one of the main affected sectors by the losses and damages caused by extreme climatic events.** These changes have increasingly affected the yields of agricultural and agro-industrial production and, thus, diminishing their competitiveness, potential growth, employment and rural income. It should be noted that in Honduras the agricultural sector has been one of the fundamental axis that energize the economy, contributing to 14% of GDP (BCH, 2014). To a greater or lesser extent, according to the country concerned, a large part of the production of basic grains - rice, corn, sorghum and beans - is carried out by small producers, who generally do not have access to irrigation, technical support, credit, nor storage or marketing systems. The effects of climate change on the production of basic grains suggest that food security and incomes of this sector of the population will suffer a significant reduction, which is likely to lead to increased migration from the countryside to the city and more problems to supply staple foods to the urban poor. (CEPAL, 2009).

**By 2030-2040, a very high risk is projected for both water scarcity and food insecurity.** According to AR5, the historical trend in Central America has been a medium risk of water scarcity and high risk of food insecurity, and if this trend continues, by 2030-2040 a very high risk of both water scarcity and food insecurity is projected; and by 2080-2100, that risk would continue to be very high. Among other impacts, with an increase of 2 degrees C, the prevalence or increase of water-borne diseases, food availability would be threatened by projected reductions in agricultural and fishery yields, and low labor force productivity, and an increase of 3°C, there would be a loss of the adaptability of farmers via management practices (AR5-IPCC, 2014).

### *Impact on the Quality of Life*

**The above, combined with rapid urban growth will further increase the low quality of water and sanitation services in the country.** The crisis of water and sanitation services and the increase of water-borne diseases will require important public, private and family actions to address the scarcity of resources, provision of services and increase of health problems. Honduras is one of the countries that maintains the highest population growth rates in the region. The Water and Sanitation Services Progress Monitoring (MAPAS) of CONASA, 2017, identifies an average and cumulative annual growth rate adopted for the period 19882001/2015 of 2.23. In the very long run the urban growth rate of Honduras (2.19%) is clearly higher than any other country in the Region (Government of Honduras, 2006).

In 2016, a population of 8.7 million inhabitants, (47.4%) are men and (52.6%) are women. 54.1% of the population live in urban areas and 45.9% in rural areas (the Central District concentrates approximately 26.2% of urban dwellers and San Pedro Sula 15.3%). According to the Unsatisfied Basic Needs (NBI) poverty measurement method, by June 2016, poverty reached 40.0% of Honduran households, a percentage that increases in the rural area to 46.3%, compared to the urban area of 35.2%. It should be noted that the percentage of households with two, three and more unsatisfied basic needs is considerably lower than those with "some" NBI; with the highest percentage of basic needs "less satisfied": access to basic sanitation and the number of dependents per employed person.

The coverage of the potable water service for a total of 1,972,520 homes housing 1,992,974 households, 13.3% of housing units do not have an adequate water service. In the urban area, 92.2% of the homes have this service, provided 47.3% by private collective service, mainly in the city of San Pedro Sula, where 97.1% of the homes have private service. The rural area, is mainly provided by privately owned services (76.9%) and public service coverage is only 1.1%. In the rural sector, coverage of the water service reaches a total of 81.8%. (INE, 2016).

*Other impacts: Forest, Coral Reefs, Tourism and others*

### *Disaster impacts*

**In addition, the increase in heavy rains will lead to an increase in vulnerability to the risk factors of disasters.** Heavy rain will cause more flooding and overflow of rivers, infrastructure damage and soil erosion for productive use, increasing loss of human life, damage to public and private property, and decreasing the productivity of economic sectors and hydroelectric generation (by sediment in the channels and reservoirs).

### *Hydroelectric sector*

**Variations in average temperature and precipitation, sea level rise and intensification of extreme events, will increase the vulnerability of the hydroelectric sector.** Other vulnerability factors affecting the sector have been identified in deforestation and change in land use, increased frequency of forest fires threatening infrastructure, energy policies that do not address climate change, and prevention and proper management of floods, lack of land-use planning that addresses the risks of climate change and high population settlement rates in areas at risk of flooding and coastal areas (ENCC, 2011). Four of the seven public hydroelectric power stations, and three recently proposed projects, are located in the Ulúa river basin. This increases the sector's dependence on the watershed resources, which as evidenced above, is susceptible to multiple threats such as floods, hurricanes, droughts, fires, landslides, collapsing ground and earth flows.

### *Ecosystems*

**Coral reef ecosystems and polar ecosystems are very vulnerable.** Although there are no country-specific studies, regional studies indicate that the effects on coastal marine resources, populations occupying coastal strips will be affected and are more likely to experience flooding, saline infiltration affecting aquifers and soil loss. At the end of this century, a sea level elevation of about 35cm could be expected in the maritime areas bordering Central America and the Dominican Republic on the Caribbean Sea, the Atlantic and Pacific oceans; thus many coastal areas would be more prone to flooding, salt infiltration and soil loss (IPCC-AR4 2007). Coastal systems and lowland areas are at risk due to sea level rise, which will not cease for centuries even if the global average temperature stabilizes (*high confidence level*) (IPCC, 2014). Coastal marine areas will be increasingly affected by processes of salinization, reduction of marine resources and recurrence of disasters due to water threats. In the coastal marine areas of the Caribbean Sea, the Garífuna and Misquito populations settled on the coast will be more affected.

### *Forests*

**Honduran forests are affected on a large scale by vectors.** The country is experiencing one of the worst situations of forest pests on pine forests, especially the pine bark beetles (*Dendroctonus spp*) that, in addition to other existing threats such as forest fires and illegal logging, the enjoyment of goods and services produced by forests and their use by Honduran communities to meet their basic living conditions and improve them progressively. The degree of aggressiveness and intensity of the pest in the last three years was marked by the presence of the phenomenon known as El Niño (El Niño Southern Oscillation -ENOS) which strongly affected long-term drought events. Satellite detection shows that the bark beetle has affected more than 390,000 hectares of phase III pine forest, which is reached when the trees are already dead. But it does not express the initial phases of the attack because it is not detected by this system, and it could be estimated that in total there are more than 900,000 hectares affected, in the three phases of the pest, (CONADEH , 2016)

### *Tourism*

**The tourism sector is highly affected by climatic variability and for beach tourism, there is no data on waves, beach loss.** With a wide variety of tourism, including archaeological, beach, diving, architectural, wildlife, organic agriculture, historical centers, the country is committed to the development of the sector under the 20-20 Plan. The development of the sector begins since the year 2000, with the approval of the National Sustainable Tourism Strategy 2006-2021 that promotes Honduras in international markets. Special Regions of Tourism Development and Free Zones for Tourism are declared to establish tourism development models. It is intended that some of these poles of development, become the regional triggers of tourism development in Honduras. The sector contributes 5.5% to GDP and 4.8% of total employment. In the Central American region, the discussion on climate change and tourism has begun to make an impact on the need to deepen on the impacts and especially on mitigation and adaptation measures that the sector should begin to generate. The National Autonomous University of Honduras (UNAH) and the National Chamber of Tourism of Honduras (CANATURH) consider the creation of a tourism and climate change observatory in Honduras.

**The impacts of climate change are affecting more severely the populations and human systems and socioeconomic sectors in conditions of greater vulnerability, in Honduras,** the problems associated with food insecurity is one of the most studied sectors in relation to climate change and variability, as well as hydro meteorological phenomena (drought and floods). The areas that have been least studied in relation to climate are related to health issues originated by environmental degradation, or by vectors, such as, the increase of dengue epidemics, chikungunya, sika, etc., that by

their degrees of contamination or infestation, there is enough merit to be considered for investigation processes.

## **Overview and linkage to existing development plans and programs**

The public strategy for adaptation to climate change is contained in several instruments of state and government policy, those of long term are:

### ***The Country Vision (2012-2030)***

The “Visión de País/Plan de Nación Law” (February 2010) calls all public sector institutions and the international cooperation for ***planning efforts to be based on basins***, as the administrative planning units, promoting a participatory planning process and the reformulation of the national budget structure, in a way that it reflects the economic potential and the aspirations of the citizen of the 16 development regions identified. The “Visión de País/Plan de Nación” Law also calls for the attention to be paid to the population around the “Honduras economic corridors”, considered priority by the Government because of the importance in the economy and because of the concentration of population, which 72% of the total population

### ***National Plan (2010-2022)***

Honduras’ National Plan identifies climate change adaptation and mitigation as one of 11 strategic themes. On adaptation, the strategy mentions the development of monitoring and measurement systems, early warning systems, ***new forms of soil use and agricultural production***, construction codes, local risk management, preventative land-use planning, ***water storage and watershed conservation as key measures***. In the longer run, it is recognized that climate change should be mainstreamed into sectoral planning and into all public and private investment decisions. Climate change is also mentioned as a cross-cutting issue under other strategic themes such as “Regional Development, Natural Resources and Environment.” Furthermore, the plan contains a set of strategic objectives, of which one is to reduce climate risk as measured by the Global Climate Risk Index<sup>8</sup>.

### ***National Climate Change Strategy 2010 (ENCC)***

The ENCC is the national instrument for guiding policies, programs and measures aimed at reducing the country's vulnerability to the impacts of climate variability and climate change. This national planning tool is aligned with the National Plan and the Country Vision, and recognizes the risks associated with climate change as a development challenge.

The “National Climate Change Strategy” proposes lines of action for adaptation in priority sectors (SERNA, 2011), among others:

- ***Freshwater*** – Reduce drought impacts and strengthen groundwater recharge; mitigate climate-induced changes in river flows; and prevent and avoid reductions in water quality.
- ***Agriculture, soils and food security*** – Help farmers adapt to climate change by improving crop and pasture resilience and through prevention and reduction of climate change-induced plagues and diseases; avoid soil erosion, productivity losses and possible desertification of soils; and preserve and improve nutrition; and contribute to food security under climate change conditions.

---

<sup>8</sup> <http://www.adaptation-undp.org/explore/honduras>

### ***Honduras' National Determinant Contributions (NDCs)***

Honduras has demonstrated strong commitment to the Paris Agreement, being one of the first countries to ratify the Agreement and its NDC. Its commitment is further sealed through high-level support from the President's Office. In its NDC, Honduras pledged by 2030 a target of achieving one million hectares of reforestation/afforestation by 2030, a 15 percent reduction in greenhouse gas (GHG) emissions (excluding land use, land use change, and forestry) and 39 percent reduction in firewood usage below a business-as-usual (BAU) scenario, conditional on external financing and technical assistance. Adaptation is the country's main priority. The combination of vulnerability to extreme weather events and economic dependence on the agricultural industry make Honduras extremely prone to the negative effects of climate change. The NDCs country Goals are to align climate and development agendas and access appropriate financing and support for climate adaptation and mitigation. In terms of adaptation, 15 objectives for seven sectors have been identified as part of the NDCs and its priority sectors include: agriculture, food, marine and coastal ecosystems.

### ***The National Adaptation Plan***

The NAP is constituted as the strategic document that articulates Honduran public policies related to climate change adaptation. In conjunction with the National Climate Change Strategy, the Climate Change Law, the SINAGER Law and the Water, Forest and Soil Master Plan, the NAP aims to dictate the guidelines for adaptation to improve coordination, institutional structure and clarify lines of work between the different development sectors, to achieve sustainable development and poverty reduction in accordance with the preservation of environment and the well-being of Honduran society. The NAP prioritizes the following intervention areas:

- Water Resources
- Territorial Organization
- Food Security
- Human Health
- Biodiversity and ecosystem services
- Resilient cities and communities

The SPCR is aligned with the NCCS, NAP and NDC processes, with the aim to mainstream climate resilience into core development planning and develop a programmatic approach to address climate risks across sectors. The purpose of the Honduras PPCR is to bring coherence in the resilience planning and financing at the national and sector levels and to establish enabling environment for integrating climate resilience into development planning and implementation. The SPCR translates these broader goals into strategic lines of action for adaptation.

To further the analysis, several programs and projects were consulted during the preparation of the SPCR to confirm alignment of the instrument with other initiatives implemented by public, private institutions and international cooperation. The following section briefly describes the initiatives, officially registered by MiAmbiente, to have direct interventions in climate resilience, which results and lesson learned will be documented to inform the development of the SPCR.

### ***Water Supply and Sanitation Plan-PLANASA (2014-2022)***

CONASA, with the support of WSP WBG, endorsed the National Water and Sanitation Plan (PLANASA) in December 2014, which identifies sector priorities based on the Country Vision and Nation Plan, among others: (i) reduce by half the number of people without access to water services, which currently stands at nearly 1 million; (ii) gradually increase the water coverage in rural areas

from 85% (2018) to 93% (2022); (iii) gradually increase sewage coverage from 45% (2018) to 60% (2022); (iv) consolidate the decentralization of water and sanitation services; and (v) improve treatment of sewage and wastewater. Although there is not a direct component related to addressing CC, although the activities seek to achieve efficiency in the service provision and optimization and rational use of the water resources, and avoid more contamination due to lack of sanitation; but most importantly, PLANASA aims at leveraging and focalizing financial resources to the most needed areas with high gaps in the services.

### **Programs of MDBs and Development Partners**

Honduras has several experiences with implementing climate change adaptation projects with MDBs and development partners. Through the Adaptation Fund, the Ministry of Environment and the United Nations Development Programme have implemented the “Addressing Climate Risks in the Water Resources Sector in Honduras: Increasing Resilience and Reducing Vulnerabilities in Poor Urban Areas” project.

With regards agriculture and rural development, ACCESS USAID has supported the generation of private alternatives for farmers.

The United Nations Economic Commission for Latin America and the Caribbean (CEPAL) has implemented a study on the effects of climate change on agriculture. Although the major impacts are expected in the long term, the results of this study reveal that the country is already experiencing adverse consequences. If measures are not taken to seek to offset such trends, economic losses could be considerable.<sup>30</sup>

In addition, Honduras has implemented the Rural Competitiveness Project (COMRURAL) with World Bank financing in the amount of US\$30 million, which was rated as satisfactory. Its development objective aimed to increase the competitiveness and productivity among organized rural small-scale producers through public-private partnerships and their participation in productive alliances. The project has benefitted over 6,700 rural farmers.

Between 2001 and 2010, the Government of Honduras executed the Natural Disaster Mitigation Project, a World Bank project executed by COPECO in the amount of US\$19 million whose performance in the Implementation Completion Report was considered satisfactory. This project led to two new projects on integrated disaster risk management: the Disaster Risk Prevention and Mitigation Project, financed with IADB resources and the Disaster Risk Management Project financed by the World Bank in the amount of US\$ 20 million.

Table 2. Projects and Programs from Donors with interventions in Climate Change Adaptation

Legal Project Name	Implementator Partner	Thematic Area	Influence Geographical Area	Starting Year	Finalization Year	Total Amount of Reosurces Assigned
Fortaleciendo el sub-sistema de las áreas Marinas Protegidas	UNDP	Managment and Conservation	Islas de la Bahia, Atlantida, GRACIAS LEMPIRA	2014	2019	\$ 3,086,364.00
Entregando Múltiples beneficios ambientales globales mediante el manejo sostenible de los paisajes productivos	UNDP	Managment and Conservation	CHOLUTECA, VALLE, OLANCHO YORO	2014	2019	\$ 3,080,455.00
Apoyo a la preparación para la Reducción de las Emisiones debidas a la Deforestación y la Degradación Forestal (REDD+) en Honduras	UNDP	CC Mitigation	National	2015	2017	\$ 2,265,250.00
Tercera Comunicación Nacional y Primera Actualización del Reporte Bial de Honduras	UNDP	CC	National	2015	2017	\$ 852,000.00
Gestión Ambientalmente Racional del Mercurio y Productos Conteniendo Mercurio y sus Desechos en la Minería Artesanal y de Pequeña Escala de Oro y del Sector Salud	UNDP	Environmental Management	CHOLUTECA, FRANCISCO MORAZAN	2015	2019	\$ 1,300,000.00
Programa Nacional ONU-REDD Honduras	UNDP	CC Mitigation	National	2015	2018	\$ 3,609,645.00
Proyecto Corredor Biológico La Unión para el Uso Sostenible y Conservación de la Biodiversidad	JICA	Biodiversity	YUSCARAN OLOPORI Y GUINOPE	2016	2021	\$ 3,000,000.00
Proyecto Establecimiento de la Línea base ambiental de las aguas residuales domésticas que impactan en las zonas marinos costeras de Honduras	IDB-GEF	Biodiversidad y Aguas Residuales	OMOA, PUERTO CORTES , TELA CAYOS CHINO, CEIBA	2016	2017	\$ 50,000.00
Proyecto Manejo Integrado de la Cuenca al Arrecife en las áreas transfronterizas del Arrecife Mesoamericano (Belice, Guatemala, Honduras y México)	CCAD	Biodiversidad: De la Cuenca al Arrecife	UTILA and ROATAN	2017	2022	\$ 9,018,349.00
Strengthening of National Initiatives and Enhancement of Regional Cooperation for the Environmentally Sound Management of POPs in Waste of Electronic or Electrical Equipment (WEEE) in Latin-American Countries	UNIDO	Waste Management of Electronics or Electrical Equipment	San Pedro Sula and Tegucigalpa	2017	2022	\$ 703,704.00
Proyectos PPD	PNUD	Water Resources	LA PAZ	2015	2019	\$ 1,495,000.00
Manejo Integrado de Gestión del Recurso Hídrico	Brasil Cooperation	Strengthening of Water Resource Management	CUENCA DE Choluteca	2012	Pending	\$ 261,918.00
Manejo de Riesgo y Desastres	WBG	DRM	National	2013	2019	\$ 10,000,000.00
						\$ 38,722,685.00

Source: Mi Ambiente's International Cooperation Unit, 2017.

## 1.2 Rationale for PPCR Support

The rationale for the PPCR support rests within the GoH commitment to continue promoting the integration of adaptation to climate change (ACC) and risk reduction in national and sectoral development processes. In this regard, the PPCR program is an opportunity to activate and strengthen the various existing committees and subcommittees related to CC, food security, water resources, GRD and ACC. It is anticipated that the PPCR will promote the modernization and regulation of the Climate Change Law, as well as the consolidation of the Inter-Institutional Climate Change Committee (CICC), created by the same Law, applicable since November 2014. PPCR will also allow for scaling up of critical investments in the most vulnerable regions to ensure long term water and food security in a changing climate.

### *Underpinnings considered during the Design Phase of the SPCR*

- The PPCR also provides the opportunity to have a strategic framework for action that is expected to strengthen the National Climate Change Strategy and the National Adaptation Plan, which is in the process of being formulated.
- Honduras has a series of rules that allow for inter-institutional work on adaptation and management of climatic risks. However, this regulatory framework presents options for improvement, for example, in the regulation of some fundamental norms (such as Law of

Climate Change, the General Law of Water and the Framework and the Law of Potable Water and Sanitation).

- About climate finance, the country is preparing to access more funding, which includes the need to design and implement a strategy for financial management of disaster risk, including climate risks. In the specific case of the potable water and sanitation sector, the Government has a Financial Policy for the Water and Sanitation Sector, which incorporates the principles of financing with a "green" approach and proposes the establishment of a National Safe Water and Sanitation Fund.
- Honduras has a National Climate Change Strategy, which has been progressing in the definition of a National Adaptation Plan (in the process of formulation), these instruments, as well as the document National Predicted and Determined Contribution (INDC), serve as the basis for the PPCR.
- The country has progressed in the field of climate information, which should be strengthened in order to improve decision-making on climate risks at both the sectoral and local/municipal levels.

At the level of international cooperation, the PPCR is expected to bring together the efforts of the donors' table based on the issues of climate change and risk management, which has been supporting the GoH in multiple programs and projects; there is an opportunity for the PPCR to channel and direct actions not only with the participating MDBs but also of a larger group of cooperating entities.

From the different consultation and missions, recommendations were proposed to guide the formulation of the SPCR synthesizing the essential characteristics of the actions included in the PPCR investment portfolio, among the most important criteria are: solving concrete problems; of high impact and multi-sectoral benefits; advocacy on poverty reduction; which can be transferred to other communities; seek complementarity between components; informed initiatives with both scientific and community knowledge.

### 1.3 Institutional Analysis: Regulatory and institutional framework to address climate risks

A number of government institutions, civil society organizations and private sector champions are working to advance country climate change adaptation efforts. Primary agencies include the following:

#### Primary Agencies

Institution	Mandate
<i>MiAmbiente</i> (antes SERNA)	Responsible for regulating, coordinating, formulating and monitoring compliance with greenhouse gas mitigation policies and regulations and adapting to the adverse effects of climate change. Mi Ambiente is the Climate Change Focal Point before the UNFCCC, GCF and the IPCC through the National Directorate of Climate Change (DNCC) and the Interinstitutional Committee on Climate Change, both organized in 2010 (PCM 046-2010). Mi Ambiente is also leads the National Adaptation Plan
CC Presidential Office (Clima+)	A body with technical and budgetary independence, attached to the Presidency, with national jurisdiction, whose purpose is to serve as a superior body that, in a collegiate and representative manner, assumes the

	responsibility of approving and articulating Public Policy and investments in Climate Change in Honduras (Executive Decree No. PCM 077-2016).
Ministry of Finance	<b>The Honduran State through SEFIN makes efforts to generate climate investment accounting.</b> According to the national Budget for the year 2017 resources have been identified through the different institutions that make up the Public Sector, for the amount of L.38,071.3 million, equivalent to (US \$ 1,562.6 million) oriented to the Mitigation, Adaptation and Management of Disasters related to Climate Change. The Marking was carried out within the framework of Public Sector institutions, for the CC, being identified in nine out of the ten sectors that contains the methodology for CC.

To mainstream the Climate Change Adaptation, instances or units are created within each institution to coordinate and implement the NAP.

#### **National Climate Change Division (DNCC)**

Within the Ministry of Environment, its role is to establish a number of multi-sectoral mechanisms to advance country climate change adaptation efforts. The DNCC is organized in thematic sub-committees, including the following: Reducing Emissions from Deforestation and Forest Degradation (REDD+), Water Resources, Air Quality, Agriculture and Food Security, Health, and Coastal Marine Resources.

**Water Resources Management Unit within Ministry of Environment (*Dirección de Recursos Hídricos* - DRH):** A highly technical unit within the Ministry of Environment has been established and currently leads strategic planning in the Honduran water resource sector. The unit further plays a crucial role in the National Water Authority (ANA). In addition, DRH has analyzed the climate change risks on the water sector and identified a number of measures to pursue, including major infrastructure projects to reduce climate and disaster vulnerability.

Other sectorial instances,

#### **CONASA (National Drinking Water and Sanitation Council)**

CONASA was created in 2003 as the maximum authority in the sector. Its council is composed of several government offices, including the Secretariats of Health, Interior and Population, Natural Resources and Environment (Mi Ambiente), and Finance, plus the Association of Honduran Municipalities (AMHON), a representative of the water committees and a user representative. The mandate CONASA has is to ensure the WSS services are provided ensuring sustainability of the water resources and the rational use of water.

#### **IDECOAS**

The Community Development, Water and Sanitation Institute (IDECOAS), established through the PCM 001-2014, in order to integrate, plan, organize and direct the National Program of Sustainable Rural and Urban Development (PRONADERS), the Honduran Social Investment Fund (FHIS), and the Autonomous Service of Aqueducts and Sewers (SANAA). According to the PCM, regardless of their integration with IDECOAS, these institutions must continue to meet the objectives established in their constitutive laws. In particular, investments in the WSS sector have been gradually transferred to the structure of IDECOAS. The mandate in terms of CC is to ensure that the infrastructure works are suitable and environmentally friendly, when possible considering adaptation measures against climate variability shocks. ,

## **SAG**

The Ministry of Agriculture and Livestock (SAG) its objective is to make national agricultural production competitive, sustainable and capable of inserting itself in the international economy, responding to the needs of the domestic market and integrating itself in a human, social and environmental development scheme, based on self-management, participation community, the gender equity approach and the sustainable management of natural resources promoting a climate risk approach through technology and best practices. .

Other stakeholders,

## **Academia**

Technical and knowledge skills are strengthened with academia participation. National and regional academic actors have been incorporated, from the UNAH the Honduran Institute of Earth Sciences and the Faculty of Space Sciences; the Zamorano Center for Renewable Energy (CZER); National School of Forestry Sciences (ESNACIFOR); Foundation for Participatory Research with Farmers of Honduras (FIPAH) and among the regional ones, CATIE; the Regional Network of Technology Centers of Latin America and the Caribbean (REGATTA).

## **Civil Society**

Civil society has played an important role in advocacy and intervention; there are the Donor Tables (international cooperation) that integrates the potable water, agroforestry, environment and risk management sectors; private enterprise and financial sector has been involved with investment in adaptation and conversion of the energy matrix for the production of clean energy, created in 2010; the Board of Stream lining for the Development and Financing of Regional Renewable Energy Projects, to generate clean energy, promote the development of energy projects and present the instruments that allow access, generation, development and sustainability and, legal security for these programs.

Together, these agencies have interfaced with each other to address CCA. The most important progress has been in the formalization of policies and institutionalization at the central level of the ACC and DRM, greater clarity in the roles of institutional frameworks of sectors affected by CC, integration of academic, civil society and private enterprise, and the challenges are the lack of systematically coordinated action amongst the different institutions and sectors involved. Another major barrier is the absence of systematic national planning processes in this area. Honduras is a country that has failed to exercise a consistent, organized and systematic practice of public planning and shows significant weaknesses in local planning. For a decade (1999 - 2010) the absence of a national planning system reinforced a sectoral culture of public institutionalization; each secretariat or autonomous institution acting according to sector interests led to the loss of the country's vision, making it difficult to integrate actions that require transversal, comprehensive and long-term efforts. Rare Exception is the Potable water and sanitation sector, which for the first time has a sectoral plan, the National Potable Water and Sanitation Plan, approved in 2014, by the Council of Ministers/Deputy Ministers of CONASA, including MiAmbiente.

At different times and diverse environments it is indicated that the most important challenges are related to: achieving a coordinated work with the different sectors; carry the initiatives to the local level; strongly involve private enterprise on the issue of climate change: adaptation and mitigation initiatives and projects; achieve the implementation of different plans and strategies at sectoral and local level (MiAmbiente, 2015); capacity building in vulnerability information management and transfer of scientific technical information to the local context(SINAC, PNUD, 2014). The above-mentioned issues are to be addresses with strong emphasis in component 4, bt keeping in mind is a

transversal issue that may be very well addressed through each institution representing the prioritized sector.

### **Regulatory Framework in Place for CCA**

Honduras creates a national regulatory framework for Adapting to Climate Change and Disaster Risk Management and there is a broad complementary legal framework. International legislation has ratified the UNFCCC, by the National Congress (1995); the Convention on Biological Diversity (1995); the United Nations Convention to Combat Desertification and Drought (1997); the Kyoto Protocol (2000) and the Ramsar Wetlands Convention (2007). The national regulatory framework includes the National Climate Change Strategy -ENCC- (2010) and the Climate Change Law (2013), which have been linked to the 2010-2022 Nation Plan and the 2010-2038 Country Vision (2009) the Sustainable Development Objectives and government plans.

The First National Communication with the UNFCCC was presented on February 15, 2000, the second on April 5, 2012, and during 2017, the III Communication is being prepared. In 2015 the process of designing the National Adaptation Plan began. This regulation is part of a set of laws related to the environmental theme that complement and are synergistic for the ACC and GRD.

Other complementary frameworks are: the Health Code (sanitary control and organization of the Municipal Environmental Units); the Framework Law on Potable Water and Sanitation (2003); the General Water Law (2009); the Law of Territorial Organization (2003); the creation of SINAGER (2009) and the Forest Law on Protected Areas and Wildlife (2007) and in 2016 Honduras ratified the Paris Agreement, which aims to strengthen the global response to the threat of climate change in the context of sustainable development and efforts to eradicate poverty.

Honduras is part of the Central American efforts to address Adaptation to Climate Change and Disaster Risk Management. Since 1994 Central America has begun to organize itself to take on the environmental challenges, with the Alliance for Sustainable Development (ALIDES, 1994). The Central American Integration System (SICA), through the Central American Commission on Environment and Development in 2010, approved the Regional Strategy for Climate Change (ERCC), which is part of a set of regional instruments complementary to climate change, such as the Biodiversity, Desertification and Drought Conventions; The Regional Agro-Environmental and Health Strategy (ERAS); The Health Agenda of Central America and the Dominican Republic; The Central American Agenda for Territorial Organization; Central American Policy on Comprehensive Management of Disaster Risks (PCGIR), led by CEPREDENAC and the Strategic Framework that links the Comprehensive Management of Water Resources in Central America (PACADIRH), led by the Regional Water Resources Committee (CRRH) and part of the United Nations Framework Convention on Climate Change (UNFCCC) adopted in 1992, during the Rio Summit.

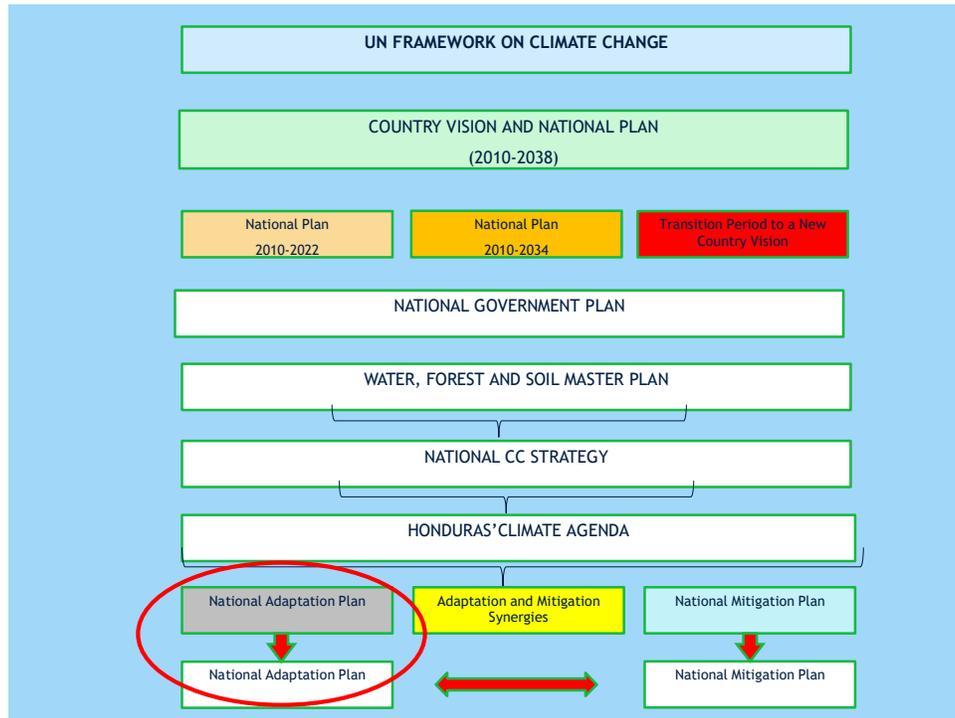
### **Interinstitutional Coordination Platforms**

The National Directorate of Climate Change will lead the implementation of the NAP, coordinating the strategic programs with the institutions that coordinate the respective sectorial issues. The Climate Change Law designates the Inter-Institutional Committee on Climate Change (CICC) for inter-institutional coordination at the level of political and strategic decision. Recently, the GoH.

Likewise, at the level of the Secretariat of the Presidency, CLIMA + office has been established, as an instance to support harmonization efforts of the Climate Agenda of Honduras and in addition turn

coordinates the implementation of the Water, Forest and Soils Master Plan. A direct instructional linkage is established between the DNCC and CLIMA + for the coordination of joint activities. Per the Climate Agenda of Honduras, a Program Structure has been defined (Figure 11) for the implementation of the programs that make up this strategy, and which frames the institutional arrangements for the implementation of the NAP and consequently the SPCR

Figure 11. Programmatic Structure of the CCA Agenda



### Shortcomings that Affect the Institution Coordination

**Important adaptive capacities have been identified at the local level, however, they are not coordinated with local, regional and national planning processes.** It has been observed that in the agricultural communities there are different levels of adaptive capacities which are linked to their socioeconomic situation, level of education, culture and traditions; a study on Community Consultations on Climate Risk Management in Honduras was conducted in eleven Honduran communities. These consultations demonstrate that communities whose livelihoods are directly dependent on agriculture are those who are more knowledgeable about climate variability and possible response strategies (Rivera, 2011); a comprehensive strategy has been developed in the Garifuna communities, including territorial planning, water resources management, recovery of natural barriers, agricultural production, coastal erosion, coastal ecosystem, watershed recovery, health, gender, biodiversity, relocation measures (OFRANE, s.f.); the ways in which climate change affects Honduran women have been identified (Aguilar, 2011).

**The availability of up-to-date, reliable and timely information remains a major challenge because of the multiplicity and lack of coordination of the actors involved.** The problem of information for decision making is characterized by the high dispersion that determines the institutional structure that by sectoral mandates produces specialized information but is not always shared; incomplete information due to deficiencies in data collection systems and do not create and

maintain updated, reliable, systematized and available databases. For example, the network of climatological stations is determined by the area of the basin where they are installed and the objectives pursued by the different institutions that measure the climatic parameters. In some watersheds, the number and location of the seasons reasonably represents the natural pattern of rainfall (Ulúa and Choluteca); however, other basins present deficits because there are not enough stations on their surface (Aguan and Gracias a Dios).

In a study for the territorial planning indicators in the National Plan, it was found that of all public institutions only ICF, BCH and ERSAPS systematically publish official data and maintain databases. Honduras frequently resorts to the ad hoc production of information due to the absence of databases with organized, systematized information and historical series (Caballero Zeitún E. L., 2015a).

### **Mi Ambiente Role as Focal Point of the GCF**

The Government is looking for an effective way to use the SPCR to leverage funds from the GCF mechanism, not only focusing on water and agriculture but in other strategic sector that may be prioritized in the future, such as health, transport, generation and access to energy, smart cities, industries and technology and equipment. Oriented to the change paradigms and pointing to long-term impacts. generating transversal benefits in adaptation and mitigation.

One of the objectives of appointing a presidential commissioner of climate change (chair of the Clima+ office), is to harmonize the approach towards the fund, avoiding duplication, overlaps as well as avoid a high submission of dispersed proposals, regulating the preparation of proposals and ensuring their alignment, pertinence (technical and financial) and quality, SPCR will support Mi Ambiente and Clima + to implement such mechanisms. The country is barely in the initial stage but as experience is generated, and with the support of the SPCR, the country will order the system.

## **1.4 Outline of the Strategic Program for Climate Resilience**

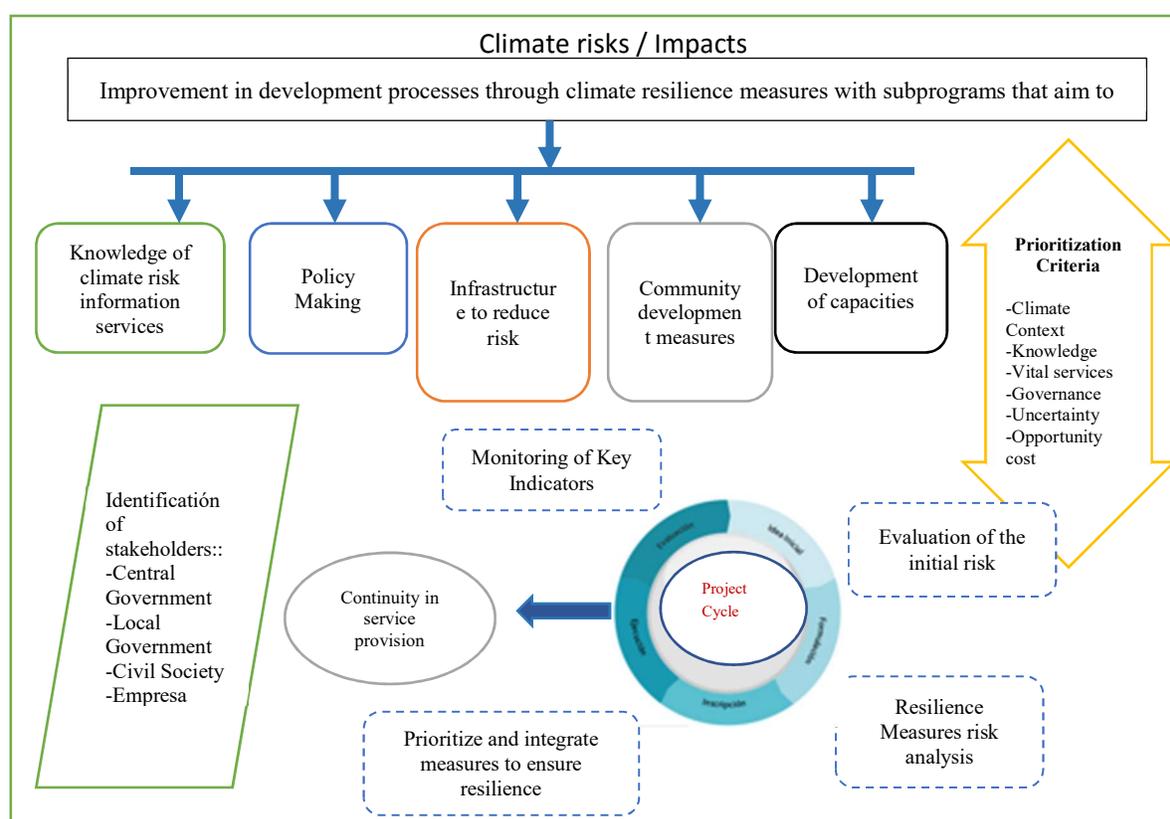
### ***Programmatic Approach to Enable Sustainability of the SPCR***

The SPCR in Honduras is designed with a programmatic approach to contribute to the sustainability of the strategy. The programmatic approach of the SPCR for Honduras facilitates, among others: a) allows a comprehensive and multisectoral approach; b) facilitates the prioritization of new activities or the change of these, c) "flexibility", the first Phase has prioritized Water Resources and Agriculture, with the view to revisit the SPCR periodically over the medium term and include additional sectors as part of the programmatic approach; d) the programmatic approach facilitates inter-institutional coordination; e) facilitates adapting or leveraging existing, or ongoing efforts and not creating a new one; f) it allows to see Resilience efforts in a more aggregated way, as a country and not as an individual sector and g) allows to use the SPCR as an instrument of financial management to leverage funding.

As a main result of the collective analysis of the problem and of the proposals for intervention, a strategic framework for climate risk management was proposed, which considers the project cycle, and identifies in each one of its phases the recommendations to integrate climate resilience, thus guaranteeing that the transformative actions respond to a "climate rationality" and in this sense, give added value to the project portfolio. (See figure number 12).

**Integrating climate resilience measures into development projects in project planning, execution and evaluation.** The investment of the SPCR will be for projects defined in the framework of the subprograms prioritized according to the following characteristics (see figure below): i) identify and include the participation of relevant actors, in general these actors are integrated into the public sector (national, regional and municipal), private sector, communities and organizations of civil society, academia, small and medium producers; ii) based on the knowledge of the risk, identify the indicators that will allow assessing the progress towards climate resilience; iii) according to the prioritization guidelines and the climate risk processes that will be put in place, analyze the intervention alternatives and measures; v) capitalize learning through monitoring and evaluation of interventions based on the progressive expansion of information and feedback of knowledge and intervention processes promoted by the PPCR for its replicability in other sectors.

Figure 12. Strategic framework for climate risk management in the PPCR- Honduras context



### Priorities defined for SPCR

Based on the existing evidence base on high vulnerability and reflecting on the inputs from various local, national and international stakeholders during multiple consultation workshops, the Government of Honduras identified the following broad thematic priorities to be addressed under the SPCR: water security, food security and livelihood. To ensure water security in a changing climate, the SPCR will focus on water resource management, its governance and its different uses, including water for irrigation and for human consumption. In terms of food security over the long term, the SPCR will prioritize the activities related to smart agriculture, technology, nutrition and land tenure, among

others. All the interventions identified under the SPCR will take into consideration livelihood and gender issues as applicable.

The following investments have been identified under the SPCR to address water and food security and livelihood issues.

Strengthening knowledge of climate risk at the technical-scientific level: The first consensus of the participants was that the country could not make progress in adapting to climate change if it did not have the relevant, timely, qualified and available information, the dispersion of production information with incompatible criteria generally weakens the efforts, that in different fields, the country makes to advance in the adaptation to climate change. The scope of PPCR technical cooperation in the climate risk knowledge component will focus on: (i) identifying and systematizing existing information on threats, vulnerability and climate risk in key sectors (including historical impacts and disaggregating territorial and sectoral areas), mapping of actors and formats; (ii) standardizing and presenting the information on a consolidated basis as part of the national context chapter (useful for the NAP, TCN and SPCR) and, as desirable, to use as a repository platform and dissemination of information on climatic risks, the "National Observatory of Climate Change for Sustainable Development" (ONCCDS), which is in the process of being strengthened and consolidated within MiAmbiente.

Water insecurity as the main impact associated with climate change and variability in Honduras. During the development of the First Joint Mission, the water insecurity that included the water and sanitation sector was identified by all participants, as the main impact associated with climate change and variability in Honduras. This level of consensus is due to the recognition of several sectors (water and its usage, agriculture, tourism, health, forests and biodiversity, among others), that water scarcity is one of the main causes of other national development impacts (for example, rapid urbanization and food insecurity mainly in rural areas). Water security appears as the main sectoral priority for the PPCR's work in Honduras, as it has a cross-cutting impact on all sectors of development, jeopardizes water for human consumption and food security (second priority of the SPCR), threatens the country's achievements in reducing poverty and aggravates the risk conditions in which the most vulnerable communities coexist. This effort establishes clear synergies with initiatives such as the Water, Soil and Forest Program, the National Watershed Strategy, the National Potable Water and Sanitation Plan, the National Potable Water Policy, Projects such as the Modernization of the Water and Sanitation Sector, among others.

Agriculture and food security were identified as one of the most sensitive sectors. It is recommended to integrate into the portfolio of transformative investments, actions aimed at establishing a sustainable and climate-adapted agriculture, which includes, among other key aspects, the improvement of productivity and the sustainability of natural resources, while ensuring food safety. It was concluded that the technology for storing water, conservation and restoration of soils, as well as the promotion of agro-ecological, agro-forestry and silvo-pastoral systems should be considered as part of the transformative actions of the PPCR, generating synergies with the Forest Investment Program (FIP) which is about to be formulated and has the support of the CIF. This recognition also establishes synergies between the PPCR, the National Plan to Combat Desertification and Drought, the National Strategy for Adapting to Climate Change for the Agro-Food Sector, and the Policy for Gender Equity in the Honduran Agriculture. In the agro-food sector (which includes agriculture and livestock), it is proposed to advance in sustainable and climate-adapted agriculture at the policy and institutional level.

As crosscutting elements, integrate gender equity and of indigenous and Afro-descendant peoples; community participation and the use of local governance structures (municipalities, commonwealths)

as a rural extension platform for ecosystem services; managing water resources, family farming and land management.

Institutional strengthening and regulatory framework on climate change. Institutional strengthening and regulatory framework on climate change were confirmed as priorities for action; as well as the need to improve the processes of monitoring, analysis, and evaluation of climatic risks. The SPCR should strengthen the capacity of MiAmbiente to coordinate work on its different fronts, and to harmonize the various initiatives in progress. In all strategic climate change planning processes, including the PPCR program, there is a need to identify the national and regional working platforms that are active, as well as the existing coordination spaces, which include: (i) Sectoral Theme Tables, (ii) Watershed Boards, (Iii) National Tables of Advocacy for Risk Management, (iv) Indigenous and Afro Honduran Table of Climate Change (MIACC), (v) Sub-Committees of the CTICC, among others.

It was recommended to complete the map of actors in local organizations and community development, differentiating specific geographic areas or regions (e.g. Caribbean region, Central Corridor, Pacific Coast, etc.). It was recommended to continue the integration of community organizations in the PPCR process, this could be implemented through a consultancy with three specific objectives: (i) to systematize local knowledge on climate risks, (ii) to identify specific actions of climate resilience at the community level; and (iii) to socialize progress in the NAPP and SPCR formulation process through regional workshops. It was recommended to use the administrative structure of the State, as well as the mechanisms of organization of civil society that exist in the field of community work for the processes of consultation of the SPCR.

### PPCRs alignment with National Strategies

As part of the PPCR methodology, a complete reviewed of national laws, policies and strategies was carried out to gather information on the vision of the state of Honduras towards climate resilience. More than 70 official documents were consulted to ensure there is alignment ate a conceptual level but also for the prioritized sectors. The following tables reflects a summary of the most important official documents consulted during the process.

*Table 3. Alignment with National Strategies and Documents Consulted*

	International Agreements	Law	Policy	Plans and Programs	SPCR Priorities
Overall					
Adaptation to CC	<ul style="list-style-type: none"> <li>• CMNUCC</li> <li>• Biological Diversity Agreement</li> <li>• UN Agreement against the Desertification and Drought</li> <li>• Kioto Protocol</li> <li>• Ramsar’s Humedals Agreement</li> <li>• Paris Agreements</li> </ul>	<ul style="list-style-type: none"> <li>• Vision and Nation Plan Law</li> <li>• CC Law</li> </ul>	<ul style="list-style-type: none"> <li>• National Policy for a Cleaner Production</li> <li>• National CC Strategy</li> </ul>	<ul style="list-style-type: none"> <li>• National Government Plan “Vida Mejor”</li> <li>• Water Soil and Forest Master Plan</li> <li>• National Determined Contributions</li> <li>• National Adaptation Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Institutional strengthening</li> <li>• Capacity Building in CC Adaptation</li> <li>• Policy Making</li> <li>• Planning</li> <li>• Leveraging financial and technical resources</li> </ul>

Sector Specific					
Water Resource Management	•	<ul style="list-style-type: none"> <li>• General Water Law</li> <li>• Water and Sanitation Law</li> <li>• Municipal Law</li> </ul>	<ul style="list-style-type: none"> <li>• Water Resource National Policy</li> <li>• Water and Sanitation National Policy</li> <li>• Water and Sanitation Financial Policy</li> </ul>	<ul style="list-style-type: none"> <li>• Water and Sanitation National Plan</li> <li>• National Strategy for Watershed Management.</li> </ul>	<ul style="list-style-type: none"> <li>• Water Resource Management</li> <li>• Water harvesting and irrigation</li> <li>• Water Supply and Sanitation</li> <li>• Governance</li> </ul>
Agriculture		<ul style="list-style-type: none"> <li>• Agriculture Modernization Law</li> <li>• Food Security and Nutrition Law</li> </ul>	<ul style="list-style-type: none"> <li>• Food Security and Nutrition Policy</li> </ul>	<ul style="list-style-type: none"> <li>• National Plan Against the Desertification</li> <li>• Irrigation National Plan (in preparation)</li> <li>• Food Security and Nutrition Strategy</li> </ul>	<ul style="list-style-type: none"> <li>• Smart Agriculture</li> <li>• Soil Management</li> <li>• Land Tenure</li> <li>• Nutrition</li> </ul>

Source: Mi Ambiente, 2017.

### **Territorial intervention Strategy for the SPCR**

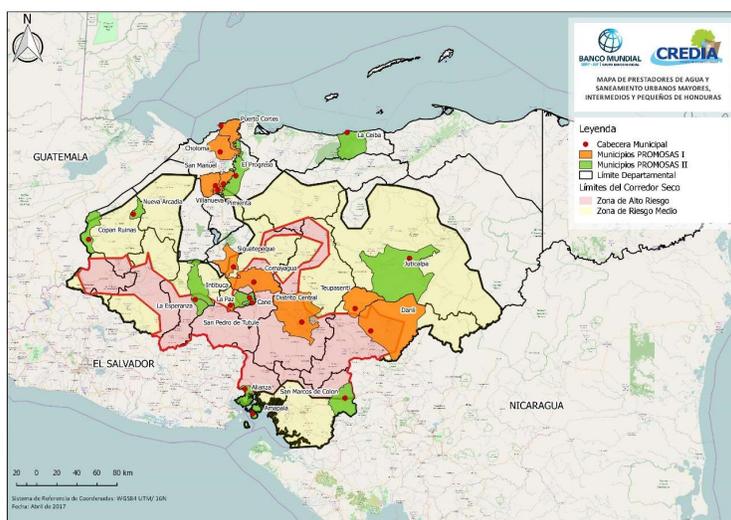
Based on the impacts and reconstruction needs of Hurricane and Tropical Storm Mitch that affected the entire national territory in 1998, the country began a process to reinforce territorial planning processes at the municipal level. From the analysis of the different municipal plans with a territorial organization approach and in the light of the priorities defined for the SPCR-Honduras, large lines of strategies of territorial intervention are identified under the concept of the large territorial risk scenarios with the three climate risk corridors, floods, droughts and fires, which have been described in number II and which can be linked to the strategy proposed in the ABS Plan (2017).

### ***Geographic Area Prioritization***

However, due to the urgency of the food crisis generated by climate variability in the dry corridor of Honduras and the need to strengthen water management, studies have been conducted to identify needs and opportunities for better adaptation to climate change. Figure 13 shows the location map of the dry corridor, which is divided into two zones, one with a high risk of drought (red zone) and one with medium risk of drought (yellow zone). It can be observed that, along the corridor, there are larger, intermediate and smaller urban cities in addition to the fact that the corridor is a mostly rural area where there is a lot of agricultural activity, including subsistence agriculture. The geographic analysis is part of a study to inform the design of a potential program to Promote the Sustainability of Water and Sanitation Services in Honduras, which will be prioritized in the SPCR and will seek to be complemented with PPCR/SPCR resources since in its design the PPCR was considered as a program that will complement the actions for the benefit of a comprehensive water management, especially water for human consumption. The Program in question could be financed by a concessional loan from the World Bank and/or IDB, as well as other programs and projects already underway such as: The Rural Competitiveness Project (COMRURAL) financed by the World Bank, and Project Forest Management financed by the IDB, among others. Additionally, the SPCR can be articulated territorially with the Sustainable Forest Management Program in implementation with IDB

resources that would be complemented with potential resources that come from the proposal that the GoH is presenting before the Green Climate Fund; both seek to restore at least 135,000 hectares of forest in areas affected by pine weevil.

Figure 13. Dry Corridor Zone Map and the Municipalities of the new Program in Water and Sanitation Services in Honduras.



Source: REMBLAH, ONCC-DS 2017. "rapid assessment of the impacts of climate change on the management of water resources and the availability of water for human consumption in the dry corridor and 12 municipalities in Honduras". The Broadleaf Forest Management Network (REMBLAH) and The National Observatory on Climate Change for Sustainable Development (ONCC-DS), World Bank. La Ceiba Atlántida. Author preparation using as basis the information layer Open Street Map and National System of Territorial Information (SINIT).

### General Objectives and Components of the SPCR

Three main objectives were followed by the Government of Honduras to design the SPCR proposal:

- Assist participating countries in adopting development models that are adaptable to climate change, in line with the objectives of poverty reduction and sustainable development. Because of its pilot nature, the PPCR supports practical learning and innovation in integrating capacity to adapt to climate change in development.
- Assist developing countries in integrating climate resilience into development planning, including urban development/infrastructure, agriculture and food security, coastal marine, land and other ecosystems, as well as in public policies and in institutions, building on the National Adaptation Programs (PNA - Spanish acronym) and other existing efforts.
- Promote a participatory approach to the development of a comprehensive strategy to achieve the capacity to adapt to climate change at the national level in the medium and long term. This process requires the participation of a wide range of stakeholders: the various inter-sectoral departments of government, non-public sector groups such as civil society and the most affected communities, and the private sector. The goal of the PPCR is to achieve an equitable effort by all development partners to

cooperate, engage in dialogue and adopt this strategic approach as a common platform.

For the purpose of the SPCR and in alignment with programmatic approach concept each component is considered a Subprogram.

**Brief Description of each Sub Program, Division of Labor and Implementation Calendar**

**Subprogram 1: Strengthen the management of meteorological knowledge, water resources and climate data to inform decision-making.**

Increase capacity to develop scenarios of climate change for Honduras, strengthen climate information services through a comprehensive approach to provide timely information at the agricultural, urban planning and risk management levels, among others; and improve surveillance and forecasting, more accurate predictions and early warning of extreme weather phenomena. Including coordination and exchange of effective inter-institutional information. Knowledge outputs developed and disseminated.

PROJECT Sub Program 1:	Year 1	Year 2	Year 3	Year 4	Year 5
Climate Information System, Station installation protocols.					
Design and approval of protocols for the standardization of information on hydro-meteorological and climatic networks operated by different institutions. Diagnosis of users of information products and services.					
Improvement, Rehabilitation or Replenishment of hydro-climatic stations					
Program and evaluation of user interaction. From Geoportal					
Data standardization protocols. Program and evaluation of interaction of suppliers and producers.					
Preparation, approval and dissemination of the National Water Balance available on relevant platforms. ...					
National Research Program in CC that includes agreements of exchange and cooperation with regional and international organisms of investigation, monitoring and evaluation of the climate.					

**Subprogram 2: Resilient water resource management through strengthening water governance and improving its usage.**

This area includes integrated water management, knowledge generation, investment in multiple water use infrastructure. Strengthen coordination and governance mechanisms among the actors and users of the different sectors of water management. Water use optimization under conditions of reduced availability, development of studies for the prioritization of storage infrastructure and multiple use reservoirs.

PROJECT Sub Program 2:	Year 1	Year 2	Year 3	Year 4	Year 5
National Institute of Water Resources Delimitation of areas under special regime by water in the dry corridor.					

Public Registry of Surface Water and Groundwater, integrated into the Land Registry System, in partnership with Decentralized Urban Providers.					
Watershed organizations operating. Expansion of coverage of water harvesting.					
Financial systems adapted to the country's infrastructure needs, with differentiated territorial scales (rural settlements, medium and large cities), under circular / green economy schemes; Comprehensive management plan in Tegucigalpa. Multipurpose water infrastructure					
Comprehensive management plans for areas producing water for human consumption in micro- watershed s and sub-watersheds prioritized in the dry corridor, integrating ethno-cultural concepts and practices; Regulation of systems, use, users, beneficiaries, compensation mechanisms for environmental services.					

**Subprogram 3: Climatically resilient agriculture (smart agriculture) and sustainable food security.**

The following area is directed to increase the ability of project beneficiaries to withstand/adapt to climate variability and change, complement existing investments through the Dry Corridor Alliance Projects, and support the replication and expansion of existing practices that contribute to improvement of food security through the management of drought tolerant crop varieties and to climate variability, effective soil management practices to ensure that climate resistance becomes an integral part of land management and agricultural production. Improve mechanisms for storage and diversification of crops and water harvesting, among other practices proposed as part of the PPCR in Honduras. Search for livelihood security with diversification of income, assets and livelihoods; better infrastructure; access to technology and decision-making forums; greater decision-making capacity; practices related to modified crops, livestock and aquaculture.

PROJECT Sub Program 3	Year 1	Year 2	Year 3	Year 4	Year 5
Inventory of ACC services and products by area, geographic area, gender and ethnic group.					
Seed bank.					
Early-Warning System					
Agricultural Insurance according to items that includes reciprocal guarantee.					
Evaluations of yields of climatically resistant practices adopted.					

**Subprogram 4: Institutional strengthening and capacity building of human resources for adaptation to climate change.**

Increase capacity to integrate climate change into national and sub-national development plans; the availability of appropriate policies, procedures, guidelines and institutions, enabling them to carry out their functions comprehensively and in a sustainable manner. Improve coordination and exchange of information on national projects and cooperation, reducing overlap and duplication of efforts.

PROJECT Sub Program 4	Year 1	Year 2	Year 3	Year 4	Year 5

Good ABS Practices, urban and rural, inclusive (gender and ethnicity).					
Catalog of Intervention Modes of the ABS Plan.					
Good practices and catalog, in the geo-portal.					
Training program (formal and non-formal) and its annual evaluation.					

**Subprogram 5: Political Incidence, Administration and Monitoring of the SPCR.** This a subprogram is conceived to include activities relates to facilitate the coordination, as the SPCRs programmatic and multisectoral approach poses challenges in terms of coordination. Resources, both technical and financial, must be available to ensure the sustainability of the results achieved through the SPCR.

<b>Activities for Coordination and Administration</b>	Year 1	Year 2	Year 3	Year 4	Year 5
Baseline					
Semiannual execution reports.					
Annual monitoring reports.					
Midterm evaluation report.					
Supporting the Certification process tp access green climate funds					
Evaluation report end of the program period.					

### Links with ongoing and/or planned MDB programs

Importantly, Multilateral Development Banks (MDBs) and other Development Partners such as USAID, through technical support and financial assistance, have worked with Honduras in institutionalizing climate change adaptation as well as building capacity to support its population better cope with climate hazards. The main focus over the past years has been on funding a wide range of programs to build and increase resilience in different economic sectors to better respond to challenges posed by climate change.

Based on vulnerability assessments undertaken in the country, initiatives currently underway include investment projects and technical assistance in the various systems and strategically prioritized sectors in the National Climate Change Strategy the following briefly presents main activities underway, distinguishing between those undertaken with the support of the MDBs and those supported by other donors cooperating with presence in the country.

#### ***IADB***

The Inter-American Development Bank (IADB) supports the management of natural Forest Management Program through an investment operation in the amount of US\$25 million. In addition, Honduras was also one of the member countries of a regional operation which strengthened capacities in the hydropower sector. The Nordic Development Fund (NDF) has been providing technical assistance to local communities in support of their ability to adapt to climate change in the areas of

managing biodiversity and water resources. These for example will inform the SPCR through Subprogram 2: Water resource and WSS service delivery.

### ***World Bank***

World Bank finance totaling close to US\$26 million is being provided to support (a) natural disaster management at national and municipal levels and (b) strengthening competitiveness, part of these funds will be used to partially support the implementation of Modernization of National Hydro-Meteorological Service. The World Bank is currently also preparing the Corredor Seco Food Security Project, a proposed US\$37.8 million investment, which includes grant of US\$30 million from the Global Agriculture and Food Security Program Trust Fund (GAFSP) in the Corredor Seco. The project falls under the umbrella of the Alianza para el Corredor Seco (Alliance for the Corredor Seco, ACS), the government flagship program that supports interventions for the vulnerable population in a series of contiguous municipalities in the region. The GAFSP will inform the SPCR through Subprogram 3: Climate smart agriculture.

In water the WB prepares a US\$ 66 million water operation aimed at building financial sustainability and resilient water and sanitation systems in targeted areas of the country, mainly urban, which will inform Subprogram 2: Water resource and WSS service delivery.

### ***IFC***

IFC facilitates a study that will identify climate risks associated to the areas of intervention for the PPCR in Honduras, that are relevant to the private sector (water management and infrastructure, agriculture and food security, meteorological knowledge management and climate data. Based on the identified risks, the study will consider how private sector, including commercial banks, can protect themselves from those climate risks as well as deliver essential products and services to help communities and businesses tackle climate challenges. The study will also analyze the existing enabling environment and market barriers that prevent private sector from engaging in climate adaptation. Moreover, the study will identify potential private sector investments for improving resilience. The results may lead to future engagements between IFC and private counterparts interested in investing in climate adaptation initiatives.

### ***USAID***

Has supported the institutions related to CCA providing a climate network services and platforms to assess climate risk that will be enhanced through Subprogram 1. In addition, USAID has also provided a series of tools to institutions that are lined to the SPCR such as SAG and Mi Ambiente to manage water demand and contribute to the governance of the water sheds which is expected to be rolled out with the support of the SPCR.

Further details can be found in Annex 3.

## **1.5 Participation Process**

In March, 2016 The Honduran Government, led the formulation of the Strategic Program for Climate Resilience (SPCR), through a highly participatory and inclusive process of broad consultation, consensus-building and inter-institutional reflection on priority strategic and transformative activities. The MDBs and other partners played an important role during the consultation and preparation of the SPCR proposal.

In order to define PPCR priorities in Honduras, in addition to the workshop, meetings were held with the sectors with competence in Adapting to Climate Change, with the purpose of detailing the types of interventions that could be included in the PPCR investment portfolio. These meetings were:

- PPCR linkage process meeting and National Adaptation Plan
- Meeting on actions for the knowledge of the climate risk
- Meeting on actions in the water, water and sanitation security processes
- Meeting on actions in food security and agriculture
- Meeting on criteria for the definition of transformative investments
- Broad consultation workshops with stakeholders.

The consensus that resulted as part of the workshop and the meetings with stakeholders with competences in ACC, resulted in the definition of the prioritized sectors. The following summarizes the objectives achieved in during the consultation process:

- During the scoping mission the main effects of climate variability and change in Honduras were analyzed; and the country's efforts in this area were reviewed, including the presentation of the National Climate Change Strategy and the National Adaptation Plan (in the process of formulation); the recent and ongoing initiatives by both the Government as well as cooperant and private sector actors were also analyzed; from which critical sectors and transformative actions required to integrate climate resilience into the development planning of the country were analyzed.
- During the first joint PPCR mission, the following objectives were achieved: (i) identified inter-institutional linkage and coordination of processes and initiatives for adaptation to climate change (existing and at the formulation stage), through broad participation of social, public, private, NGO and civil society; in relation to climate change adaptation to (CCA) and resilience in Honduras. The above, in the context of the national policies and agreements at the international level that the country has signed in the framework of the Paris commitments and the objectives of the National Climate Change Strategy (ENCC); (ii) assess recent activities, programs and projects on adaptation to climate change (CCA), analyzing their achievements and difficulties; (iii) confirm some of the priority sectors with a view to defining possible preliminary actions that would be part of the investment program; (iv) agreement on the scope, cost, and institutional arrangements required for the formulation of the SPCR.
- The Ministry of Energy, Natural Resources, Environment and Mines (MiAmbiente) was appointed as focal point of the PPCR and head of the mission, and Strategic Investments of Honduras as a fiduciary implementer. The Institute of Community Development, Water and Sanitation (IDECOAS), the National Council of Potable Water and Sanitation (CONASA), the National Autonomous Service of Aqueducts and Sewers (SANAA), the Secretariat of Finance (SEFIN), the Ministry of Agriculture and Livestock (SAG), the Permanent Commission on Contingencies (COPECO), and the National Climate Change Directorate (DNCC) of MiAmbiente are the sectoral institutions that were part of the preparation process of the SPCR proposal. A total of 127 participants joined the mission and workshop with the participation of a representative number of entities from the public, private, NGO and community sectors, as well as representatives of international cooperation and academia,
- The second Joint Mission's objective was to validate the SPCR proposal. It was developed through the PPCR Inter-Institutional Workshop, which totaled 113 participants during the

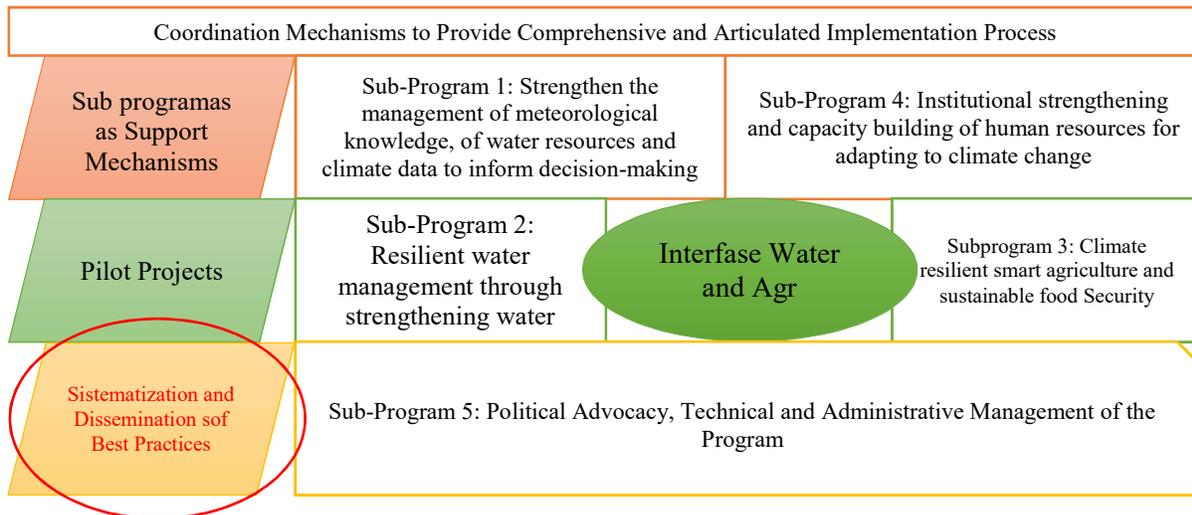
two day workshop, maintaining the diversified representation, as in previous missions. Annex 5 contains the list of participants and further details of the workshops.

The design of the PPCR-Honduras has been a highly participatory process. At the level of public entities, over the three missions, the workshops had the participation of 47 officials at the national level, belonging to 13 institutions, including the Secretariats of Environment, Agriculture and Livestock, Development and Social Inclusion, Finance, Infrastructure and Public Services; and the National Autonomous Service of Aqueducts and Sewers. In addition to the central government entities, participation in the workshop was distributed among international cooperation agencies, the private sector, NGOs, academia and community organizations. Out of the total number of participants who assisted to all the workshops, 37% were women.

### Learning Mechanisms Proposed for the SCPR.

Initially, one of the learning mechanisms, among others, will be the pilot projects, which initially will work "the water resources-food security interface", to generate synergies and learning during the conservancy and protection of the ecosystems, while generating climate goods and services. This learning mechanisms will be embedded in Subprogram 5.

Figure 14. Inter-institutional Coordination and Interface of Climate-Quality Ecosystem Goods and Services



## PART II – PROPOSED INVESTMENT PROGRAM COMPONENTS FOR PPCR FINANCE

### 2.1 Summary of the Strategic SPCR Programs for Honduras

#### *Context*

Based on the expression of interest by the Government of Honduras (GoH) in March 2015, to participate in the Climate Resilience Pilot Program (PPCR); the PPCR expert group recommended that the Climate Investment Fund (CIF) nominate Honduras as an eligible country to receive up to US\$ 1.5 million for preparing a Strategic Program for Climate Resilience (SPCR).

The Expression of Interest of the GoH was approved by the CIF on June 1, 2015, and in November 2015 a scoping mission was carried out, which analyzed the objectives and areas of intervention of the PPCR program for Honduras, as well as the institutional arrangements required for preparing the SPCR.

In March 2016, the Honduran Government, the World Bank Group and the Inter-American Development Bank (IDB) held the First PPCR-Honduras Joint Pilot Mission for Climate Resilience (PPCR) to initiate the process of formulation of the Strategic Program for Climate Resilience (SPCR), through a highly participatory and inclusive process of broad consultation, consensus-building and inter-institutional reflection on priority strategic and transformative activities.

During the mission the main effects of climate variability and change in Honduras were analyzed; and the country's efforts in this area were reviewed, including the presentation of the National Climate Change Strategy and the National Adaptation Plan (in the process of formulation); the recent and ongoing initiatives by both the Government as well as cooperation and private sector actors were also analyzed; from which critical sectors and transformative actions required to integrate climate resilience into the development planning of the country were analyzed.

#### **PPCR Prioritized Areas of Interventions and Subprograms**

In line with the objectives of the PPCR: to assist participating countries in adopting climate change adaptation development modalities, with the promotion of participatory approaches to the development of a comprehensive strategy, to achieve climate change adaptation capacity at the national level in the medium and long term that is in line with the objectives of poverty reduction and sustainable development and which, by its nature as a pilot program, supports practical learning and innovation in mainstreaming the capacity to adapt to climate change in development. Priority areas, expectations and challenges to be addressed in the design of the SPCR Sub-Program and Projects portfolio are as follows:

*Strengthen the management of meteorological knowledge, water resources and climate data to inform decision-making.*

The first consensus of the participants was, that the country was unable to make progress in adapting to climate change if it did not have relevant, timely, qualified and available information. The dispersion of information production with incompatible criteria generally weakens the efforts, that in different fields, the country makes to advance in adaptation to climatic change.

Increased capacity to develop scenarios of climate change for Honduras, strengthen climate information services through a comprehensive approach to provide timely information at the agricultural, urban planning and risk management levels, among others; and improve surveillance and

forecasting, more accurate predictions and early warning of extreme weather phenomena. This includes the coordination and exchange of effective inter-institutional information. Knowledge outputs developed and disseminated.

The country has a Plan for the Modernization of Hydro-meteorological and Climatic Services, framed in the World Meteorological Organization (WMO) Strategy, for the development of institutional and technical capacity of the climate, hydro-meteorological and water services to produce a good risk assessment and communicate this risk to vulnerable groups and response authorities.

#### *Resilient water management through strengthening governance*

During the development of the First Joint Mission, the water insecurity that included the water and sanitation sector was identified as the main impact associated with climate change and variability in Honduras. This level of consensus is due to the recognition of several sectors (agriculture, tourism, health, forests and biodiversity, among others), that water scarcity is one of the main causes of other impacts on national development (for example, food insecurity).

Water security appears as the main sectoral priority for the PPCR's work in Honduras, as it has a cross-cutting impact on all sectors of development, jeopardizes food security (second priority), threatens the country's achievements in reducing poverty and aggravates the risk conditions in which the most vulnerable communities coexist.

Honduras has designed the Master Plan for Water, Forest, Soil, to resist climate change, strengthen comprehensive water management, knowledge generation, investment in water infrastructure for multiple use, strengthening mechanisms for coordination and governance among stakeholders and users of different sectors of water management; optimization of water use under conditions of reduced availability, development of studies for the prioritization of storage infrastructure and diverse reservoirs, these are necessary for improving the quality and quantity of water for multiple uses; comply with ODS and the National Potable Water and Sanitation Plan (PLANASA) with regard to the provision of the service that affect the quality of life, especially for the poorest.

#### *Climatically resilient agriculture and sustainable food security.*

Agriculture and food security were identified as one of the most sensitive sectors. It is recommended to integrate into the portfolio of transformative investments, actions aimed at establishing sustainable and climate-adapted agriculture, as part of the implementation process of the National Adaptation Strategy for Climate Change for the Agro-Food Sector.

Key aspects include improving productivity and the sustainability of natural resources, while ensuring food security. It was concluded that the conservation and restoration of soils and the promotion of agro-ecological, agro-forest and silvo-pastoral systems should be considered as part of the transformative actions of the PPCR to improve the capacity of producers to support/adapt to variability and climate change, support the replication and extension of existing practices that contribute to improved food security through the management of drought-tolerant and climate variability crop varieties, effective soil management practices to ensure that climate resistance becomes an integral part of land management and agricultural production. Improve storage and diversification mechanisms of crops and water harvesting; better infrastructure; access to technology and decision-making forums; greater decision-making capacity; practices related to modified crops, livestock and aquaculture.

Honduras is a country with an economy based mainly on agriculture with a total of 30.19% of the

national territory destined to the agricultural sector. Honduran producers are already facing the consequences of prolonged droughts and erratic winters with serious consequences for the economy of small farmer families and be able to cover the basic diet.

*Institutional strengthening and capacity building of human resources for adaptation to climate change.*

Institutional strengthening and policy framework on climate change were confirmed as priorities for action; as well as the need to improve the processes of monitoring, analysis, and evaluation of climate risks. The SPCR should strengthen the capacity of MiAmbiente to coordinate work on its different fronts, and to harmonize the various initiatives in progress.

Among the strengthening aspects are to increase capacity to integrate climate change into national and sub-national development plans; the availability of appropriate policies, procedures, guidelines and empowered institutions, enabling them to carry out their functions comprehensively and in a sustainable manner. Improve coordination and exchange of information on national projects and cooperation, reducing overlap and duplication of efforts.

Honduras has made progress in the creation of a legislative body, a framework of public policies and institutions for adapting to climate change. MiAmbiente is the political focal point for UNFCCC, which promotes the National Climate Change Strategy (ENCC); multi-sectoral mechanisms with the REDD+ subcommittees; Law on Climate Change and the General Law of Water and the Framework Law on Potable Water and Sanitation; the Water, Forest, Soil Master Plan and the National Plan for Adaptation to Climate Change in the process of approval. There is a need for a national-local coordination of these instruments and to promote mechanisms that make it possible to move forward according to this public policy framework.

**Description of SPCR and its Subprograms**

With these strategic guidelines prioritized by the community and having as a public policy framework the principles of gender equity, social inclusion and fight against poverty, the Country Vision and Plan of Nation and the Millennium Development Goals mandates, as well as the normative framework of climate change, four strategic sub-programs with a total of 15 components have been designed, to guide interventions in climate resilience of the public sector with participation of producer organizations, NGOs, academia and the sector private sector, as actors involved in the generation of capacities for adapting to Climate Change and an administrative sub-program, Technical and Administrative Management, Monitoring and Evaluation of the SPCR.

- Sub-Program 1 Strengthen the management of meteorological knowledge, of water resources and climate data to inform decision-making
- Sub Program 2 Resilient water management through strengthening water governance
- Sub Program 3 Climate resilient smart agriculture and sustainable food security
- Sub Program 4 Institutional strengthening and capacity building of human resources for adapting to climate change
- Sub Program 5 Political Advocacy, Technical and Administrative Management of the Program

### **Prioritized Area of Intervention**

Territorially, with the progress in information and specialized studies, the configuration of three large territorial scenarios of risk, with three climate-risk corridors, the flood corridor, the dry corridor and the fire corridor. However, due to the urgency of the food crisis caused by climate variability in the dry corridor and water management, this area is prioritized as the main recipient of the actions undertaken with the SPCR, without neglecting these other risk scenarios that have a great potential to propose innovations in climate risk management.

### **Multi-Institutional Intervention**

The PPCR and the SPCR requires a process of technical and administrative management due to the complexity imposed by the exercise of an inter-agency and inter-institutional execution by the participation of several of one ministry and other ministries, directorates and programs, as a component leader of the SPCR programs, it is estimated that some 15 instances of at least four public institutions will be directly involved under the overall leadership of MiAmbiente, who will be responsible for executing the program over a period of 5 years.

The purpose of the SPCR is to promote an inter-institutional cooperation to guide climate-resilient development interventions, promote joint actions and collaborative processes among different actors, through the five sub-programs. To promote learning exchange among subprograms and among other PPCR initiatives abroad, the SPCR includes activities to facilitate exchange of lessons learned available for and from public, private, unions, academic and civil society actors involved in PPCR initiatives with similar characteristics.

### **SPCR Alignment to National Strategies**

The inter-institutional coordination processes, collaborative processes and shared leadership is one of the characteristics that distinguishes the SPCR-Honduras as a first attempt to develop the comprehensive approach proposed by the ABS Plan, the GoH main public strategy to address climate change. The shared responsibility between the different entities will serve to enhance the institutional mandate; the institutional expertise and the promotion of advancing knowledge with collaborative processes of intervention. The institutional arrangements are as follows:

By adopting climate resilience as a development approach, it becomes instrumental to contribute to the objectives and goals to increase social inclusion, promote equal opportunities and redistribution of economic wealth, as described in the Country Vision and Nation Plan and the Sustainable Development Goals. In addition, the PPCR enables prioritized sectors access to climate-resilient goods and services to reduce poverty, to design/enhance gender based interventions, and to preserve ancestral and cultural practices climate resilience mechanisms are being defined and implemented by the PPCR stakeholders, ensuring the design and implementation of the SPCR reflects the human side of the effects of climate change and variability.

### ***NDC and SPCR Collaboration to Prioritize Actions that Produce Co-Benefits***

Vulnerability to climate change and the corresponding impact on its development efforts, Honduras is particularly committed to achieving its NDC.<sup>14</sup> By 2030, Honduras pledged a target of achieving one million hectares of reforestation/afforestation, and a 15 percent reduction in greenhouse gas (GHG) emissions (excluding land use, land use change, and forestry) and 39 percent reduction in firewood usage below a business-as-usual (BAU) scenario, conditional on external financing and technical assistance.

In addition to financial support, the government of Honduras specifically requests technology transfer

and capacity building support. While Honduras hopes to improve its mitigation and adaptation efforts in agriculture, industry, and waste sectors, it has not outlined quantitative targets. The SPCR will contribute to assist the country with the execution of the ABS program as a mechanism to reach the objectives of the NDC and SPCR, where agriculture plays a key role in both initiatives

### ***General Expectations from the implementation of the SPCR through an Innovative Programmatic Approach***

The GoH is committed to promoting the integration of adaptation to climate change (ACC) and risk reduction in national and sectoral development processes using a programmatic approach rather than a standalone project.

In this regard, the SPCR represents an opportunity to strengthen the CC institutional platform that exists in the country and its legal framework, including the Climate Change Law. The SPCR also provides the opportunity to have a strategic action framework that is expected to strengthen the National Climate Change Strategy and the National Adaptation Plan, which is in the process of being formulated. At the level of international cooperation, the SPCR is expected to bring together the efforts of the donors' table based on the issues of climate change and risk management, which has been supporting the GoH in multiple programs and projects; there is an opportunity for the SPCR to channel and direct actions not only with the participating MDBs but also of a larger group of cooperating entities. In this context, the SPCR constitutes a tool to leverage resources towards Honduras as a country participating in the PPCR.

The advantages of this programmatic approach consist in a comprehensive and multisectoral intervention; facilitating inter-institutional coordination by involving several actors; and as the implementation of the SPCR moves forward, facilitate the prioritization of new activities or changes adjustments in the ones already prioritized. This provides the instrument with enough flexibility to adapt the SPCR to existing initiatives and address climate variability in a comprehensive manner.

The expected results with the application of this strategy are to improve the capacities for the integration of adaptation to climate change in planning and implementation; greater consensus on resilience approaches appropriate for the country; better opportunities for financial leverage; greater and better learning and exchange of knowledge about the integration of the climate adaptation in development initiatives and facilitate the participation of private sector in adaptation efforts.

### ***SPCR Validated through a Highly Participatory Process***

The design of the PPCR-Honduras has been a highly participatory process. It was developed through the PPCR Inter-Institutional Workshop, with the participation of a representative number of entities from the public, private, NGO and community sectors, as well as representatives of international cooperation and academia, which maximum of 127 participants per Joint Mission, from government, private sector, NGO, AMHON participated and meetings were held with the Vice Minister of Finance and the Public Investment team, also a technical level led by the Minister of MiAmbiente, with the participation of the institutions related public, SANAA, IDECOAS, CONASA, SAG, INVEST-H. A meeting was also held with the IFC to review the private participation in the process, and another with the International Cooperation G16.

During the Second and last Joint Mission, the priorities defined in the First Joint Mission were ratified and a generalized consensus on the intersectoral approach of the SPCR-Honduras was endorsed, ratifying the need to transcend from a project intervention approach to establishing the basis for a programmatic approach to address climate adaptation.

Overall, through the different mission and consultation process, an opportunity was created for a collective reflection on climate change impacts in the country, and its effects specially for the most vulnerable population groups, including indigenous and afro-descendant communities. The reflected consensus gave way to define the prioritized sectors, at least for this first phase of the SPCR, making clear that the Programmatic Approach, would be flexible enough to include new demands from other sectors affected by climate variability.

## 2.2 Performance Framework with Country Specific Metrics

<u>Result</u>	<u>Success Indicator(s)</u>
<p><b>Expected Transformative Impact of the SPCR (First Phase) in Honduras:</b></p> <p>Improved the quality of life for the people living in the Dry Corridor of Honduras</p>	<p>National Indicators Collected by Government that Match with the PPCR core Indicators</p> <ul style="list-style-type: none"> <li>• Number of people supported by the PPCR to cope with effects of climate change; including % of households in Corridor Seco whose livelihoods have improved and % of people with year-round access to reliable and safe water supply, disaggregated by urban and rural</li> <li>• Degree of integration of climate change in national, including sector planning;</li> <li>• Evidence of strengthened government capacity and coordination mechanism to mainstream climate resilience; and.</li> </ul>

### Sub Program 1: Strengthen the management of meteorological knowledge, of water resources and climate data to inform decision-making

<p><b>1.1.</b> Use of climate information in decision making routinely applied</p>	<ul style="list-style-type: none"> <li>• # of reliable and timely meteorological communications strategies for potentially affected populations showing that climate information products/services are used in decision making in climate sensitive sectors.</li> <li>• Number, indicating potential water availability in watersheds</li> </ul>
--	--

### Subprogram 2: Resilient water resource management through strengthening water governance and improving its usage.

<p><b>2.1</b> Increased resilience of households, communities, businesses, sectors and society to climate variability and climate change benefitted from water interventions in selected areas</p>	<ul style="list-style-type: none"> <li>• Decrease in Health Indicators at the community or municipal level of the beneficiary sites related to water borne diseases.</li> <li>• Number of pilot projects generate, validate, socialize as lessons learned, instruments of inter-institutional coordination with projects related to increase climate resilience in the water sector.</li> <li>• Increased quality and quantity of water resources at target sites</li> <li>• Number of Water and Sanitation Providers urban and rural in the targeted area, with performance index above 90%, according to the national regulator.</li> </ul>
--	---

### Subprogram 3: Climatically resilient agriculture (smart agriculture) and sustainable food security.

3.1 Increased resilience of households, communities, businesses, sectors and society to climate variability and climate change benefitted from smart agriculture interventions in selected areas

- Male and female producers adopting good practices and sustainable production technologies, at least 30 % are women.
- increases in yields of prioritized items in the Dry Corridor.
- Number of farmers who adopted good practice / Programmed target number of producers
- Increase in the number of Hectares of land for cultivation under the system of water harvests

### Sub Program IV: Institutional strengthening and capacity building of human resources for adaptation to climate change

4.1 Strengthened climate responsive development planning

- Number of Instruments and mechanisms of inter-institutional coordination validated and disseminated to advance adaptation to climate change.
- At least X% of planned budget at national level of government take into account effects of CV&CC.

4.2. Strengthened adaptive capacities implementation and sustainability of production systems (resilient to climate change.)

- Formulation of Policies, Strategies, plans to strengthen CC in water resources and agricultural related interventions, based on quality information

4.3. Climate responsive investment approaches identified and implemented

- Investment criteria in CC defined en endorsed by the ministry of finance
- At least X% of planned budget to address CC at national level of government, implemented, take into account effects of CV&CC
- Increasing the leveraging funding ratio (PPCR funding against public and private investments in climate sensitive sectors)

## PART III – REQUEST FOR PROJECT PREPARATION GRANTS

<b>Pilot Program for Climate Resilience</b>			
<b>Project/Program Preparation Grant Request</b>			
1. Country/Region:	Honduras, Central America	2. CIF Project ID#:	(Trustee will assign ID)
3. Program Name:	Strategic Program for Climate Resilience: Honduras <b>Sub-Program 1:</b> Strengthen the management of meteorological knowledge, water resources and climate data to inform decision-making.		
4. Tentative Funding Request (in USD million total) for Project at the time of SPCR submission (concept stage):	<i>Grant: USD\$ 10</i>	<i>Other contributions: USD\$ 0</i> <i>Government: USD\$ 0</i>	
5. Preparation Grant Request (in USD million):	USD\$ 0.35	<i>MDBs: WBG</i>	
6. National Project Focal Point:	Ministry of Energy, Natural Resources, Environment and Mines (MiAmbiente), <b>Elvis Yovanni Rodas Flores</b> , Undersecretary of State in the Office, of Energy and Natural Resources		
7. National Implementing Agency (project/program):	Mi Ambiente/ General Directorate of Water Resources and the Atmospheric, Oceanographic and Seismic Studies Center, (CENAOS/COPECO)		
8. MDB PPCR Focal Point and Project/Program Task Leader Team (TTL):	<i>Headquarters-PPCR Focal Point: Kanta R. Riguad, Lead Environmental Specialist</i>	<i>TTLs: Marco Agüero Senior Water and Sanitation Specialist</i>	
<p>Description of activities covered by the preparation grant: The preparation funds will allow the development of the following activities:</p> <ul style="list-style-type: none"> <li>• Compiling information</li> <li>• Preparing the terms of reference for the different activities</li> <li>• Technical, managerial and financial Project analysis</li> <li>• Consultation Workshops</li> <li>• Training services</li> <li>• Institutional development</li> <li>• Systematizing, disclosure and promotion of lessons learned</li> <li>• Definition of the different costs of the sub-program components,</li> </ul>			

- Preparing instruments for the environmental and social safeguards caused by the project (social study social, including the analysis and mapping of the stakeholders; environmental study; and socio-environmental framework) according to national legislation and WB safeguards.
- Project follow-up and evaluation, including the definition of monitoring and evaluation indicators, as well as the mechanisms for their collection, processing and diffusion.
- Baseline studies
- Missions and experience exchanges
- Logistics and others

#### Outputs:

Deliverable	Timeline
Complete portfolio with detailed designs of the Project budget	At the end of December, 2018
Terms of reference for consultants and services	At the end of December, 2018

#### Budget (indicative):

Expenditures	Amount (USD) - estimates in millions
Consultants and Firms	0.27
Equipment / Investment / Services	0.032
Workshops / seminars	0.015
Travel / transportation	0.015
Others (admin costs / operational costs)	0.09
Contingencies (max 10%)	0.018
<b>Total Grant Cost</b>	<b>USD \$ 0.35 M</b>
Other contributions:	0
Government	0
MDB	0-
Private sector	0-
Others (please specify)	0-
<b>Total</b>	<b>USD \$ 0.35 M</b>

#### Timeframe (tentative)

Delivery of the project document (PAD) to the PPCR Sub-Committee: March 2018  
Approval by the Board of the World Bank: Before July 2018

Other Partners involved in project design and implementation:  
WBG,

With support from USAID, JICA and IDB.  
Other members of the Donor Round Table

If applicable, explanation for why MDB executed:

Implementation Arrangements (including procurement of goods and services): This Sub-program will be implemented through Strategic Investments of Honduras (INVEST-H) as trustee, an implementation agency with broad experience in Project implementation funded by development multilateral banks. And the technical part by MiAmbiente through the Directorate of Water Resources and CENAOS-COPECO.

<b>Pilot Program for Climate Resilience</b>			
<b>Project/Program Preparation Grant Request</b>			
1. Country/Region:	Honduras, Central America	2. CIF Project ID#:	(Trustee will assign ID)
3. Program Name:	Strategic Program for Climate Resilience: Honduras <b>Sub-Program 2:</b> Comprehensive management of resilient water resources through the strengthening of water and the use of safe water		
4. Tentative Funding Request (in USD million total) for Project at the time of SPCR submission (concept stage):	<i>Grant: USD\$ 45,000,000</i>	<i>Other contributions: USD\$ 0</i> <i>Government: USD\$ 0</i>	
5. Preparation Grant Request (in USD million):	USD\$ 0.90	<i>MDBs: WBG, IDB</i>	
6. National Project Focal Point:	Ministry of Energy, Natural Resources, Environment and Mines (MiAmbiente), Elvis Yovanni Rodas Flores, Undersecretary of State in the Office, of Energy and Natural Resources.		
7. National Implementing Agency (project/program):	Institution of Community development, Water and Sanitation (IDECOAS)		
8. MDB PPCR Focal Point and Project/Program Task Leader Team (TTL):	<i>Headquarters-PPCR Focal Point: Kanta R. Riguard, Lead Environmental Specialist</i>  <i>With support from Gloria Visconti, Climate Change Lead Specialist, IDB</i>	<i>TTLs: Marco Agüero Senior Water and Sanitation Specialist Omar Samayoa, Climate Change Specialist, IDB</i>	
<p>Description of activities covered by the preparation grant: The preparation funds will allow the development of the following activities:</p> <ul style="list-style-type: none"> <li>• Compiling information</li> <li>• Preparing the terms of reference for the different activities</li> <li>• Technical, managerial and financial Project analysis</li> <li>• Consultation Workshops</li> <li>• Training services</li> <li>• Institutional development</li> <li>• Systematizing, disclosure and promotion of lessons learned</li> <li>• Definition of the different costs of the sub-program components,</li> </ul>			

- Preparing instruments for the environmental and social safeguards caused by the project (social study social, including the analysis and mapping of the stakeholders; environmental study; and socio-environmental framework) according to national legislation and WB and IDB safeguards.
- Assessment on potential private sector participation
- Project follow-up and evaluation, including the definition of monitoring and evaluation indicators, as well as the mechanisms for their collection, processing and diffusion.
- Baseline studies
- Missions and experience exchanges or study tours
- Translations
- Logistics and others

#### Outputs:

Deliverable	Timeline
Complete portfolio with detailed designs of the Project budget	At the end of December, 2018
Terms of reference for consultants, services and equipment	At the end of December, 2018

#### Budget (indicative):

Expenditures	Amount (USD) - estimates in millions
Consultants and Firms	0.54
Equipment / Investment / Services	0.072
Workshops / seminars	0.036
Travel / transportation	0.036
Others (admin costs / operational costs)	0.18
Contingencies (max 10%)	0.036
<b>Total Grant Cost</b>	<b>USD \$ 0.90 M</b>
Other contributions:	0
Government	0
MDB	0-
Private sector	0-
Others (please specify)	0-
<b>Total</b>	<b>USD \$ 0.90 M</b>

#### Timeframe (tentative)

Delivery of the project document (PAD) to the PPCR Sub-Committee: March 2018  
Approval by the Board of the World Bank: Before July 2018

Other Partners involved in project design and implementation:

IDB

WBG

Donor Round Table

If applicable, explanation for why MDB executed:

Implementation Arrangements (including procurement of goods and services): This Sub-program will be implemented through Strategic Investments of Honduras (INVEST-H) as trustee, an implementation agency with broad experience in Project implementation funded by development multilateral banks. And the technical part by IDECOAS with support from MiAmbiente's Directorate of Water Resources.

<b>Pilot Program for Climate Resilience</b>			
<b>Project/Program Preparation Grant Request</b>			
1. Country/Region:	Honduras, Central America	2. CIF Project ID#:	(Trustee will assign ID)
3. Program Name:	Strategic Program for Climate Resilience: Honduras <b>Sub-Program 3:</b> Climate Smart Agriculture and sustainable food security		
4. Tentative Funding Request (in USD million total) for Project at the time of SPCR submission (concept stage):	<i>Grant: USD\$ 30,000,000</i>	<i>Other contributions: USD\$ 0</i> <i>Government: USD\$ 0</i>	
5. Preparation Grant Request (in USD million):	USD\$ 0.90	<i>MDBs: WBG and IDB</i>	
6. National Project Focal Point:	Ministry of Energy, Natural Resources, Environment and Mines (MiAmbiente), Elvis Yovanni Rodas Flores, Undersecretary of State in the Office, of Energy and Natural Resources		
7. National Implementing Agency (project/program):	Ministry of Agriculture and Livestock (SAG)		
8. MDB PPCR Focal Point and Project/Program Task Leader Team (TTL):	<i>Headquarters-PPCR Focal Point: Kanta R. Riguad, Lead Environmental Specialist</i>  <i>With support from Gloria Visconti, Climate Change Lead Specialist, IDB</i>	<i>TTLs: Marco Agüero Senior Water and Sanitation Specialist Omar Samayoa, Climate Change Specialist, IDB</i>	
<p>Description of activities covered by the preparation grant: The preparation funds will allow the development of the following activities:</p> <ul style="list-style-type: none"> <li>• Compiling information</li> <li>• Preparing the terms of reference for the different activities</li> <li>• Technical, managerial and financial Project analysis</li> <li>• Consultation Workshops</li> <li>• Training services</li> <li>• Institutional development</li> <li>• Systematizing, disclosure and promotion of lessons learned</li> <li>• Definition of the different costs of the sub-program components,</li> <li>• Preparing instruments for the environmental and social safeguards causes by the project (social study social, including the analysis and mapping of the stakeholders; environmental study; and</li> </ul>			

<p>socio-environmental framework) according to national legislation and WB and IDB safeguards.</p> <ul style="list-style-type: none"> <li>• Assessment on potential private sector participation</li> <li>• Project follow-up and evaluation, including the definition of monitoring and evaluation indicators, as well as the mechanisms for their collection, processing and diffusion.</li> <li>• Baseline studies</li> <li>• Missions and experience exchanges or study tours</li> <li>• Translations</li> <li>• Logistics and others</li> </ul>	
<b>Outputs:</b>	
Deliverable	Timeline
Complete portfolio with detailed designs of the Project budget	At the end of December, 2018
Complete portfolio with detailed designs of the Project budget	At the end of December, 2018
<b>Budget (indicative):</b>	
Expenditures	Amount (USD) - estimates in millions
Consultants and Firms	0.54
Equipment / Investment / Services	0.072
Workshops / seminars	0.036
Travel / transportation	0.036
Others (admin costs / operational costs)	0.18
Contingencies (max 10%)	0.036
<b>Total Grant Cost</b>	<b>USD \$ 0.90 M</b>
Other contributions:	0
Government	0
MDB	0-
Private sector	0-
Others (please specify)	0-
<b>Total</b>	<b>USD \$ 0.90 M</b>
<p>Timeframe (tentative)</p> <p>Delivery of the project document (PAD) to the PPCR Sub-Committee: March 2018 Approval by the Board of the World Bank: before July 2018</p>	
<p>Other Partners involved in project design and implementation: IDB</p>	

WBG  
Donor Round Table

If applicable, explanation for why MDB executed:

Implementation Arrangements (including procurement of goods and services): This Sub-program will be implemented through Strategic Investments of Honduras (INVEST-H) as trustee, an implementation agency with broad experience in Project implementation funded by development multilateral banks. And the technical part by the Ministry of Agriculture and Livestock (SAG) with support from MiAmbiente.

<b>Pilot Program for Climate Resilience</b>			
<b>Project/Program Preparation Grant Request</b>			
1. Country/Region:	Honduras, Central America	2. CIF Project ID#:	(Trustee will assign ID)
3. Program Name:	Strategic Program for Climate Resilience: Honduras <b>Sub-Program 4:</b> Institutional strengthening and capacity building of human resources for climate change adaptation.		
4. Tentative Funding Request (in USD million total) for Project <sup>9</sup> at the time of SPCR submission (concept stage):	<i>Grant: USD\$ 12</i>	<i>Other contributions: USD\$ 0</i> <i>Government: USD\$ 0</i>	
5. Preparation Grant Request (in USD million):	USD\$ 0.35	<i>MDBs: WBG and IDB</i>	
6. National Project Focal Point:	Ministry of Energy, Natural Resources, Environment and Mines (MiAmbiente), Elvis Yovanni Rodas Flores, Undersecretary of State in the Office, of Energy and Natural Resources		
7. National Implementing Agency (project/program):	MiAmbiente / Vice-ministry of Energy with the support from Clima +.		
8. MDB PPCR Focal Point and Project/Program Task Leader Team (TTL):	<i>Headquarters-PPCR Focal Point: Kanta R. Riguard, Lead Environmental Specialist</i>  <i>With support from Gloria Visconti, Climate Change Lead Specialist, IDB</i>	<i>Marco Agüero Senior Water and Sanitation Specialist</i> <i>Omar Samayoa, Climate Change Specialist, IDB</i>	
<p>Description of activities covered by the preparation grant: The preparation funds will allow the development of the following activities:</p> <ul style="list-style-type: none"> <li>• Consultation Workshops</li> <li>• Training services</li> <li>• Institutional development</li> <li>• Systematizing, disclosure and promotion of lessons learned</li> <li>• Supporting institutions to define the different costs of the sub-program components,</li> <li>• Supporting institutions to prepare the environmental and social safeguards causes by the project (social study social, including the analysis and mapping of the stakeholders; environmental study; and socio-environmental framework) according to national legislation and WB safeguards.</li> </ul>			

<sup>9</sup> Including the preparation grant request.

- Project follow-up and evaluation, including the definition of monitoring and evaluation indicators, as well as the mechanisms for their collection, processing and diffusion.
- Supporting institutions to prepare the Baseline studies
- Assessment for the potential inclusion of other sectors that could be further prioritized in the SPCR.
- Facilitate and coordinate Missions and experience exchanges
- Logistics and others

#### Outputs:

Deliverable	Timeline
Complete SPCR Program Design Phase 1	At the end of December, 2018
Terms of reference for consultants and services	At the end of December, 2018

#### Budget (indicative):

Expenditures	Amount (USD) - estimates in millions
Consultants and Firms	0.24
Equipment / Investment / Services	0.032
Workshops / seminars	0.014
Travel / transportation	0.013
Others (admin costs / operational costs)	0.08
Contingencies (max 10%)	0.016
<b>Total Grant Cost</b>	<b>USD \$ 0.35 M</b>
Other contributions:	0
Government	0
MDB	0-
Private sector	0-
Others (please specify)	0-
<b>Total</b>	<b>USD \$ 0.35 M</b>

#### Timeframe (tentative)

Delivery of the project document (PAD) to the PPCR Sub-Committee: March 2018  
Approval by the Board of the World Bank: before July 2018

Other Partners involved in project design and implementation:  
IDB  
WBG  
Donors part of the Round Table

If applicable, explanation for why MDB executed:

Implementation Arrangements (including procurement of goods and services): This Sub-program will be implemented through Strategic Investments of Honduras (INVEST-H) as trustee, an implementation agency with broad experience in Project implementation funded by development multilateral banks. And the technical part by MiAmbiente / Vice-Ministry of Energy with the support of Clima+.

## ANNEXES

### **Annex 1. Description of Subprogram 1: Strengthen the management of meteorological knowledge, of water resources and climate data to inform decision-making.**

#### **Strengthen the management of meteorological knowledge, of water resources and climate data to inform decision-making.**

##### Sub-Program Basic Information

Name of Sub-Program                      Strengthening the management of meteorological knowledge, of water resources and climate data to inform decision-making.

Responsible government agency: MiAmbiente

Total Program:                      USD\$ 20.6 Million  
PPCR Funds                              USD\$ 10 Million  
MDBs Funding:                        USD\$ 10 Million  
Counterpart funds:                    USD\$ 0.25Millions

##### Summary

In order to have access to reliable, thorough, up-to-date and timely climate and hydrological information to deal with short, medium-term and projection of long-term climate risks and as a support for climate resilient development, the Program is proposed for **Strengthening the management of meteorological knowledge, of water resources and climate data to inform decision-making**, for the strengthening of early warning systems, assessment of hydrological and climatic risks, and water resources management.

In Honduras, there are laws and decrees that cover the functions of an SMHN and are distributed among several entities. In the main functions, climate related issues are the responsibility of CENAOS - COPECO and those related to the water resource is the responsibility of DGRH - MiAmbiente.

The country has a **Plan for the Modernization of Hydrological and Climatic Services**, within the framework of the World Meteorological Organization (WMO) Strategy for Capacity Building of National Hydro-meteorological Services, with the technical and institutional capacity to produce a good risk assessment and to communicate that risk to vulnerable groups and authorities responsible for the answer. This points to the development of user-driven services and effective delivery systems, focusing on vulnerable communities.

The Program has three Components, one, Strengthening of Climate Services, Meteorological Forecasts and, Temperature and Precipitation Scenarios; two, Component Strengthening of Information for Hydrological Planning of Water Resources and three, Water Balance Component.

##### Development Goals:

Strengthen the technical and institutional capacity of the Government of Honduras to produce a good risk assessment, with reliable, comprehensive, up-to-date and timely climate and weather information to address short- and medium-term climate risks and capable of communicating that risk to vulnerable

groups and response authorities, with the development of user-driven services and effective delivery systems, focusing on vulnerable communities.

#### Expected Strategic Outputs

4. Plan for Modernization of Hydrological and Climatic Services in implementation, generating informed and timely decision making.
5. Generation of forecasts of greater confidence by the robustness of the data.
6. Immediate and up-to-date availability of data, access to information.
7. Efficient Management and Administration of Water Resources.

#### Components and Activities

##### ***Component 1: Strengthening of Climate Services, Weather Forecasts and Temperature and Precipitation Scenarios Component, managed by CENAOS.***

- Analysis and institutional process improvement.
- Define standards for the production and processing of climate information;
- Climate information systems with data requirements, products and information in the management of risk of disasters, warnings to the population, provision of meteorological information, aeronautics, oceanography;
- Improve and expand the network of weather stations (training of technical personnel in maintenance and equipment;
- Diagnosis of users of information products and services.
- Station installation protocols.
- Recovery and digitization of physical climate records;
- Scientific research program on climate knowledge

##### ***Component 2: Strengthening of Information for Hydrological Planning of Water Resources Component, administered by the DGRH.***

- Organization of databases of access to the public;
- Technology platform strengthened for the operation of the Geo-portal;
- System of products and services;
- Scientific research program in collaboration with universities and / national and international research centers;
- Program of products and services specialized in the management of water resources for the allocation of water to users, operation of hydroelectric power plants, supply of Potable water to the population, among others.
- User interaction program. Exchange and update of data and water product providers.

##### ***Component 3: Develop the Aligned Water Balance to the Priorities of the ABS Plan Component.***

- Related to ABS Master Plan;
- Methodology to construct and update the interactive database of the national water balance;
- Design review and adjustments;
- Production and updating of data;
- Inter-institutional consultation processes;

- Accessible technological applications.
- Balance Dissemination at central, regional and local levels.

#### Justification of PPCR investments

The country has a Plan for the Modernization of Hydrological and Climatic Services, within the framework of the World Meteorological Organization (WMO) Strategy for Capacity Building of National Hydro-meteorological Services, with the technical and institutional capacity to produce a good risk assessment and to communicate that risk to vulnerable groups and authorities responsible for the answer. This points to the development of user-driven services and effective delivery systems, focusing on vulnerable communities.

For the design of the Plan, the technical capacities of the institutions that supply products and services have been evaluated. According to this study, the institutions part of the national hydro-meteorological capacities are (1) the Permanent Commission of Contingencies (COPECO) with the National Center for Atmospheric, Oceanographic and seismic Studies (CENAOS), which incorporated part of the Meteorological Service National (SMN), COPECO focuses on early warning and hydro-meteorological monitoring systems, civil protection services, weather forecasting for the public and climate services for government and the private sector; (2) the General Directorate of Water Resources (DGRH) in MiAmbiente carries out hydrological monitoring and planning of water resources; and (3) the Honduran Civil Aviation Agency (AHAC), which, from 2015, manages services related to aeronautical meteorology (Gobierno de Honduras, 2017).

The diagnosis of the study shows problems in the following aspects (Gobierno de Honduras, 2017):

- Problems in the field of information exchange, management and maintenance of the stations; low technical capacity to install the stations; difficulties in the exchange of information and access to historical information.
- There is currently no standardization for instrument calibration and data processing and formats, which makes it difficult to exchange information and any cooperating agency Program with an institution, does not necessarily benefit the system in general.
- The issue of institutional competitiveness creates an environment that makes it difficult to share and standardize information between institutions. The SANAA made a transfer of its stations to the SMN, but without quality control and data calibration information.
- Users have difficulty evaluating the quality and usefulness of the information provided because there is no transparency of the quality control methods that have been applied. In addition, this leads to difficulties in analyzing data and providing valuable information to users. This also makes it difficult to assess the value of the cooperating Programs.
- Based on the previous laws and mandates, the intermediate management of institutions and institutional actors do not usually recognize the mandates of the law. It is therefore difficult to have an easy process when a Program is funded by a foreign body and requires the cooperation of different institutions. There are often no clear guidelines for this cooperation and the sustainability of the Programs.

The history of studies of the water resource include, the Water Balance in Honduras of 1978, carried out by SERNA; the 2005 Water Balance prepared by CEDEX, within the framework of the Agreement of technical cooperation between SERNA and the Center of Studies and Experimentation of Public Works (CEDEX) of the Ministry of Development of Spain, which included: the inventory of water resources in natural regime; the identification and characterization of uses and demands of water and water balance, and the Report on the Evaluation of Water Resources in its National Regime

at the National level, carried out by the National Autonomous University of Honduras and the General Directorate of Water Resources with the support of the Adaptation Fund Program in 2014, which reported on the spatial distribution of precipitation and the volume of water input to each of the watersheds in the form of rainfall, climatic characteristics such as temperature and relative humidity, to estimate the volume losses due to potential evapotranspiration, and analysis of potential soil water balance.

In 2014, the results obtained in the evaluation of the water resource of Honduras in its natural regime, without anthropogenic influence in the hydrological cycle, were presented and a map was drawn up with a new administrative delimitation of the watersheds from the economic point of view with the purpose of establishing zones for strategic planning. As a result, 24 major watersheds and 114 sub-watersheds were defined (Figure 14). (Gobierno de Honduras, 2017).

Figure 15. Larger Watersheds of Honduras



Source: General Directorate of Water Resources 2014

The Government of Honduras and the cooperating community have identified the need to strengthen local capacity and technical and operational support of water information and climate to achieve greater efficiency and sustainability of development programs. Lack of capacity in institutions can make developing programs more vulnerable to failure. To meet the needs and responsibilities of an NMHS, the country could streamline its efforts towards a more effective integration of its various capacities, through better coordination between the government, the academic and private entities that currently operate. The need to update information on the resource to be managed, so as to enhance management, administration and investment in water resources has also been recognized, and to carry out a new water balance. The quality of information promotes the improvement of adaptation proposals and early warning systems, with special interest in the coastal areas where the Garífuna and Miskito populations of the Caribbean coast reside and the fishermen and small producers of the Gulf of Fonseca in the Pacific.

### Provisions, institutional agreements

The Component Strengthening of Climate Services, Meteorological Forecasts and Temperature and Precipitation Scenarios is the responsibility of CENAOS-COPECO, an entity that must convene the

stakeholders (Table 3) for the coordination and institutional collaboration required to implement the component.

The components, Strengthening Information for Hydrological Planning of Water Resources and Water Balance, are the responsibility of DGRH-MiAmbiente, which should call the institutions and organizations with which it will coordinate and collaborate for the execution of the components.

Table 4. Requirements of Data and Information of Institutions Providing Information that Operate Station Networks

Institution	Required data and information	Products and services required for your own and other users' operation
Honduran Civil Aviation Agency (AHAC)	<p>Real-time weather data at airports and aerodromes taken by automatic stations.</p> <p>Aeronautical meteorological data and products recorded by AWOS automatic stations.<sup>118</sup></p> <p>Information on storms and other adverse weather conditions in real time provided by weather radar.</p> <p>Meteorological survey data of synoptic, automatic stations and radio for preparing and verifying meteorological forecasts.</p> <p>Satellite, meteorological and environmental information (forest fires, volcanic ash, others).</p>	<p>Aeronautical meteorological information for navigation</p> <p>Information on terminal and area aviation weather forecasts, and presence of adverse events</p> <p>Weather information on airports in real time.</p>
COPECO- CENAOS	<p>Meteorological survey data of synoptic, automatic stations and radio for preparing and verifying meteorological forecasts.</p> <p>Meteorological radar data and products for short-term monitoring and forecasting of extreme events</p> <p>Extreme</p> <p>Real-time weather satellite information for monitoring weather conditions (meteorological conditions, tropical storms, others).</p> <p>Access to online satellite information for monitoring of environmental and climate conditions (forest fires, volcanic ash, soil moisture, vegetation indexes, others).</p> <p>Data of real-time hydrometric stations (flows, river levels) for the preparation of hydrological forecasts.</p> <p>Electrical discharge network data for monitoring of weather</p>	<p>Daily forecasts for the general population.</p> <p>Weather forecasts for near conditions and extreme events (hurricanes, extreme precipitation or floods).</p> <p>Flow Forecasting for early warning systems</p> <p>early warning for flood prevention and forecasting landslides.</p> <p>Estimated satellite rainfall information.</p> <p>Meteorological radar products: very short term monitoring and forecast of meteorological conditions such as extreme rains, storms, estimated rainfall at 1 hour, one day, one week, etc., hail, others.</p> <p>Seasonal and inter-annual climate forecasts, including ENSO monitoring.</p> <p>Drought monitoring system, including use of satellite information and weather forecasts.</p>

Institution	Required data and information	Products and services required for your own and other users' operation
	conditions and forecasts. Online access to data and products from weather and climate forecasting centers at regional or global level (NOAA, European Center, others).	Agro-climate bulletins for the agricultural sector (joint production with SAG).
MiAmbiente DGRH	Data of hydrometric stations in real time and information of flows and levels of rivers for preparing hydrological forecasts, water balances, etc. Meteorological radar data and products for monitoring and estimating rainfall. Satellite information (soil moisture, vegetation index, others). Hydrological modeling for flow forecasting Monitoring and groundwater data to assess their availability. Monitoring and water quality data in cooperation with SANAA.	Preparation of water balances by watershed, taking into account, supply and demand of water. Hydrological forecast for flow estimation. Identification of discharges affecting the quality of surface and groundwater. Estimation of evapotranspiration from automatic meteorological station data. Seasonal and monthly climatic forecast of precipitation and temperature. Availability of water for agricultural irrigation areas. Drought monitoring system, including use of satellite information and climate forecasts, in cooperation with COPECO-CENAOS. Agro-climate information for the agricultural sector of the Dry Corridor with support from USAID-GEMA.
SANAA	Hydrometric and meteorological station data and flow information for	Developing water balances by watershed,
Source: Government of Honduras, Plan for the Modernization of Hydro-meteorological and Climatic Services Honduras, 2017		

## Gender and ethnicity issues

The production of data and climate warnings for male and female producers of family subsistence and marketing products, to generate information that is communicated in a timely manner and by the appropriate means contributes to the prevention and decision-making of climate risks.

To the extent that climate and hydro-meteorological evaluations are strengthened, there are better opportunities to improve proposals to alleviate the domestic burden of small farmer women by having alternatives to adapt to activities that require energy and water consumption.

## Indicators

Name of indicator:	Reliable and timely meteorological communication for potentially affected populations.
Sub Program to which it is linked:	Strengthening of Climate Services, Weather Forecast and Temperature and Precipitation Scenarios.
Objective to which it is linked:	The Government of Honduras has the technical and institutional capacity to produce a good risk assessment, with reliable, comprehensive, up-to-date and timely climate and weather information to address short and medium-term climate risks and is capable of communicating that risk to vulnerable groups and response authorities, with the development of user-driven services and effective delivery systems, focusing on vulnerable communities.
Result to which it is linked:	Use of climate information in decision making routinely applied
Description of indicator:	Authorized institutions are encouraged to explore the use of innovative approaches for dissemination of the information, such as ITCs (apps, etc), besides the traditional notices, bulletins, alerts, to announce the presence of a potentially harmful hydro-meteorological phenomenon, the registration must be done in a disaggregated way according to the reason for the communication.
Unit of measure:	Number
Calculation formula:	Total annual sum of reports of all authorized institutions as a result of the annual summation by type of communication.
Collection of data sources:	communications from COPECO, Infoagro and others.
Frequency:	Annual
Observations:	The communications are due to the presence of potentially harmful phenomena for the population, the economy or infrastructure. They are erratic in nature so a statistical measure cannot be established, they can affect the whole country or a part of the territory. Comparisons can be made with historical series. The communications must contain basic information that allows it to be used as historical databases (date, type of phenomenon, affected territory, temporality, etc.) in the future.

## Risks and corrective measures

1. Institutions present resistance or face institutional difficulties in the process of designing protocols and integrating databases.
  - Provide support and technical strengthening (equipment, software, training, etc.) to the extent that they have the evidence of collaborative processes.
  - A program progressively integrating the databases.
  - Initiate the integration of databases with institutions that have already collaborated on existing products and services.
  - Pilot testing of new products.
2. Technical limitations to guarantee the reliability of the data.

- Take advantage of the technical studies that already exist on XX number of hydro-meteorological stations to focus the collaborative efforts.

## **Annex 2. Description of Subprogram 1: Resilient Water Resources Management through Strengthening Water Governance.**

### **Basic Program Information**

Name of Sub-Program: Resilient Water Resources Management through Strengthening Water Governance.

Responsible government agency; MiAmbiente and IDECOAS / SANAA

Total Program:	USD\$ 105.4 Million
PPCR Funds	USD\$ 45 Million
MDBs Funding:	USD\$ 59 Million
Counterpart funds:	USD\$ 0.5Millions

### **Summary**

The Government recognizes that poverty, scarcity of public services and climate change must be addressed comprehensively. Honduras has been significantly affected by climate events. According to the Global Climate Risk Index for 2015 (Germanwatch), Honduras was the country most affected by climate change between 1996 and 2015. The accelerated urbanization in Honduras has increased exposure and vulnerability to natural catastrophic events. On average, Honduras loses 2.6 percent of national GDP each year as a result of climate events(Banco Mundial, 2017). The combination of global climate change and increased climate variability are likely to exacerbate exposure to droughts, floods, erosion and landslides<sup>10</sup>, which will affect the availability and quality of the water resource.

To respond to the growing climatic threats, the GoH launched a National Climate Change Strategy in 2010 and a Water, Forest and Soil Master Plan for 2017 to 2030 period. These initiatives will also be supported by the Pilot Program for Climate Resilience (PPCR), currently being prepared by the Secretariat of Energy, Natural Resources, Environment and Mines (MiAmbiente) and implemented by INVEST-H. Previous initiatives emphasize the importance of water security and include strategies to strengthen the capacity of local governments to manage water resources and conserve water for human consumption, among other goals. In addition, these initiatives complement the 2020 Honduran economic development strategy launched by the GoH, a program that guides national economic development in the next five years and focuses on the expansion of tourism, textiles, intermediate goods manufacturing, housing and agro-industrial sectors. Honduras 20/20 recognizes that the well-being of these sectors also depends on access to quality public services.

The Water resources are plentiful throughout Honduras; however, the country is increasingly affected by water scarcity. With 93 billion cubic meters / year of fresh surface water and an average availability of water per capita of approximately 11,381 cubic meters / year, the country in general is well above water stress levels. Honduras uses less than 9.1 percent of available water resources. However, urban and rural areas are increasingly affected by irregular patterns of rainfall which causes a shortage of water throughout the year. In particular, water scarcity has become a problem in major urban cities such as Tegucigalpa, exacerbated by rapid urbanization where Potable water for Tegucigalpa comes mainly from surface waters and its main water system operates with a deficit of 55 percent. SANAA

---

<sup>10</sup> The climate patterns identified by the Ministry of the Environment (MiAmbiente) suggest that by 2020 there will be a decrease of approximately 6 percent in annual rainfall in the west and south of the country and by 2050, a 20 percent decrease in rainfall in most of the country.

estimates that the current demand for water throughout the city is 4 m<sup>3</sup> / s, while the system only provides about 1.8 m<sup>3</sup> / s, so water rationing is in place throughout the year, especially for families that inhabit the peri-urban zones.<sup>11</sup>

The Sustainable Development Goals (SDG) in Water under an Integral Water Security Approach is a State commitment. The Sustainable Development Goals (SDGs) agreed in 2015 set goals that oblige States to rethink how to address access gaps, but with an emphasis on the quality of Potable Water and Sanitation services and warn of the importance of being aware that phenomena related to climate change may have important consequences for the durability of the results achieved and may deteriorate the levels of economic and social development that Honduras will achieve in the future. (PNUD, 2010). The universalization of the service, i.e. achieving 100 percent access to safe and affordable Potable water and sanitation by 2030 is a challenge for the country. In addition to expanding coverage, Honduras has to make a major effort to improve water quality in order to achieve these goals through the promotion of technological mechanisms and instruments that support the advancement of water resource management models for have the capacity to respond to the stress or seasonal water excess characteristic of the country.

The lack of potable water and sanitation services affects the quality of life, especially for women and children, as a special effort must be made to carry the necessary water to the home. This reduces access to the benefits of development and individual and collective well-being, conditions that are present mainly in the rural and peri-urban marginalized communities and in part cause rural-urban migration, which aggravates the problems of service provision and job offer in the cities.

The Government of Honduras has designed the Master Plan Water, Forest, Soil, to be able to withstand climate change and is advancing in a water management system that allows it to manage the climatic seasons determining the stress or excess of water, according to the dry or rainy seasons.

The Sub Program "**Strengthening the population's climatic resilience through increased capacity for integrated management of water resources, their distribution and use**", has four components: one, Increased water storage capacity under the National Water Harvest Program: Technology and Infrastructure; two, Promote the design and implementation of financing mechanisms for the integrated management of water resources within the framework of the Water and Sanitation Financial Policy: a) National Water Fund, b) National Potable Water and Sanitation Fund; strengthening water governance as a climate resilience strategy in the Frame of the National Watershed Management Strategy and ACC; a) at the level of the sub-watershed and micro-watershed and b) at the level of water catchment and c) at the level of municipal water and sanitation providers / companies and d) Institutional Strengthening for decision making in the Management of Water Resources at central and local level.

## **Development Goals**

Promote a sustainable water management system for the different uses of the water resource, which allows it to reach the permanent balance between supply and demand of sustainable water services, with universal coverage, effective, efficient and real services that improve the quality of life, hygiene and health.

The Honduran government and Honduran society have generated legal, policy and planning tools that support progress in water resource management models and water and sanitation systems with the capacity to respond to seasonal stress or water stress characteristic of the country, under schemes that

---

<sup>11</sup> Case Study "Study of the Contribution of Forests to the Processes of Adaptation to Climate Change", World Bank. 2014.

are financially and environmentally sustainable, including: a) the General Water Law; b) the Framework Law on Potable Water and Sanitation; c) the National Potable Water and Sanitation Plan (PLANASA); d) the Financial Policy for Potable Water and Sanitation and e) the Water, Forest and Soil Plan.

## **Expected Strategic Results**

- 4.1 MAIN: Increase of the conditions of Hygiene, nutrition and health of the population in the benefited sites.
- Improving the competitiveness of small producers
  - Increased quality and quantity of water resources at target sites
  - Increase access and quality to water and sanitation services
  - Formulation of Policies, Strategies, Plans based on quality information.
  - At least two government institutions strengthened in the process of planning and monitoring climate resilience initiatives.
  - At least 50% of the water boards in the territories most vulnerable to drought regularize their legal status

## **Components and activities**

***Component 1. Water storage: Technology, financing mechanisms and water governance as a strategy of climate resilience.***

- Manage the Operation of the National Institute of Water Resources;
- Delimitation of areas under special regime by water in the Dry Corridor.
- Organize, Strengthen and Equip Watershed Organizations.

***Component 2: Water storage, its technology and financing mechanisms to increase access to water as a strategy of climate resilience.***

- Support to the Water Harvest Program in rural areas within the Dry Corridor and other Areas with Water Stress.
- Pilot in Peri-urban Zone in Tegucigalpa to promote Governance and Management of Potable Water and improve Resilience of Families in Poverty.
- Support for the Design of the Water Reservoir Program in 17 urban cities, SANAA-AMHON initiative under autonomous and sustainable financial schemes.
- Implementation of the National Water and Sanitation Fund to promote water resource management infrastructure with differentiated territorial scales (mainly rural towns, small towns), under circular / green economy schemes.
- Design and implementation of an innovative mechanism for the regulation of systems, water use, user participation and compensation mechanisms for environmental services.
- Reposition and Rehabilitation program

***Component 3: Promote safe water and climate resilience mechanisms in the distribution of Potable water and sanitation services in addition to the Water and Sanitation Sustainability Project in Honduras.***

- Expand coverage of SANAA's water and sanitation system (SIASAR) by capturing information that affects the availability of water resources in rural water and sanitation

systems.

- Implement Comprehensive management plans for areas producing water for human consumption in micro-basins and sub-basins prioritized in cities located within the dry corridor, integrating ethno-cultural concepts and practices. Including the regulation of the water management plans for the Rural water boards.
- Strengthen with rapid impact infrastructure decentralized water and sanitation services in the smaller and intermediate cities within the dry corridor.
- Promote mechanisms to control the demand at the system level and inside households: a) replicate the experience of the PROMOSAS Project with the Performance Contract to Control Losses by extending it to other sectors of Tegucigalpa, through the reestablishment of telemetric control systems and b) program mass media as an instrument to control the use of water inside homes.

***Component 4: Institutional strengthening for decision-making in the management of water resources at central and local level.***

- Public Registry of Surface Water and Groundwater, integrated into the Land Registry System, in partnership with Decentralized Urban Providers.
- Implement (software and equipment) the Superficial and Underground Waters Monitoring Network Administration System, joining the SANAA, COPECO, ENEE and RH network systems;
- Strengthen the Coordination within the Biological Corridors in the prioritized Sub-watersheds, ensuring the integrated management of water resources, integrating coastal marine systems and indigenous peoples;
- Central Forested Corridor (JMH);
- Biological Corridor of the Honduran Caribbean: Tela, Omoa and Puerto Cortés.

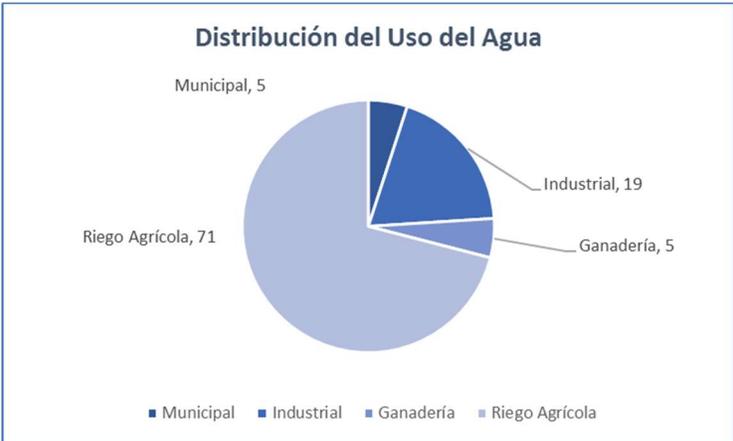
**Justification of PPCR Investments as an Instrument of Multi-Sectoral Intervention**

Honduras is the country with the highest forest potential in Central America. About 87 percent of its surface is suitable for forestation. Its natural forests cover about 54,000 km<sup>2</sup>, almost half of the national territory. The rainforests of Honduras are disappearing rapidly. In 2000, 48.1% of the total area of the country was covered with forest, but 1.03% of forested areas disappear annually: one of the highest rates of deforestation in the world (Gobierno de Honduras, Banco Mundial, 2006 b). The increase in population led to the clearing of land for cultivation and the cultivation of marginal soils in rural areas, as well as uncontrolled settlements outside the urban areas. All these factors contribute to deforestation and therefore to soil erosion, therefore it is important to promote environmental benefits, by reducing the rate of deforestation and improving the conditions of the country's water basins by disseminating best practices at the national and local levels.

It is necessary to implement a Water Security approach, not just coverage per se. The water network of the country and the formation of aquifers (groundwater) is supplied by a rainfall regime that ranges from 500 to 3,800 millimeters of rain per year. Although the average rainfall is high (1,800 mm per year), it must be recognized that water is not available throughout the year, so the construction of catchment and damming facilities for multiple uses should become a medium and long-term benchmark, in order to increase the depressed rate of productive use of the water resources that transit the country. This will be fundamental to favor the production, productivity, economic growth and quality of life of our population, (Congreso Nacional República de Honduras, 2010).

Honduras consumes approximately 1.1 million m<sup>3</sup> per year of which 71% is consumed for agricultural purposes in the majority without applying efficiency criteria. The greater use of water in agriculture is for crop irrigation (Figure 15), where less than ¼ of viable land in the country is now irrigated by gravity or flood, which is the most common method, and at the same time the least efficient (only 30% efficiency<sup>12</sup>), compared to drip irrigation that reaches an efficiency of up to 90%. In the case of hydropower, only 36% of the total installed capacity is used. Electricity demand grows by about 4% per year, suggesting the possible need to increase hydroelectric capacity (Banco Mundial, 2011) .

Figure 16. Competition in the Use of Water



Source: World Bank, using data from AQUASTAT, FAO, United Nations, 2011.

Competition for the use of water and contamination of untreated water degrades the quality of water resources in the country. The main river basins and the lake of the whole country are under pressure from growing populations and from agricultural, industrial and mining runoff. Despite progress in coverage, the service provided is often poor. In Honduras, approximately 90 million cubic meters of wastewater per year are discharged to the water without any treatment, ( FOCARD-APS, 2013). In addition, 2.2 million people are still without access to improved sanitation services, of which 0.5 million are still defecating outdoors; a scenario that is complicated by the lack of regulations for the management of fecal sludge, which contributes to the degradation of aquifers and the low quality of surface water resources, with adverse effects on health and economy. In Tegucigalpa alone, the lack of adequate water infrastructure and poor sanitation services cost more than US \$ 135 million per year( FOCARD-APS, 2013)

The Universalization of Potable Water and Sanitation in the country is a State Commitment. In the 2010-2022 National Plan, problems are recognized in the quality of services, which are not adequate, affecting citizen health security. 90% of the water supply is intermittent, only 44% have effective chlorination and no water quality monitoring and control systems are available. The coverage of water and sanitation was included among the strategic guidelines of the National Plan in component No. 5: health as a basis for improving living conditions(Congreso Nacional República de Honduras, 2010). In the National Potable Water and Sanitation Plan, it again prioritizes the proper management of potable water services as a fundamental axis to meet national goals and ODS.

Despite the reforms, there are still weaknesses at the local level in watershed management and water

<sup>12</sup> Efficiency is the maximum use made of water, measured by the amount of water that can be wasted during the journey from the water source to the application on the soil.

and sanitation. The provision of services of potable water and sanitation is the responsibility of the Municipalities and W&S Boards, and in a transitional form SANAA continues to operate eight systems that supply the same number of cities, only cities like Tegucigalpa and El Progreso manage sanitary sewage<sup>13</sup>. A sampling of the quality of services in 54 cities ([www.ersaps.hn](http://www.ersaps.hn)) evidences the poor quality in the provision of the service in terms of continuity, water quality and coverage; in relation to sanitary sewage the coverages are low, the physical state of the systems is poor and, generally, lacking purification.

In addition to the low capacity for water storage the lack of measurement of water consumption in Honduras limits the resilience of water and sanitation systems. Few service providers or municipalities are using micro-meters to measure consumption, it is estimated that intermediate urban providers have micro-meter coverage of less than 20% on average. The lack of meters reduces efforts to conserve water for human consumption at the household level, limits the performance of the service provider by causing greater water stress to already deteriorated surface water sources and groundwater and hamper the efforts of the campaigns for a rational use of water. Without meters, the service provider cannot fully control the system, easily identify and prevent water loss, and limit the ability of providers to promote water conservation.

The lack of sanitation in most of the territory is a risk to the health of the poorest families and to the sustainability of the watersheds. The sanitation service (including sanitary sewage) has economic characteristics similar to those of the water service. It generally integrates the processes of collection treatment and disposal of waste waters. It is usual that the latter is associated with the charges of the PW service. Usually the volume and concentration of wastewater from consumers are not measured. Wastewater management, from its collection, possible treatment and health diversion, is reasonably acceptable - with its exceptions - in large and medium-sized cities (twenty larger human conglomerates). In dramatic contrast, such management is actually deficient within small populations and in rural areas (in Honduras, a total of 27,969 human settlements are estimated), including peri-urban areas where wastewater collection is deficient (Gobierno de Honduras, Banco Mundial, 2006 b).

There is a marked Inequality in Access and Quality of Water and Sanitation Services in the Country, access to W&S services is unevenly distributed throughout the country. Honduras ranks low in the Latin American region in terms of access and equity access to basic services such as electricity, water supply and improved sanitation, limiting the ability of many to escape poverty. Although coverage levels of water and sanitation services are increasing, they remain very uneven between income levels and the quality of service remains poor. By 2015, almost one-fifth of Hondurans living in extreme poverty did not have access to adequate water and sanitation services compared to only nine percent of the non-poor. Water consumption among the poorest is often lower, however, given the structure of the bulk tariffs, the poor typically pay the same amount as people who are consuming larger volumes of water.

The urban poor also suffer from a lack of access, investment in the provision of water services, has been insufficient to maintain existing coverage resulting in a smaller proportion of the urban population having access to improved water than in 1990, (MAPAS, 2013). Lack of access to safe Potable water and sanitation in schools also contributes to inequality in access to education with only 62 percent and 80 percent of schools in the country with access to improved sanitation facilities in rural and urban areas respectively. The insufficient supply sources in urban areas, coupled with the high cost of their development, hinders the incorporation into the conventional distribution system of

---

<sup>13</sup> Process of decentralization of the sector underway, it is estimated that, by the end of 2017, all systems, except Tegucigalpa will be operated locally, [www.conasa.hn](http://www.conasa.hn).

the population settled in developing neighborhoods, requiring ad hoc approaches not always understood and accepted by the population and government programs, that can lead to exclusion. It is estimated that 16% of homes in peri-urban areas could be connected to sanitary sewers.<sup>14</sup>

Women in peri-urban areas, are those most affected by Exclusion in the W&S service. The same study reports hauling the water from the water point to the homes; in general from distances less than 100 meters and in four communities, between 4% and 9% of homes with hauling distances of more than 500 meters; it is observed that the volumes carried, generally exceed 10 gallons. In most cases the family hauls water, followed in frequency by the mothers, daughters and sons, wasting time and opportunities because of the time invested in this activity(OMS, sf) .

At the governmental level, instruments, plans and policies have been worked out that contribute to frame the actions of the SPCR (Table 4), among them:

#### Alignment of Programs with Existing Instruments

	<b>Laws</b>	<b>Policies</b>	<b>Plans-Programs</b>
<b>General</b>			
<b>Adaptation to CC</b>	<ul style="list-style-type: none"> <li>• Country Vision Decree and Nation Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Cleaner Production National Policy (P &amp; L) of Honduras</li> <li>• National Strategy for Adaptation to CC.</li> </ul>	<ul style="list-style-type: none"> <li>• National Strategy for Adaptation to CC</li> <li>• Cleaner Production Strategy 2021.</li> <li>• Regional Development Plans</li> <li>• W&amp;S Program</li> </ul>
<b>Sector Specific</b>			
<b>Water Resource Management</b>	<ul style="list-style-type: none"> <li>• General Water Law</li> </ul>	<ul style="list-style-type: none"> <li>• National Water Resources Policy</li> </ul>	<ul style="list-style-type: none"> <li>• National Action Plan to Combat Desertification and Drought</li> <li>• National Irrigation and Drainage Plan</li> </ul>
<b>Potable Water and Sanitation Management</b>	<ul style="list-style-type: none"> <li>• Potable Water and Sanitation Law</li> <li>• Municipalities Act</li> </ul>	<ul style="list-style-type: none"> <li>• National Water and Sanitation Policy</li> <li>• Financial Policy of the Potable Water and Sanitation Sector</li> </ul>	<ul style="list-style-type: none"> <li>• National Potable Water and Sanitation Plan</li> </ul>
<b>Forest Management</b>	<ul style="list-style-type: none"> <li>• Forestry Law</li> </ul>	<ul style="list-style-type: none"> <li>• Forestry Policy</li> </ul>	<ul style="list-style-type: none"> <li>• National Reforestation Plan</li> <li>• National Forestry Program</li> </ul>

In 2014, SERNA (MiAmbiente), through the General Directorate of Water Resources (DGRH), produced a map with a new administrative delimitation of watersheds from the economic point of view, in order to establish zones for strategic planning. As a result, 24 major watersheds and 114 sub-

<sup>14</sup> A Study on Exclusion in the Water and Sanitation Sector of Honduras (RASHON, 2013) reveals that populations in peri-urban neighborhoods practice water disinfection with the SODIS method between 6% and 70% of households. The filtration and boiling of water is reported with values between 3% and 21% of homes and those that buy bottled water between 11% and 44% of homes. Practically all of the houses have on-site wastewater, with a high percentage of simple pit and a lower percentage of latrines with water closure.

watersheds were defined (Gobierno de Honduras, 2017). At the regional level, nine of the country's 16 regions already have Regional Development Plans, which include complementary strategic actions for the protection, conservation and management of natural resources. Although the country has made progress in the development and implementation of instruments for the management of natural resources, they have been developed from sectorial visions without developing an integrated management framework linked to the regional and local scope.

There is a need for a Comprehensive Management of Water Production Basins in the Country. Water, Forest, Soil Plan (2017), seeks to promote the development of good practices based on these successful experiences under a national strategic framework linked to the territories and critical areas, within a comprehensive Management of Watersheds - Territorial Management - sustainable forestry Management, agriculture / livestock - Risk Management (Clima +, 2017).

### **Provisions, Institutional Agreements**

The execution of components one and four, To promote Governance in the sustainable management of water resources and Institutional Strengthening for decision-making in Water Resources Management at central and local level, respectively, will be under the responsibility of MiAmbiente, which will convene public, private and public institutions and civil society with interest in the subject, including Universities, CENAOS, COPECO, Co-managers, Watershed Councils among others.

The implementation of Components two and three, Water storage, its technology and financing mechanisms to increase access to water as a strategy of climate resilience and Promote safe water and mechanisms of climate resilience in the distribution of water services and sanitation. It will be under the responsibility of MiAmbiente and IDECOAS, convening public sector institutions, ICF, SAG, AHMON, Mayor's offices and SANAA, Presidential Delegate CC and private enterprise, Potable Water and Sanitation Providers and the Association of decentralized Water and Sanitation Providers (AHPSAS), to participate in the design, and execution of the project.

### **Gender and Ethnicity Issues**

The development of water and sanitation programs and projects necessarily includes participation and equal opportunities for women in the project cycle and in the delivery of services, especially in rural and peri-urban areas. However, in spite of the efforts, existing data indicate that the membership of the boards constitute 30%, with very low participation in the most important positions, their interventions are restricted by their own family limitations and / or limitations derived from their idiosyncrasy. Limitations on adequate valuation, training and promotion currently prevent full participation in water and sanitation projects, and it is necessary that actions aimed at strengthening their participation transcend the project cycle. To improve this situation, PPCR strategies and initiatives should give special importance to the development of actions that overcome the constraints imposed by the existing cultural pattern and poverty situation. It will be necessary to coordinate with the National Institute of Women (INAM), to strengthen the inclusion processes.

The analysis of the National Plan for Potable Water and Sanitation (PLANASA) EMAPS has found the following needs, which are valid for indigenous and Afro-descendant populations.

- The different entities created in the Framework Law of the sector must take into account the knowledge of indigenous and Afro-Hondurans through their involvement in the processes and in each of the stages of the projects that affect their communities, in addition, the legal framework must be respected which protects the rights of these peoples, especially ILO

Convention 169.

- More in-depth studies are needed to reduce the large gap between water supply and sanitation services in all indigenous and Afro-Honduran communities in the municipalities under study, invest in rainwater disposal networks, sanitary sewage, solid waste collection must be a priority.
- The accompaniment of the municipalities is important to promote the inclusion of these communities of municipal plans, support in the issues of land purchase where sources are located, acquisition of wholesale inputs to take advantage of economies of scale.

## Indicators

<b>Description</b>	<b>Indicator Details</b>
<b>Name of indicator</b>	<b>Advocacy in environmental diseases in populations of target sites.</b>
Component to which it is linked:	Strengthening of Water Resources Management.
Objective to which it is linked:	Promote a sustainable water management system for the different uses of the water resource, which allows it to reach the permanent balance between supply and demand of sustainable water services, with universal coverage, effective, efficient and real services that improve the quality of life, hygiene and health.
Result to which it is linked:	Increase of the conditions of Hygiene, nutrition and health of the population in the benefited sites.
Description of indicator:	Health Indicators at the community or municipal level of the beneficiary sites.
Unit of measure:	Rates
Calculation formula:	No. affected population / Total population * 1000
Collection of data sources:	Ministry of Health
Frequency:	Annual
Observations:	Information compiled by the Health Centers.
<b>Name of indicator:</b>	<b>Coverage in Hectares of irrigation by water harvests</b>
Component to which it is linked:	Increase of the conditions of Hygiene, nutrition and health of the population in the benefited sites.
Objective to which it is linked:	Promote a sustainable water management system for the different uses of the water resource, which allows it to reach the permanent balance between supply and demand of sustainable water services, with universal coverage, effective, efficient and real services that improve the quality of life, hygiene and health.
Result to which it is linked:	Improving the competitiveness of small producers
Description of indicator:	Increase or decrease in the number of Hectares of land for cultivation under the system of water harvests.
Unit of measure:	Number of Has.
Calculation formula:	Summation of irrigated land
Collection of data sources:	Annual data prepared by INFOAGRO -SAG
Frequency:	Annual

<b>Description</b>	<b>Indicator Details</b>
Observations:	A standardized registration system will be designed, with basic information to evaluate the impact of this technology.
<b>Name of indicator:</b>	<b>Increase of the average of surface and underground flow in dry season, generated by Water Resources.</b>
Component to which it is linked:	Promote the design and implementation of financing mechanisms for the integrated management of water resources within the framework of the Water and Sanitation Financial Policy: a) National Water Fund and b) National Potable Water and Sanitation Fund.
Objective to which it is linked:	Promote a sustainable water management system for the different uses of the water resource, which allows it to reach the permanent balance between supply and demand of sustainable water services, with universal coverage, effective, efficient and real services that improve the quality of life, hygiene and health.
Result to which it is linked:	<ul style="list-style-type: none"> <li>a. Increased quality and quantity of water resources at target sites</li> <li>b. X% of water boards in areas with water deficit that have regularized their legal regime and management plans</li> </ul>
Description of indicator:	The practices of storage and protection of watersheds, generates a better opportunity to use the water available from precipitation.
Unit of measure:	Average
Calculation formula:	A standardized methodology is designed
Collection of data sources:	INE or ERSAPS.
Frequency:	Annual
Observations:	The Water Balance is the basic tool for generating information about the availability of water resources. It should systematize, develop and innovate measuring instruments.

## **Risks and Corrective Measures**

The institutions do not reach agreements to adopt an institutional improvement plan to adapt to climate change.

- Design an incentive system.
- Demonstrate long-term and sustainability benefits.
- Campaigns on costs and benefits of water resource management.

### **Annex 3. Description of Subprogram 3: Climatically Resilient Smart Agriculture and Sustainable Food Security.**

#### **Basic Program Information**

Name of Sub-Program: Climatically Resilient Agriculture and Sustainable Food Security

Responsible Government Agency: SAG

Total Program:	USD\$ 73.4 Million
PPCR Funds	USD\$ 30 Million
MDBs Funding:	USD\$ 42 Million
Counterpart funds:	USD\$ 0.5 Millions

#### **Summary**

Honduras is a country with an economy based mainly on agriculture that contributes about 15% to the GDP with banana, coffee, and African palm as its main products of export. In Central America, the agricultural sector has been one of the fundamental axes that energize the economies, contributing with 11% of the regional GDP, with 18% considering the agro-industry, and with 35% of the total exports of the region. The agricultural sector is one of the main ones affected by the losses and damages caused by extreme climatic events, increasingly affecting the yields and competitiveness of agricultural and agro-industrial production, potential growth, employment and rural income.

The production of basic grains - rice, corn, sorghum and beans - is carried out by small producers, who generally do not have access to irrigation systems, technical support, credit, storage and marketing systems. Coffee is one of the most important export products, on average about 30% of total exports, with the participation of approximately 125 thousand farmer families of which more than 90% are small and medium producers, and it has been counted that 20% of coffee exports are produced by female-headed households.

The National Adaptation Strategy for Climate Change for the Agro-food Sector of Honduras (2014-2024) has been designed based on available information on climate change, and although detailed studies for the variety of products in the sector have not yet been made, studies for the most sensitive products in the national diet and income generation, mainly of populations and systems and socio-economic sectors in situations of greater vulnerability, such as: communities of indigenous, Afro-descendant, rural, urban-marginal and peasants in socially and economically disadvantaged situations, small agricultural producers and human groups living in areas multi-risk.

The studies agree that progress must be made in the generation, management and acquisition of knowledge; management of resilient water resources; conservation of critical ecosystems; diversification and risk management. As part of a global and holistic strategy that integrates sustainable management of soils and water into production systems and landscapes as a way to increase resilience of ecosystems and livelihoods.

The country, is striving to strengthen the political and institutional system with the adoption of national policy instruments, which in turn are framed in the processes of adopting regional policies for adaptation to climate change. With the objective of developing programs and implementing

environmental and social measures conducive to sustainable family agriculture, to increase productivity, sustainable intensification of production and access to markets and inclusion in value chains, **the** diversification, natural resource management and climate variability, Honduras has designed the Program "**Climatically Resilient Agriculture and Sustainable Food Security**", which will be executed by means of three components: one, Sustainability in agricultural production and adaptation to the effects of climate change; two, Technologies for Adaptation to Climate Change and three, Comprehensive and multi-ethnic support for the sustainability of chains compatible with agroforestry systems, agro-silvo-pastoral and seafood with a gender focus.

## **Development Objectives**

Male and female Honduran farmers make rational use of natural resources through the sustainable management of agroforestry, silvo-pastoral, agricultural, livestock, aquaculture systems with the adoption of climate-resilient cultural practices and technologies.

## **Expected Strategic Results**

- Male and female producers adopting good practices and sustainable production technologies
  - 4..a. Increased yields in areas prioritized through resilience to climate change.
  - 4..b. Coverage of support services for producers, available for the implementation and sustainability of production systems resilient to climate change.)
  - 4..c. Producers and producers implementing technologies and ancestral practices resilient to climate change.
  - 4..d. Improvement in the efficiency of water use

## **Components and Activities**

### ***Component 1: Sustainability in Agricultural Production and Adaptation to the Effects of Climate Change.***

- Promotion of agroforestry systems, agro-silvo-pastoral and products of the sea;
- Transfer of good practices of conservation and restoration of soils;
- Technological innovation in the production of agroforestry systems, agro-silvo-pastoral and products of the sea.

### ***Component 2: Technologies for Adaptation to Climate Change.***

- Community Monitoring of Drought (Early Warning Systems);
- Diagnosis of applied technologies;
- Water Harvesting for Irrigation;
- Efficient irrigation systems;
- Research on varieties of seeds of basic commodities and resilient to climate change;
- Seed banks;
- Bank of grains for consumption;
- Research and validation of new technologies resilient to climate change

***Component 3: Comprehensive and Multi-Ethnic Support for the Sustainability of Enterprises of Chains Compatible with Agroforestry Systems, Agro-silvo-pastoral and Sea Products with a Gender Focus.***

- Strengthening of data systems on productive aspects and effects of variability due to climate change.
- Coordination with markets through processes of associativity,
- Access to technical assistance.
- Management and Access to land.
- Design of a comprehensive support program for production sustainability.
- Design of an Agricultural Insurance model according to items (reciprocal guarantees).

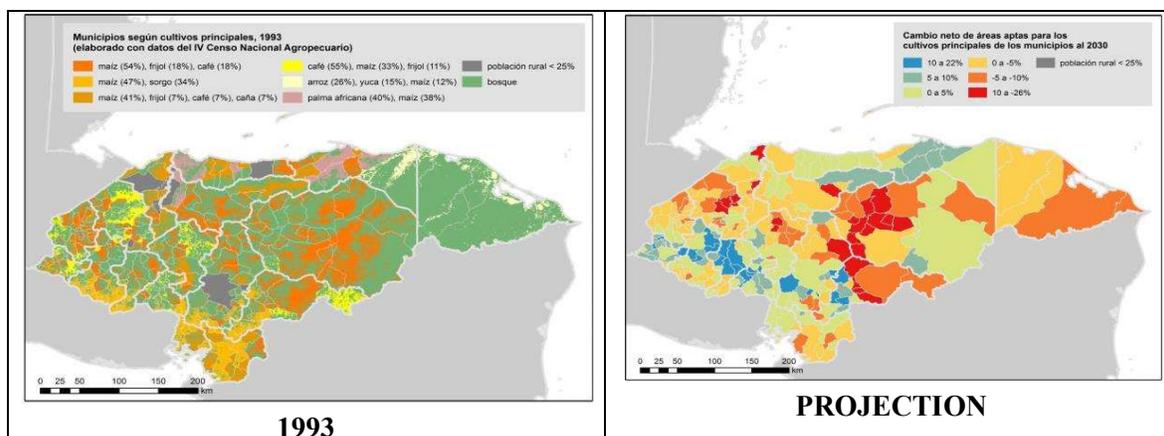
**Justification of PPCR Investments as an Instrument of Multi-sectoral Intervention**

The National Adaptation Strategy for Climate Change for the Agro-food Sector of Honduras (2014-2024) has been designed with reference to available information on climate change (mainly the Argeñal study, 2010) and, although there are no detailed studies for the variety of products in the sector, there are studies for the most sensitive products at regional and national level on climate change and agriculture, it is recognized that it has been the most studied in the region, which gives the opportunity of an approximation to the impacts that are already being observed and those that are projected for the products studied and food security, mainly of populations and systems and socio-economic sectors in situations of greater vulnerability, such as: indigenous communities, Afro-descendant, rural, urban-marginal and peasants in social and economic disadvantage, small farmers and groups of people living in multi-risk areas.

Honduras is a country with an economy based mainly on agriculture. The national agricultural survey of 2008 indicates an accelerated growth in the cultivation of coffee under agroforestry systems, which currently represents 2.16% of the territory, which is equivalent to 243,405 ha; pastures and crops represent 28.06% of the territory with 3156.028 ha; high tech agriculture with 100,985.3 ha (0.90%); the African palm that currently has an area of 121,447 ha (1.08%); the shrimp farms and salt marshes with 17,951.1 ha for a total of 30.19% of the national territory destined to the agricultural sector (ICF / GIZ, 2014, cited in. (SAG, 2014)).

Considering the A1B emission scenarios (intermediate levels of GHG emissions) by 2030, the annual average temperature of the country will have increased by 1.4 ° C, this increase in temperature, accompanied by periods of drought and heat, reduction of rainfall, will cause a water deficit and, consequently, a change in the zones suitable for the different crops. This combined with climatic variability and extreme events (droughts and tropical storms) can have a major impact on agriculture. The following map (Figure 16) shows the municipalities of Honduras grouped according to the net profit or loss they will have in 2030, of areas suitable for three subsistence crops (corn, beans and sorghum) and two commercial crops (coffee and sugar cane).

Figure 17. Map of the main crops by municipality, according to CNA 1993 and Projection according to the net gain or loss for 2030



SOURCE: SAG. (2014) National Adaptation Strategy for Climate Change for the Agro-food Sector of Honduras (2014-2024). Tegucigalpa, Honduras.

The agricultural sector is one of the main ones affected by the losses and damages caused by extreme climatic events, increasingly affecting the yields and competitiveness of agricultural and agro-industrial production, potential growth, employment and rural income. In Central America, the agricultural sector has been one of the fundamental axes that energize the economies, contributing with 11% of the regional GDP, with 18% considering the agro-industry, and with 35% of the total exports of the region (CEPAL, 2010).

Coffee is the most important export product in Honduras accounting for about 30% of total exports and involving approximately 125 thousand farmers, of which more than 90% are small; 5% medium and 5% large producers. It is estimated that 20% of coffee exports are female-headed households. In the year 2013, exports fell to 18% due to the loss of cultivated areas caused by rust disease and the reduction of prices in the international market. The coffee rust outbreak of 2012-2013 has been the worst in the last 40 years in Central America, the Caribbean and Mexico. In the case of Honduras, the total area affected was 70,000 ha (25% of the total of the cultivated area), with a total loss of US \$ 230 million corresponding to 1.3 million bags (PROMECAFÉ, 2013). Science findings indicate that the causes of coffee rust outbreaks could be attributed to the combined effect of biodiversity loss on coffee plantations, the intensification of the magnitude of global climate change, and inadequate management of plantations, which in many cases was eliminated from the disease control protocol with the justification that could reduce the cost of the application (Vandermeer, cited in (SAG, 2014)).

The production of basic grains - rice, corn, sorghum and beans - is carried out by small farmers, who generally do not have access to irrigation systems, technical support, credit, storage and marketing systems. (CEPAL, 2009) additionally apply bad agricultural practices such as felling and burning trees, to find new farming areas.

Unlike commercial agriculture, whose sole objective is to maximize profitability, the family farmer seeks to reduce risk through productive diversification, combining the production of basic grains (mainly corn and bean), vegetables, small animals (poultry, pigs and bees) some varieties of fruits, coffee and cattle (mainly in the stage of breeding and production of milk). Generally, family farmers with a high level of poverty (63% of the farmers are poor), are not only engaged in livestock and

practically, in all cases, the breeding of animals is used for self-consumption and as a means of saving. Of the total family farmers, about 61% are self-employed farmers who have this activity as their main occupation; 4%, small-scale employers in charge of productive units with up to five employees (counting unpaid family members); and the remaining 35%, to agricultural and non-agricultural wage earners or self-employed non-agricultural workers, who have independent agriculture as a secondary activity. For Honduras, this represents 366,000 self-employed, 11,000 are small employers and 107,000 small family farmers for a total of 484,000 family farmers (CEPAL, FAO, IICA, 2013 cited in (SAG, 2014)).

In Honduras, a national drought emergency occurred in 2014, affecting almost one million people (186,311 families), in 165 out of a total of 298 municipalities; the threat of drought covers a total area of 30,764.5 km<sup>2</sup> equivalent to 27.3% of the national territory, called dry corridor due to the low rainfall and a marked dry season that causes scarcity of water for crops, severely affecting families of small subsistence farmers, landless laborers, people living in extremely vulnerable conditions with very few resources to cope with food insecurity, water shortages and declining incomes.

The reported losses of basic grains for this 2014 canícula period, by the agricultural crop monitoring system (SISAG) carried out jointly by FAO Honduras, has been estimated in beans with a 28.9% loss at the national level and corn 9.4%. Table 5.

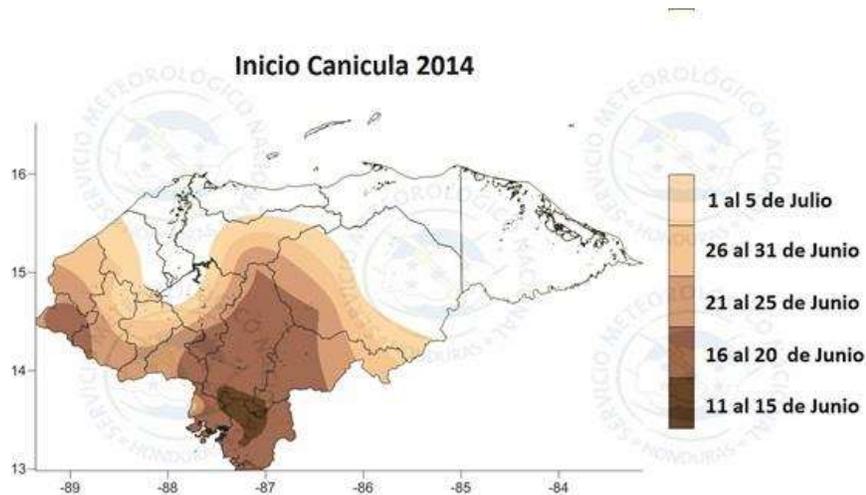
*Table 5. Estimate of Agricultural Production and Estimated Losses, 2014*

Crops	Expected number of quintals			Percentage of losses	
	Total 2014	Total	First Harvest	National	First cycle
Corn	11921,009	9895,556	6445,957	28.9	34.9
Beans	1659,691	476,708	321,185	9.4	32.6
Losses	Corn	3449,600	<b>Quintals</b>		
	Beans	155,523			

Source: SAG. (2014) National Adaptation Strategy for Climate Change for the Agro-food Sector of Honduras (2014-2024). Tegucigalpa, Honduras.

In 2014, there was an unprecedented (atypical) drought period, (Figure 17) which is considered of the highest interest; depending on the area, the drought lasted between 45 and 60 days. The most affected territories were the southern, western and central departments of the country. The canícula period is highly influenced by the El Niño Southern Oscillation (ENSO) phenomenon, a global natural climate cycle with two extremes: a warm phase known as El Niño and a cold phase known as La Niña. The passage from one extreme to the other is influenced by a close relationship between the temperature of the surface of the sea and the winds. During the El Niño period rainfall occurs under normal conditions and in the La Niña phase, the rains are generally higher than normal.

Figure 18. Canícula Starting Period 2014



SOURCE: SAG. (2014) National Adaptation Strategy for Climate Change for the Agro-food Sector of Honduras (2014-2024). Tegucigalpa, Honduras.

The impact of the El Niño phenomenon in 2014 is an indication of how the weather shocks have an impact on agricultural production. According to the study Vulnerability and Resilience to Climate Change in the West of Honduras (USAID, 2014), among the ways in which the climatic effects are predicted in the crops studied are:

- **Coffee:** the Arabica coffee is sensitive to the increase of the temperatures, especially during the flowering and the development of the fruit. There is a high probability of predominance of coffee rust, especially under scenarios with higher rainfall and warmer temperatures than normal. Sprouts tend to occur after experiencing periods of rain, as rust needs water for germination of spores. ☒
- **Corn:** the prolonged dry periods represent a serious problem for the corn plants in their initial stages and they do not survive for long if the drought is accompanied by high temperatures. Climate projections on changes in the regularity of rainfall patterns are likely to force farmers to modify their current crop and harvest dates.
- **Bean:** there is a moderate likelihood of reduced bean productivity due to changes in rainfall, especially during the vegetative stages at the beginning and during the sprouting of the plant. In a scenario with a low level of moisture in the soils, the bean is more resilient compared to other crops and can tolerate drought or water saturation levels due to additional rainfall. At times of flowering, excessive rains can affect the formation of the pod and impair its performance. ☒
- **Potato:** potato cultivation is susceptible to both droughts and excess water in soils, and most of its vegetative stages are also vulnerable to extreme weather events. Due to the impact of climate change, there is a high probability that common pests and diseases that damage crops will increase, especially potato psyllids (*paratrioza* or jumping aphid) and late blight

(*Phytophthora infestans*). If not controlled by fungicides, late blight can destroy whole potato fields in just a few days. ☒

- **Lettuce:** drought or excessive rains will have a negative impact on the initial stages of the plant, especially in relation to germination and early sprouting, if the seeds are germinated in the fields. However, the use of seedlings and greenhouses with meshes to produce transplants is a common practice in western Honduras, which allows lettuce to be less vulnerable to climatic effects in the early stages of plant development.

The same study warns that because of the high degree of sensitivity to weather effects, a reduction in the amount of rainfall between 10 and 20 percent and an increase in temperatures of between 1.0 and 2.5 ° C will generate significant direct and indirect effects on livelihoods and agricultural value chains (USAID, 2014), for example:

- **When climatic effects reduce maize and bean yield, there are indirect effects on livelihoods:** increase in the price of cereals, the cost of fodder and the price of meat; deterioration of household food security; nutritional insecurity of families, especially children.
- **Variability and climate change have an impact on the quality and quantity of coffee production:** decrease in family income of coffee growers; reducing household access to food; decrease in the temporary employment generated by the item; employment and the income generation problems for the actors in the coffee value chain; negative impact on the local economy; decline in exports and less foreign exchange.
- **Higher temperature, coupled with extreme rainfall variability and events, will lower the productivity of horticulture:** the large-scale viability of horticulture is reduced as a means of diversifying livelihoods; Also, negative impact on the employment that is required in the areas that generate these crops.
- **In general, the decline in agricultural production will accelerate migration processes:** salaried farmers and day laborers will be more likely to emigrate when labor options are limited, lower production due to variability and climate change, could give rise to a scenario with increased migration to urban areas and especially to the U.S.A.
- The study formulated a series of recommendations and options for adaptation to climate change in five ways: 1) generation, management and knowledge acquisition; 2) management of resilient water resources; 3) conservation of critical ecosystems; 4) diversification; and 5) risk management. These five pathways offer a holistic and comprehensive strategy that integrates sustainable management of soils and water into production systems and landscapes as a way to increase the resilience of ecosystems and livelihoods in western Honduras to variability and climate change.

Another study by the International Institute for Sustainable Development (IISD) (2013), "Climate Resilience and Food Security in Central America" on climate risk management for small farmers in different geographical areas of the country. The study analyzed the climatic impacts in seven Honduran municipalities with a large total area of corn and bean crops. These municipalities were located at heights ranging from 411 m to 1665 m above sea level, in the departments of Cortes, Copán, Lempira, El Paraíso and Choluteca. Based on localized climatic scenarios, the results indicate significant reductions in yields of basic grain crops. For example, a decline in average corn yields is forecasted at 4% in 2025 and 12% in 2050, compared to 2000 at the seven study sites. The average production of beans shows a decrease of 11% in the year 2025 and of a 32% decrease in 2050. The results of the models revealed that crop yields were generally less affected by climate change in the higher and cooler areas and that in the lowland areas the optimum temperature range was exceeded, especially in the case of beans. These results suggest that climate change will have a more determining

effect on lowland agriculture.

The peasant women of Honduras (Najarro 2010, quoted in(SAG, 2014)), have also identified several impacts related to the agriculture and food security sector, such as reduced yields and production of basic grains due to droughts, generally associated with the occurrence of El Niño, as well as to storms, floods and variations of the temperature, including heat waves. These climatic events, coupled with their highly vulnerable situation, result in loss of income and less food availability, affecting the production, commercialization and food security of their families, which are threatened by undernutrition and child deaths by high levels of malnutrition. The problems of food insecurity faced by women are exacerbated by poor access to: (a) land with adequate quality, (b) markets and credit, (c) better paid employment for women in agricultural work; they are also limited by: (a) transportation difficulties for the sale of their products, (b) lower income, (c) alcoholism, abuse and neglect by male heads of households. Women's income represents, on average, only 47% of men's income in the communities of western Honduras. Peasant women report that the impacts of variability and climate change affect the moisture and fertility of agricultural land, the availability of medicinal plant species (e.g., wormwood plant, ginger and chamomile) and water; which is exacerbated by logging and contamination by agrochemicals. Considering that women are more dependent on natural resources, they are more threatened by climate change because they have limited strategies to deal with it properly.

The country, is striving to strengthen the political and institutional system with the adoption of national policy instruments, which in turn are framed in the processes of adopting regional policies<sup>15</sup> for adaptation to climate change.

At the national level, the Policy for Food Security and Long-Term Nutrition (PSAN Spanish acronym), from which a Strategic Plan for the Implementation of the Food and Nutrition Security Policy is derived; The State Policy for the Agro-food Sector and the Rural Environment of Honduras (2004-2021), presents as main policy the development of agro-food chains in different agricultural products that depend on rain, through the proposal of the Unit for Environment, Climate Change and Agro-climatic Risk Management of SAG, has been launched, although the agreement for its official creation has not been decreed yet. Civil society and nongovernmental organizations have formed platforms for discussing strategies for adaptation (Joint Action of Churches - ACT Alliance (for risk management and Regional Coordination for Risk Management in Central America) (SAG, 2014).

#### Provisions, Institutional Agreements

The Ministry of Agriculture and Livestock (SAG), the sector's leading institution, will coordinate with the Economic Development Secretariat (SDE) and MiAmbiente, on the strategic measures to be followed for the development of the Program. SAG will call upon male and female farmer

---

<sup>15</sup> Regional policies adopted to address climate change and risk management.

1. Environmental Plan of the Central American Region (PARCA: 2010-2020) 2010
2. Central American Policy on Comprehensive Management of Risks and Disasters (PCGIR) 2010
3. Regional Disaster Reduction Plan (PRRD: 2006-2015) 2006
4. Central American Agricultural Policy (PACA: 2009-2017) 2008
5. Regional Climate Change Strategy (ERCC: 2010-2014) 2010
6. Regional Agro-Environmental and Health Strategy (ERAS) 2008
7. Central American Rural Territorial Development Strategy (ECADERT) 2010
8. Regional Strategy for Food and Nutrition Security (2010-2022) 2011
9. Central American Strategy for Comprehensive Management of Water Resources 2009 (ECAGIRH)
10. Regional Food and Nutrition Security Program (PRESANCA II: 2010- 2010 2016) (SAG, 2014)

organizations potentially beneficiaries of the Component to be participants in consultations and decision-making on the lines of action of the Program.

## Gender and Ethnicity Issues

As a policy of the SAG, the integrated approach to the factors that determine climate vulnerability, including gender and ethnicity inequities, allows for the appropriate identification and addressing of the specific risks associated with women, it is important that vulnerability and impact assessments, and adaptation and mitigation strategies and measures incorporate a gender equity approach; considering at the same time that women are not only vulnerable, but agents of change, whose leadership is fundamental for the processes of climate adaptation. A special module for the identification, systematization and dissemination of ancestral practices of the ACC and the delivery of culturally respectful goods and services will be created.

Regarding the indigenous peoples, the SAG integrates it from an 'inter-cultural' approach and ethics for sustainability, "an ethic of diversity where the ethos of diverse cultures is conjugated". In this sense and under this logic, recognizing and valuing multiculturalism is a fundamental step in the design of policies and proposals to address climate change, particularly the recognition of the contributions that from the worldview, indigenous peoples have to offer the rest of the society. This set of knowledge and practices are the expression of a diversity of responses that also correspond to a diversity of cultures affected locally by the phenomenon of climate change. Thus, understanding and taking into account these expressions and experiences constitute a fundamental methodological step in the design of policies and proposals for the CC in Honduras.

Indigenous and Afro-descendant communities in Honduras have been incorporated into public processes by adapting to climate change with the creation of "The Indigenous and Afro-descendant Table of Climate Change (MIACC)", created to support the implementation of the National Strategy for Reduction of Emissions from Deforestation and Forest Degradation (REDD), is responsible for interacting with the REDD Subcommittee and with the other subcommittees associated with the ENCC.

## Indicators

<b>Name of indicator:</b>	<b>Yields of prioritized items</b>
Component to which it is linked:	5.1. Sustainability in agricultural production and adaptation to the effects of climate change.
Objective to which it is linked:	Male and female Honduran farmers make rational use of natural resources through the sustainable management of agroforestry, silvo-pastoral, agricultural, livestock, aquaculture systems with the adoption of climate-resilient cultural practices and technologies.
Result to which it is linked:	a. Increased yields in areas prioritized through resilience to climate change.
Description of indicator:	Measures increases or decreases in yields of prioritized items
Unit of measure:	<i>Quintales</i> or TM, according to items.
Calculation formula:	Production / area planted for each priority item.
Collection of data sources:	BCH, SAG, Consulting.
Frequency:	Annual

Observations:	INFOAGRO must organize a database of climate service users.
---------------	---

<b>Name of indicator:</b>	<b>Adoption of good practices and technologies</b>
Component to which it is linked:	Technologies for Adaptation to Climate Change
Objective to which it is linked:	Male and female Honduran farmers make rational use of natural resources through the sustainable management of agroforestry, silvo-pastoral, agricultural, livestock, aquaculture systems with the adoption of climate-resilient cultural practices and technologies.
Result to which it is linked:	Male and female producers adopting good practices and sustainable production technologies.
Description of indicator:	measures the adoption of good practices and technologies that affect the increase of production and the conservation of the productive system
Unit of measure:	No. Of Farmers
Calculation formula:	Number of farmers who adopted good practice / Programmed target number of producers
Collection of data sources:	Consulting
Frequency:	Annual
Observations:	Consultancy services should organize a system of registration of activities by components, activities, services, products, territories served (villages) and population by age, gender and ethnicity, with methodologies of systematic registration.

<b>Name of indicator:</b>	<b>30% of beneficiaries of support services are women farmers.</b>
Component to which it is linked:	5.3 Comprehensive and multi-ethnic support for the sustainability of enterprises of chains compatible with agroforestry systems, agro-silvo-pastoral and sea products with a gender focus.
Objective to which it is linked:	Male and female Honduran farmers make rational use of natural resources through the sustainable management of agroforestry, silvo-pastoral, agricultural, livestock, aquaculture systems with the adoption of climate-resilient cultural practices and technologies.
Result to which it is linked:	4.1. Support services available for the implementation and sustainability of productive systems resilient to climate change.
Description of indicator:	Activities that include support services for the implementation and sustainability of production systems resilient to climate change are identified, classified and accounted for, and geographic coverage, areas and population served are identified.
Unit of measure:	Percentage
Calculation formula:	No. of Women / Total number of support services provided.
Collection of data sources:	Administrative records of the program.
Frequency:	Annual
Observations:	Design a system for recording activity by components, activities, services, products, territories served (villages) and population by age, gender and ethnicity.

## **Risks and Corrective Measures**

The dispersion of information makes it difficult to measure indicators.

- The strategy, the first consultancies, in addition to generating information, must leave a system of systematic registration of information designed and operated.
- It is not possible to cover 30% of women participating in the program.
- The PPCR, designs a strategy to identify groups of women producers
- In annual planning establishes progressive increases to reach the percentage of participation.

## **Annex 4. Description of Subprogram 4: Institutional strengthening and capacity building of human resources for adaptation to climate change**

### **Basic Program Information**

Name of Sub Program: Institutional strengthening and capacity building of human resources for adaptation to climate change

Responsible government agency: Presidential Office of Climate Change (CC+).

Total Program:	USDS 22.6 Million
PPCR Funds	USD\$ 12 Million
MDBs Funding:	USD\$ 10 Million
Counterpart funds:	USD\$ 0.35Millions

### **Summary**

Honduras has made progress in the creation of a legislative body, a framework of public policies and institutions for adaptation to climate change, MiAmbiente is the political focal point before the UNFCCC, which promotes the National Climate Change Strategy (ENCC); multisectoral mechanisms with the REDD subcommittees; entities or units of ACC in each institution and international cooperation has been an important factor in the development of actions against climate vulnerability.

In 2017, the Office of the Presidential Commissioner for Climate Change (CC ) has been created to follow up the Paris 2016 commitments. The Master Plan Water, Forest, Soil (ABS Plan) is designed as the first public policy instrument with a integrated approach of primary resources and public goods of Honduran society and coordinate actions framed in the ENCC. This is a significant step forward in complementing and moving from a multi-sectoral approach to a comprehensive approach to public goods as part of a key strategy for climate resilience. In the same year, the National Plan for Adaptation to Climate Change is being approved.

With the aim of strengthening technical capacities and the quality of human resources for climate resilience, for reducing socio-environmental vulnerability and improving the adaptive capacity in particular of the populations, sectors and territories most exposed to climate threats, **Institutional strengthening and capacity-building of human resources for adaptation to climate change "**, will be developed through three components: one, Instruments and mechanisms Component to strengthen institutional processes of ACC, two, Harmonization Component, updating and design of public policy instruments for the sustainable management of water resources and three, Component Promotion of the National Strategy for Adaptation to Climate Change for the Agro-food Sector of Honduras (2014-2014).

### **Development Objectives**

Strengthened technical capacities, quality of human resources and institutional capacities in climate resilience, to reduce socio-environmental vulnerability and to improve the adaptation capacity, particularly of populations, sectors and territories most exposed to climate threats.

## **Expected Strategic Results**

- Development of approaches, measures, instruments and information to advance adaptation to climate change.
- The Honduran community is progressively informed and trained regarding the ACC.
- The National Plan for Adaptation to Climate Change Disseminated and adopted

## **Components and Activities**

### ***Component 1: Instruments and Mechanisms to Strengthen Institutional Processes of ACC.***

- Catalog of Sustainable Intervention Models, is led by the Presidential Delegate CC+; who will summon UESNACIFIOR, SAG and other instances of MiAmbiente.
- Integrating resilience and GR in national accounts. Led by C+ Presidential Delegate, convening and coordinating with MiAmbiente; the SEFIN and the DGRH.
- Strengthening of professional capacities in ACC and GR. Led by MiAmbiente, it coordinates with SAG; AHMON and the CC Presidential Delegate.
- Internalization of climate resilience within municipal planning

### ***Component 2: Harmonization, Updating and Design of Public Policy Instruments for Sustainable Water Resource Management.***

- Good practices of standards, efficiency criteria, indicators and representative models to assess the management of providers, maintain a public record of information submitted by providers and ensure the rights of users. (ERSAPS-PEI 2014-2018).
- Update and unify existing geographical, numerical and statistical information for the water sector. (CON-AGUAH).

### ***Component 3: Promotion of the National Strategy for Adaptation to Climate Change for the Agro-food Sector of Honduras (2014-2014).***

- Coordination and harmonization of environmental actions, climate change and risk management, the Working Group on Climate Change and the definition of working tools for the Subcommittee on Agriculture and Food Security.
- Design of the research, innovation, evaluation and monitoring unit of agricultural systems, technologies and good practices, fostering inter-cooperation.

### ***Component 4: Promotion of the National Plan for Adaptation to Climate Change.***

- Strengthen inter-institutional and inter-sectoral coordination for the formulation and implementation of adequate adaptation to climate change
- Promote the transfer and appropriation of technologies to implement adaptation measures, considering synergies with mitigation of climate change
- Promote actions and adaptation measures that contribute to the achievement of the Sustainable Development Objectives of Agenda 2030

## **Justification of PPCR Investments as an Instrument of Multi-Sectoral Intervention**

MiAmbiente is the political focal point to the CMNUCC, it has a National Climate Change Directorate; the Inter-institutional Committee of climate change that directs the design of the National Climate Change Strategy (ENCC) as the general regulatory framework for adaptation to climate change in different sectors of the country, with a multi-sectoral focus that embraces different institutions, civil society organizations and academic and research institutions for the promotion, implementing and executing mitigation and adaptation Programs to climate change to incorporate adaptation in sectoral policy planning and execution in the eco-social and economic subjects at municipal, sectoral, national and regional (SICA) levels, and in the development of tools that will facilitate management of financial resources to execute national climate change adaptation.

From the National Directorate of Climate Change (DNCC) multi-sectoral mechanisms with the REDD+ subcommittees to cover the areas of Water Resources are created; as well as Air quality; Agriculture and Food Security, Health and Coastal Marine Resources. In order to mainstream this issue, institutions or units are created within each institution, such as the Secretariat of Finance (SEFIN), where the Economic and Financial Management Unit for Climate Change (UGEFC) is created, attached to the General Directorate of Public Credit (Art. 16 of the Climate Change Law 2013).

The accompaniment of international cooperation has been important in the implementation of initiatives to adapt to climate change and disaster risk management. Since 1998, a total of 72 recent Programs have been identified (Programs that ended in 2010 or later or that are still open), which were executed by 17 international donors for a total of USD 236.6 million. Of note is the World Bank with the largest allocation of resources (approximately US \$ 126 million in 11 Programs), and the Inter-American Development Bank with the largest number of programs implemented or in execution (16 initiatives).

The wide range of national and sectoral instruments in adaptation to climate change has allowed a progressive process of institutional linkage. Based on the frameworks of climate change policy, water resources, agro-food sector and risk management, with cooperation funds, a variety of Programs have been implemented related to the subjects of risk and climate variability, specifically, the Programs address the areas of:

- Emergencies and Disaster Mitigation, with Programs on roads, water and sanitation, housing,
- Agricultural sector (Programs to address drought, early warning, food security),
- Water sector (dry corridor, water and urban sanitation, risk management),
- In the environment, subject Programs on climate, environment, coasts and forests;
- Adaptation and risk management with disaster adaptation programs for flood, financial markets, energy, risk management and infrastructure.
- Other sectors such as agriculture and food security and water resource management in urban areas, have begun to combine approaches to disaster risk reduction and adaptation to climate change.

Due to the recurrence of climate emergencies, Honduras has advanced more in risk management and less in adapting to climate change. Following Hurricane Mitch (1998), the country significantly improved the regulatory framework for risk management, moving from a focus based primarily on response to one addressing issues such as knowledge and risk prevention. In this scheme, the Permanent Commission on Contingencies (COPECO) has been strengthened and presents an

organization with regional and local scope through the structures of CODEM and CODEL (Departmental and Local Emergency Committees, respectively). Greater integration of disaster risk management and adaptation to climate change, requires incorporating them both into development policies and practices at the territorial and sectoral levels, which could be beneficial to all levels.

In 2017, the Office of the Presidential Commissioner for Climate Change (CC +) is created to follow up on the Paris 2016 commitments. The Master Plan of Water, Forest, Soil is designed as the first public policy instrument with a comprehensive approach of primary resources and public goods of the Honduran society and coordinate actions framed in the ENCC. This is a significant step forward in complementing and moving from a multi-sectoral approach to a comprehensive approach to public goods as part of a key strategy for climate resilience. In the process of approval, the National Plan for Adaptation to Climate Change, which will become the transversal axis with the different instruments and sectors relevant to climate resilience.

The Honduran State progressively advances in adapting to climate change, which is manifested in the development of legislation, institutions, policies, projects, strategies and Programs. This progress needs to be reinforced through concrete actions in the institutional strengthening of the various sectors that have been linked, from the different initiatives promoted by the Honduran government and society, to address the needs for complementarity, coordination and progress in comprehensive and climate-resilient approaches to the management of public goods as a systematic and long-term strategy for strengthen technical capabilities.

### **Provisions, Institutional Agreements**

The Component Instruments and Mechanisms to strengthen institutional processes of ACC, is led by the Presidential Delegate CC +, will convene UESNACIFOR, SAG and other instances of MiAmbiente, such as the DGRH, the SEFIN, the SAG and AHMON.

The Component Harmonization, updating and designing public policy instruments for the sustained management of water resources, led by ERSAPS, will convene and coordinate actions with SANAA, AHMON, SAG and GGRH.

Component Promotion of the National Strategy for Adaptation to Climate Change for the Agro-food Sector of Honduras (2014-2024). Led by the SAG that will coordinate with IHCIT.

The Component Promotion of the National Plan for Adaptation to Climate Change, will be the responsibility of the National Directorate for Adaptation to Climate Change, which convenes all public and private sectors involved in the PNA.

### **Gender and Ethnicity Issues**

The Honduran State is a signatory to the Convention on the Elimination of All Forms of Discrimination Against Women (UN, 1979) and ILO Convention 169 on Indigenous and Tribal Peoples. It has developed legislation, policies and institutions for the promotion and defense of the rights of women and indigenous and Afro-descendant peoples.

Public actions in adaptation to climate change must be linked at different levels of implementation to ensure a focus of inclusion, and use and reinforcement of the knowledge and experiences that these sectors have developed in their actions, in relation to the environment, natural resources and climate resilience.

## Indicators

<b>Name of indicator:</b>	<b>Balance of institutional development in ACC.</b>
Component to which it is linked:	5.1. Component Instruments and mechanisms to strengthen CCA institutional processes. 5.2 Component Harmonization, Updating and Design of Public Policy Instruments for Sustainable Water Resource Management.
Objective to which it is linked:	Strengthened technical capacities, quality of human resources and institutional capacities in climate resilience, to reduce socio-environmental vulnerability and to improve the adaptation capacity, particularly of populations, sectors and territories most exposed to climate threats.
Result to which it is linked:	5.1 Development of approaches, measures, instruments and information to advance adaptation to climate change.
Description of indicator:	It measures the successive approximations of the way in which the processes of implementation of ACC and GR actions take place.
Unit of measure:	Scale of compliance of component activities.
Calculation formula:	Scale: Low execution <30% per year; Medium execution > 30% and <75% High performance > 75%
Collection of data sources:	Administrative records organized for the PPCR monitoring and evaluation system.
Frequency:	Annual
Observations:	A strategy of progressive, cumulative scopes over a period of time is designed.

<b>Name of indicator:</b>	<b>Increased ACC practices in agro-silvo-pastoral activities.</b>
Component to which it is linked:	Promotion of the National Strategy for Adaptation to Climate Change for the Agro-food Sector of Honduras (2014-2024).
Objective to which it is linked:	Strengthened technical capacities, quality of human resources and institutional capacities in climate resilience, to reduce socio-environmental vulnerability and to improve the adaptation capacity, particularly of populations, sectors and territories most exposed to climate threats.
Result to which it is linked:	5.2 Strengthened institutional processes for the ACC
Description of indicator:	The number of producers benefiting from ACC is counted.
Unit of measure:	Percentage of increase
Calculation formula:	Percent increase from one year 0.
Collection of data sources:	Administrative records organized for the PPCR monitoring and evaluation system.
Frequency:	Annual
Observations:	Organize a registration system that obtains information from different territorial spheres, (municipalities, projects, Programs).

<b>Name of indicator:</b>	<b>Number of strategies or plans in execution or executed strengthening the water institutional framework to address climate change supporting the role of sector institutions</b>
Component to which it is linked:	<p>A. Water: Strengthening water governance as a climate resilience strategy in the Framework of the National Watershed Management Strategy and ACC; a) at the level of the sub-basin and micro-basin and b) at the level of water catchment, c) at the level of municipal water and sanitation providers and d) with Irrigation Community Boards.</p> <p>B. Agriculture: Strengthened technical capacities, quality of human resources and institutional capacities in climate resilience, to reduce socio-environmental vulnerability and to improve the adaptation capacity, particularly of populations, sectors and territories most exposed to climate threats.</p>
Objective to which it is linked:	The Honduran government and Honduran society have generated legal, policy and planning tools that support progress in water resource management models and water and sanitation systems with the capacity to respond to seasonal stress or water stress characteristic of the country, under schemes that are financially and environmentally sustainable, including: a) the General Water Law; b) the Framework Law on Potable Water and Sanitation; c) the National Potable Water and Sanitation Plan (PLANASA); d) the Financial Policy for Potable Water and Sanitation and e) the Water, Forest and Soil Plan.
Result to which it is linked:	4.5. Formulation of Policies, Strategies, Plans to strengthen CC in water resources and agricultural related interventions, based on quality information.
Description of indicator:	An inventory of the measures, instruments, mechanisms to generate climate resilience that are promoted with ACC policies, strategies, plans and programs.
Unit of measure:	<ul style="list-style-type: none"> <li>- Reports or Annual Minutes</li> <li>- Plans, Policies, Laws Approved</li> <li>- Annual Institutional Minutes</li> </ul>
Calculation formula:	Valuation Scale
Collection of data sources:	Policies, strategies, plans and public Programs.
Frequency:	Annual
Observations:	Design a value scale based on: ABS Plan approved and in execution National Adaptation Strategy approved. SIASAR in execution.

## Risks and Corrective Measures

Resistance to a comprehensive approach by the sectoral tradition of public intervention.

- The training processes offer the holistic perspective of the ACC approach, but offers specialized sectoral technical responses and the complementarity of actions.

- The processes of harmonization and updating of the framework of ACC policies and instruments use methodologies to promote collaborative and interdisciplinary work.

The invisibility of the needs and interests of women and indigenous and Afro-descendant peoples.

- Design of a specific PPCR-Honduras strategy for inclusion.

## **Annex 5. Description of Subprogram 5: Technical and Administrative Management, Monitoring and Evaluation of the SPCR**

### Sub-Program Basic Information

Name of the Subprogram: Technical and Administrative Management, Monitoring and Evaluation of the SPCR.

Responsible government agency: Vice Ministry of Energy, MiAmbiente

Total Program: USD\$ 6 Million  
PPCR Funds: USD\$ 5 Million  
MDBs Funding: USD\$ 0 Million  
Counterpart funds: USD\$ 1 Million

### Description

The PPCR and the SPCR requires a process of technical and administrative management due to the complexity imposed by the exercise of an inter-agency and inter-institutional execution, with the participation of several agencies from the same Ministry and other Ministries, Directorates and Programs, as component leader of the SPCR programs.

The processes of political integration "mainstreaming" of the DRM and ACC will be one of the main added values of the PPCR in Honduras and one of the areas from which lessons learned can be learned to be applied in other areas and sectors. In this sense, the coordination mechanisms will be endowed with the mandate to promote learning and knowledge management. The Honduras SPCR contains a component oriented to M & E, transparency and access to information which will be the bases to sustain the dialogue process amongst stakeholders. .

For the evaluation and monitoring process, the Honduras SPCR will generate the "safeguards" for the social, environmental, and resettlement aspects, as well as the gender and ethnic strategy of the SPCR, where the mechanisms and instruments to address the gaps will be made explicit, including gender, and social exclusion by ethnicity.

### **Expected Results;**

- The processes of political integration "mainstreaming" of the GRD and ACC.
- Coordination mechanisms with a mandate to promote learning and knowledge management.
- The Honduras SPCR contains an M & E oriented component as learning mechanisms among the actors, eg increasing transparency and access to information could serve as a reflection and dialogue between the actors.
- Systematization, dissemination and promotion of learning and lessons learned from inter-institutional coordination.

**Table 7 SPCR Programs and proposal of Executing and Co-Executing Institutions \***

Sub Programs	Executing and Co-Executing Institutions
1. Strengthen the management of meteorological knowledge, water resources and climate data to inform decision-making.	<p>Model: Co-execution</p> <p><i>Decision Level</i> Chief Executor: MiAmbiente through the Directorate General of Co-executor: CENAOS-COPECO</p> <p><i>Direct Collaborators</i> Linked Central Institutions Beneficiaries: SANAA, SAG.</p>
2. Resilient water management through strengthening water governance.	<p>Model: Co-execution</p> <p><i>Decision Level</i> Chief Executor: MiAmbiente, through the Directorate of Water Resources Co-executors: MiAmbiente and IDECOAS/SANAA</p> <p><i>Direct Collaborators</i> Linked Central Institutions: ERSAPS, BANPROVI. Local or Autonomous Beneficiary Institutions: AMHON, Municipalities, Association of Water Suppliers, Water Boards, Irrigation Boards, decentralized urban providers, Watershed Councils, among others.</p>
3. Climatically resilient agriculture and sustainable food security.	<p>Model: One sole executor</p> <p><i>Decision Level</i> Chief Executor: SAG</p> <p><i>Direct Collaborators</i> Local Benefited Institutions: Municipalities, Water Boards, Irrigation Boards, among others.</p>
4. Institutional strengthening and capacity building of human resources for adaptation to climate change.	<p>Model: Co-execution</p> <p><i>Decision Level</i> Chief Executor: Presidential Office for Climate Change Co-executor: MiAmbiente.</p> <p><i>Direct Collaborators</i> Linked Central Institutions: Centralized and decentralized institutions that have in their operational plans actions linked to responding to CC. Associated Local or Autonomous Institutions: UNAH, AMHON, Municipalities-UMAs, among others.</p>
5. Political Advocacy, Technical and Administrative Management of the SPCR	<p>Vice-Ministry of Energy of MiAmbiente is in charge, with the support of INVEST-H.</p>

\*Implementing institutional arrangements and co-executors are as yet to be defined. The objective is that since it is a multi-sectoral program it is recommended that the administration of the funds is in some way independent of the related sectoral institutions. This corresponds to a proposal that will be validated at the highest level and should not be considered as definitive.

Technical and administrative management will coordinate and facilitate the annual planning processes, administrative processes, technical and financial assistance based on the PPCR Operational Manual, to streamline the execution of the activities committed with the leading component institutions.

The monitoring process will provide recurrent follow-up to the execution of the various activities to account for the progress of the processes and products involved in the execution of the five sub-programs of the SPCR and to follow up on the SPCR-Honduras logical framework.

Two external evaluations will be promoted, one half-term and one external evaluation at the end of the SPCR implementation period. MiAmbiente, will generate a Baseline for indicators defined in collaboration with leading component institutions.

## Annex 6. Independent Expert Review

### Independent Review of the Strategic program for Climate Resilience of Honduras

Reviewer: Javier Gonzales Iwanciw

Date of Review Completion: 04/10/2017

#### **PART I: Setting the context (from the reviewers overall understanding of the SPCR document)**

The general purpose of the SPCR in Honduras is to strengthen institutional capacities, both for planning and investments of priority sector; initially water management and agriculture and food security as pilot sectors.

The components identified are:

Component 1, directed to building knowledge management capacities related to meteorological services and climate change, both to generate climate change scenarios, as to improve climate monitoring, forecasts and early warning;

Component 2 of “Resilient water management through the strengthening water governance” directed to strengthen the coordination and governance mechanisms among stakeholders and water users, strengthening the capacities of water and sanitation management, optimizing the use of water in reduced availability conditions and prioritizing the storage infrastructure and reservoirs of multiple use

**R: includes financing mechanisms and positive gender action**

Component 3 of “Intelligent agriculture resistant to climate change and sustainable food security”. This will complement the existing investments through the projects of the Dry Corridor Alliance and support the replication and expansion of good existing practices that contribute to improving and increasing the resilience of agriculture and food security;

**R: includes financing mechanisms and positive gender action**

Component 4 “Institutional Strengthening and capabilities of human resources for climate change adaptation” will increase the country’s capacity to integrate climate resilience considerations in the national and sub-national development plans;

And Component 5 of “Technical and Administrative Management, Follow-up and Evaluation of the SPCR

**Part II: General criteria: The SPCR complies with the general criteria indicated in the ToRs <sup>16</sup>**  
*(Please provide here an extensive discussion how the SPCR meets the following criteria)*

<i>A. Takes into account country capacity to implement the plan</i>	
<p>The SPCR-Honduras document recognizes the institutional nature challenges this public administration faces and the planning processes in Honduras. Although advances are recognized in the inter-sector coordination processes, there are still barriers in terms of integration and coordination among different government levels, including the local levels. The SPCR-Honduras acknowledges the need for inter-sectoral coordination, and this has been underlined in the expression of interest of the Government of Honduras to participate in the PPCR. The Commitment of the Government of Honduras of promoting more integration in Risk Management (GRD) and climate change adaptation (CCA) in planning, as well as in the instrumentalization of the legal and normative climate change normative framework in Honduras is emphasized in the document.</p> <p>The SPCR-Honduras components also take into account existing sector and institutional plans, for example, component 1, on the strengthening of climate services, considers an institutional evaluation to structure the proposal, as well as the modernization plans of weather services.</p>	

<i>B. Developed on the basis of sound technical assessments</i>	
<p>The SPCR development considers a sound information base, both in terms of climate variability and climate change scenarios, which have been systematized in the national communications that the country has submitted to the CMNUCC; in addition to other specific studies in key sectors, such as agriculture and water. At the same time describes in detail, and based on reliable sources, the climate risk of different sectors and regions.</p> <p>The country prioritizes actions throughout the dry corridor and emphasizes taking into account actions throughout a floods corridor and a corridor prone to forest fires, which, in turn coincides, with the priorities identified in its Water, Forests, Soils Plan (Plan ABS 2017). The evaluations consider both the global aspects of the country’s vulnerability for climate variability and change and the level of the regions and key sectors, and highlights the links with poverty reduction and the situation of the especially vulnerable populations</p>	

<i>C. Demonstrates how it will initiate transformative impact</i>	
<p>The SPCR-Honduras aims at generating political integration “mainstreaming” in two key sectors in Honduras. These processes will contribute to the country experience on integration of the GRD and CCA considerations in the planning processes.</p> <p>The document describes in page. 41 (Figure 12) the theory of change scheme on the strategic framework and its relation with the Project cycle, and identifies criteria on the orientation of informative investments.</p> <p>The SPCR – Honduras could demonstrate and describe in greater detail, the changes expected to be achieved at the public management level, both in the sector level and in the level of the planning systems, including the information, prioritization and budget allocation processes.</p> <p>Both in the Theory of Change, and in the narrative of the same, there is no focus on the role other relevant stakeholders could play, such as the private sector.</p>	

<sup>16</sup> Each criterion is assessed in 3 colors: green = met the criteria; yellow = need for some additional work; red = did not meet the criteria yet.

R: It has been included in the executive summary as well as in the analysis of the problem and an indicator has been established to address this gap. .

*D. Provides for Prioritization of investments, capturing of lessons learned, M&E, and links to the PPCR results framework*

The policy integration “mainstreaming” processes of the GRD and CCA at the level of sector planning, will be one of the main added values of the PPCR in Honduras, and one of the areas in which lessons learned can be extracted, to be applied as an example in other areas and sectors identified in its Adaptation Plan. In this sense, the coordination mechanisms could also have a mandate to promote learning and knowledge management.

The SPCR-Honduras has components (1, 4, and 5) aimed at strengthening national capacities, that if conceived also with learning purposes among stakeholders, for example, increasing transparency and public information access, could be used for reflection and dialogue among stakeholders.

R: The executive summary clarifies this, and also additional information has been added in the project component description and in the *Expected Outcomes from the Implementation of the SPCR* and the SPCR Priorities chapters.

*E. Has been proposed with sufficient Stakeholder consultation and stakeholder engagement*

Beyond a robust participation and consultation process, conducted for the SPCR-Honduras formulation, which convened the different relevant stakeholders in Honduras, the document often describes a number of studies that gather points of view of other actors including populations and vulnerable groups.

*F. Adequately addresses social and environmental issues, including gender*

The SPCR-Honduras does not describe the elements of an evaluation of social and environmental aspects carried out in the context of instruments devoted to these purposes, such as an environmental, social, or similar evaluation. Although it is understood, that the studies have safeguards for MBD norms that are part of the process to prepare the PPCR –Honduras and its strategic components.

In terms of the gender variable, the links between gender and climate change were identified in several parts of the document, mainly at the level of diagnostics, however, the document does not specify concrete manners in which the gender gaps will be approached.

R: This was clarified during the second joint mission, after consultations a figure of 35% of women participating as beneficiaries was determined adequate. In each subprogram, gender measures are being considered.

*G. Supports new investments or funding additional to on-going/planned MDB investments*

It is understood that the PPCR will search synergies with other CIF programs and other mechanisms of climate funding available, such as the GCF, also sector funding mechanisms that eh MDB's have available. The document, in its current state, does not mention how the different SPCR-Honduras components will be financed, as well as the links with complementary MDB's programs.

R: Prepared and included in the document, Tables 1, 3 and 4.

*H. Takes into account institutional arrangements and coordination*

The SPCR describes sufficiently and in a comprehensive manner the institutional and coordination aspects, both at the central, regional and local levels, but also describes the sector coordination mechanisms with private sector, civil society and academia stakeholders, which is detailed later in Section Part III.B.

*I. Promotes poverty reduction*

The SPCR document identifies the links between climate change, the potential deterioration of natural resources, and poverty. Likewise, in the description of the components there is a comprehensive diagnostic of the situation of the poor and vulnerable groups' situation. All the same, the document will benefit from a more clear description on how the PPCR expects to respond to this relation between poverty and climate change. A better description of the elements of the conceptual framework of "Poverty Reduction" in Honduras and how the PPCR is expected to address this relation, whether given by the dependency and use of natural resources, the need to consolidate social protection mechanisms, the generation and maintenance of employments or the access of impoverished populations to better public services to face climate change.

R: Included in the Executive Summary. The dry corridor itself is a focalization exercise where geographically speaking, is a pro poor approach as investment are aiming for poor populations of small producers

*J. Sufficiently considers cost effectiveness of proposed investments*

Although there is an implicit cost-effectiveness approach of climate investments, for example "the Investment of the PPCR complemented the public investment in prioritized sectors in order to increase climate change resilience", the document does not explicitly mention a cost-effective evaluation of the investment contemplated.

R; This may be part of an economic analysis. The team does have this Information.

### **Part III: Compliance with the investment criteria of SPCR**

Provide extensive comment on whether the SPCR complies with the following criteria specific for PPCR (see TORs).

*A. Climate risk assessment: The SPCR has been developed on the basis of available information on the assessment of the key climate impacts in the country; the vulnerabilities in all relevant sectors, populations and ecosystems; and the economic, social and ecological implications of climate change impacts.*

The SPCR-Honduras has an extensive description of the climate change impacts, the vulnerability of relevant sectors, the people and their ecosystems, as well as the economic, social, and ecological implications of climate change.

The document identifies in detail the impacts of climate change in prioritized sectors: water and agricultures, including sensitivity factors such as temperature rises and the levels of evapotranspiration. The main trends of hydro meteorological events, the severity of hurricanes, the risk of draughts, floods and forest fires in all its territory, as well as the impacts for the populations that are especially vulnerable such as indigenous groups and afro-descendants.

*B. Institutions/ co-ordination: The SPCR specifies the coordination arrangements to address climate change: cross-sectoral; between levels of government; and including other relevant actors (e.g., private sector, civil society, academia, donors, etc.).*

The SPCR defines an institutional and political framework strengthening directed to structuring coordination at different levels, strengthening the role of MiAmbiente to coordinate the work and harmonize the existing initiatives. It recognizes the needs of having a map of stakeholders and the dialogue spaces, including the different work platforms at different levels.

The SPCR describes the elements of a coordination mechanism, both the roles and functions of a Technical Inter-institutional Climate Change Committee (CTICC), the roles of MiAmbiente, the Ministry of Finance, and the Presidential Office of Climate Change (Clima+). As well as the dialogue and coordination mechanisms with other relevant stakeholders (for example, Private sector, civil society and academia, among others) in key sectors.

*C. Prioritization: The SPCR has adequately prioritized activities taking into account relevant climate/risks and vulnerabilities and development priorities, sectoral policies; ongoing policy reform processes and existing, relevant activities and strategies.*

The document establishes priorities based on both existing public policy and the National Climate Change Strategy and the National Adaptation Plan as the pillars of the participation and dialogue process with relevant stakeholders.

Priorities were identified based on a coordination mechanism strengthened by the PPCR process, both at the government key department level (which includes MiAmbiente, the Ministry of Finance and the sectors identified) as with other Honduran society stakeholders (private sector, civil society and academia, among others). The document also clarifies the coordination links and opportunities with the donor group.

*D. Stakeholder engagement/ participation: The SPCR has identified and addressed the needs of highly vulnerable groups.*

The document addresses gender and the participation of vulnerable groups as cross-cutting aspects by responding to the priorities identified; it mentions the participation processes and public consultation which has been used to formulate the SPCR, among these stakeholders are also especially vulnerable groups. The document also mentions studies and evaluations on the needs of the vulnerable groups,

including indigenous and afro-descendant communities, among others. The integration of community organizations in the PPCR process has also been emphasized.

Although aspects related to vulnerable groups are identified as cross-cutting, the document would benefit from a more detailed explanation of how the priorities identified in the SPCR-Honduras will respond to these needs identified. Above we suggested to review how the SPCR-Honduras responds to a conceptual framework against poverty, this review would also give light on how Honduras responds to the needs of vulnerable groups.

**R:** The team has included these comments as a positive action which included the redistribution, equal opportunities, and the promotion o access to goods and services. This issue will be addressed through Subprograms 2 and 3.

- (1) Complies with the principles and objectives of PPCR as specified in the design documents and programming modalities.

<b>PPCR principles:</b>	
<i>A. Embedded in the broader context of sustainable development</i>	
<p>Both the Climate Change National Strategy (CCNS), and the Climate Change Law (2013) have been articulated into the National Plan 2010-2022 and the Country Vision 2038 and other SDGs. In addition, the elements of the regional framework are described, at the Central American level, on sustainable development. These relations are also described in the components, for example, the links between component 2 on Water management and the commitment of the Honduran State, including SDG 6. From the country NDC's perspective the country would also be aligned to a greater sustainable development agenda.</p> <p>Although the SDG and NDC are relatively new for the countries, these are at a strategic international commitment level. Greater clarity on this issue at the mandate level in Honduras could also help to establish the outcomes frameworks, that is as the PPCR OF Honduras proposes to contribute to the achievement of its NDC's y ODS's.</p>	
<i>B. Ambitious and innovative in their objectives towards climate resilience</i>	
<p>It is ambitious in the sense of strengthening national capacities, both to satisfy the need of the stakeholders of having quality climate services, and in the implementation of a legal and regulatory framework to carry forward a climate change agenda. This capacity should be strengthened through pilot actions in the two prioritized sectors and vice versa. In addition, the experience of the sectors can be used to implement similar measures in other sectors also identified in the public policy instruments on climate change in Honduras.</p> <p>As mentioned above, although the document defines a theory of change (page 41), it is not sufficiently described in terms of the role that the different components can play in strengthening the capacities of climate change in Honduras, as well as the results impacts that this theory of change seeks in Honduran society.</p> <p><b>R:</b> This is clarified in the executive summary and in the project description.</p>	
<i>C. Strengthen collaboration and complementarity with other development partners and seek to identify other sources of financing</i>	
<p>The document clearly expresses the intention of having the investments foreseen in the different components of the SPCR harmonize with existing ones, taking into account the plans and investments contemplated in the different sectors addressed. In its components, the document describes a number of complementary interventions of both the Government of Honduras and</p>	

bilateral and multilateral agencies, on the other hand the links and synergies with programs in complementary sectors such as forestry and biodiversity are highlighted.

It is understood that the description of these aspects will be updated and complemented based on the dialogue at the donor group during the second mission of the SPCR in October 2017

R: Added as follows in the Institutional Analysis Chapter: “and the GoH, through the Ministry of Finance, designs a broad participation platform for climate finance as an economic strategy that supports the execution of public policies aligned with sustainable and climate-resilient development.”

*D. Build on existing efforts supporting climate resilience (including NAPAs), taking care not to duplicate*

The SPCR maps the complementary interventions around the National Climate Change Strategy, the National Adaptation Plan and other sectoral programs.

*E. Outline how lessons learned will be captured and widely shared*

The SPCR-Honduras actually contemplates different mechanisms of coordination, participation of key actors and has a sectorial approach of work with multiple actors, components 1 and 3 have explicit approaches on knowledge management and the document emphasizes the involvement of the academic sector for purposes of knowledge management.

The SPCR of Honduras can have a greater impact if it is considered an effective way to capture lessons and disseminate them widely among the actors through mechanisms of transparency and dissemination and / or stakeholder’s participation and the designation of specific roles to certain stakeholders. The institutionalization of a learning mechanism in the SPCR-Honduras would be a well-valued experience in the PPCR at the global level.

R: Agreed, this has been clarified in the subchapter “*Expected Outcomes from the Implementation of the SPCR*”

<b>PPCR Objectives:</b>	
Help countries transform to a climate resilient development path, consistent with poverty reduction and sustainable development goals. As a pilot program and supporting learning-by-doing, PPCR implementation ultimately aims to result in an <i>increased application of knowledge on integration of climate resilience into development.</i>	
<i>A. Pilot and demonstrate approaches for integration of climate risk and resilience into development policies and planning</i>	
<p>The SPCR-Honduras considers two pilot areas in the sectors of water management, agriculture and food security, on the other hand it has a component aimed at institutional strengthening for the integration of DRM and CCA considerations into planning policies and instruments.</p> <p>The actions contemplated in both priority sectors (Water and Agriculture) will complement active public policy processes and existing water and sanitation programs, agriculture and food security as well as intersectoral programs.</p> <p>Also, a better integration of climate resilience considerations in the planning and public investment processes is sought.</p>	
<i>B. Strengthen capacities at the national levels to integrate climate resilience into development planning</i>	
<p>The SPCR emphasizes the commitment of the Government of Honduras regarding the integration of the DRM and CCA into the planning processes. Recognizing the institutional capacity in Honduras regarding the strengthening of inter-sectoral coordination mechanisms, and the components proposed for the integration of climate resilience considerations in Water Resources Management and in Agriculture, the SPCR-Honduras has the clear objective of strengthening the national capacities for such integration.</p>	
<i>C. Scale-up and leverage climate resilient investment, building on other ongoing initiatives</i>	
<p>While links to other government programs are considered and opportunities for private sector participation are also described, the mechanisms for leveraging additional investments in climate resilience have not been fully addressed.</p> <p>It is expected to integrate the results of an IFC study to clarify opportunities for private sector participation.</p> <p><b>R: This has been strengthened through the Investment program and the mapping of interventions from other donors and government, which is part of the SPCR Template.</b></p>	
<i>D. Enable learning-by-doing and sharing of lessons at country, regional and global levels</i>	
<p>The components proposed in the SPCR-Honduras will generate an environment conducive to learning in terms of climate resilience, both through practice and experience, but also in terms of sharing these learning at different levels, although the same document recognizes the difficulties of Honduras in making discussions and knowledge reach the most local areas.</p> <p>As mentioned above, the PPCR process in Honduras would be enriched by addressing, in a more explicit manner, the learning objectives on the political integration of climate resilience, eg in component 4 it can enrich the approach of knowledge management, dissemination and transfer of good practices and innovation among the actors.</p>	

R: The knowledge Exchange potential that the SPCR has, was strengthened throughout the document as it is one of the most important outputs. .

(2) Assessment towards the PPCR results framework

R: The team reviewed all comments related to the results framework and included the in the new updated version of the SPCR

Results	Indicators	Comments	Score
<b>A1.</b> Increased resilience of households, communities, businesses, sectors and society to climate variability and climate change	<b>INDICATOR A1.1</b> (optional): Change in percentage of households (in areas at risk) whose livelihoods have improved (acquisition of productive assets, food security during sensitive periods of the year)	This indicator is relevant for components 2 and 3. The document clearly mentions these aspects	
	<b>INDICATOR A1.2</b> (optional): Change in damage/losses (\$) from extreme climate events in areas at risks that are the geographical focus of PPCR intervention	The document refers extensively to the losses caused by extreme events in the agriculture sectors.	
	<b>INDICATOR A1.3:</b> <b>(core)</b> <b>Numbers of people supported by the PPCR to cope with effects of climate change</b>	This indicator reflects the estimated number of beneficiary population of the PPCR.	
	<b>INDICATOR A1.4:</b> (Optional) Percentage of people with year round access to reliable and safe water supply (domestic, agricultural, industrial)	The GoH recognizes this goal as important and has been explicitly highlighted in Component 2.	
<b>A2.</b> Strengthened climate responsive development planning	<b>INDICATOR A2.1:</b> <b>(core)</b> <b>Degree of integration of climate change in national, including sector planning -</b>  e.g., national communications to UNFCCC, national strategies, PRSPs, core	The indicator reflects the intent of one of the SPCR –Honduras components.	

	sector strategies, annual development plans and budgets, and NAPs		
	<b>INDICATOR A2.2:</b> (optional)  Changes in budget allocations at national and possibly sub- national level of government to take into account effects of CV&CC	There is no references to this indicator in the document.	
<b>B1.</b> Strengthened adaptive capacities	<b>INDICATOR B1:</b> <b>(core)</b>  <b>Extent to which vulnerable households, communities businesses and public sector services use improved PPCR supported tools, instruments, strategies, activities to respond to Climate Variability and Climate Change. Will be explained</b>	The document refers to public policy instruments and tools for climate change adaptation. This is described explicitly in Component 2.	
<b>B2.</b> Improved institutional framework in place	<b>INDICATOR B2:</b> <b>(core)</b>  <b>Evidence of strengthened government capacity and coordination mechanism to mainstream climate Resilience</b>	The document refers to the different coordination mechanism at the different national, subnational, and sector levels.	
<b>B3.</b> Use of climate information in decision making routinely applied	<b>INDICATOR B3:</b> (optional)  Evidence showing that climate information products/services are used in decision making in climate sensitive sectors	This is one of the desired outcomes of component 1	
<b>B4.</b> Climate responsive investment approaches identified and implemented	<b>INDICATOR B4:</b> (optional)  Leverage of PPCR funding against public and private investments in climate sensitive sectors	The document states that this is one of the intentions of the PPCR-Honduras, but there is no major information that reflects how this leverage can be achieved. This has also been identified in the criteria lines above referred.	

<b>B5.</b> Climate responsive investment approaches identified and Implemented.	<b>INDICATOR B5: (core)</b>  <b>Quality of and extent to which climate responsive instruments/ investment models are developed and tested.</b>	This Indicator can be evaluated according to the implementation of the investment lines in prioritized sectors, components 2, 3.	
---	--	--	--

### **Part III: Conclusions and Recommendations**

#### *Overall assessment of the SPCR*

The document is in general terms well written and documented. Some of the critical elements that have been highlighted above are:

- The document is based on a sound assessment of the institutional capacities of Honduras as well as its climate change public policies framework, as well as the recognition of difficulties and challenges in terms of its climate resilience and how the country wants to address them;
- It has an extensive evaluation of the potential impacts of climate change in both key sectors and geographical areas;
- The process of prioritization and definition of components of the SPCR is based on an extensive consultation that was carried out to prepare the PPCR, but at the same time it is supported by a number of complementary studies, which describe a level of understanding of the risks and potential impacts of climate change, which are collected to reinforce this selection;
- The Honduras SPCR is ambitious in terms of strengthening national capacities, both to provide quality climate services, and to strengthen the application of its legal and regulatory framework, but also to establish transformation processes at the level of two strategic sectors: water management and agriculture and food security. This strategic framework has not been described sufficiently in the corresponding section;
- Associated to the previous point, the importance of linking the PPCR outcomes framework with the entire framework of commitments, goals and results that Honduras has with the international community around its NDCs, SDGs, and other relevant ones, described in its Development Plan, this could help focus PPCR efforts;
- The document identifies the existing gaps in response to the needs of vulnerable groups, as well as existing gender gaps exacerbated by climate change, the document would benefit from a better description of how these gaps will be addressed through the different instruments of public policy raised in the SPCR;
- Participation and involvement of the private sector, not only as a beneficiary of government programs, but as a relevant actor for transformation and to contribute significant investments in key sectors could be reviewed and emphasized;
- Honduras hopes to strengthen its capacities to comply with a series of key institutional functions for adaptation, such as: (i) information management, (ii) coordination, (iii) planning and (iv) financing, in addition to the investments that are contemplated in the prioritized sectors. These capacities will be enhanced if there is an effective mechanism for the recovery and dissemination of lessons learned among the stakeholders. The document can give a more assertive mandate to the actors responsible for its implementation to consider learning and knowledge management processes as an empowering dimension;
- The Honduras SPCR is ambitious in terms of strengthening national capacities, both to provide quality climate services, and to strengthen the application of its legal and regulatory framework, but also to establish transformation processes at the level of two strategic sectors: water management and agriculture and food security. This strategic framework has not been described sufficiently in the corresponding section;
- Linked to the previous point, the importance of linking the PPCR results framework with the entire framework of commitments, goals and results that Honduras has with the international

community around its NDCs, ODSs, and other relevant ones is noted. described in your Development Plan, this could help focus PPCR efforts;

- The document identifies the existing gaps in responding to the needs of vulnerable groups, as well as existing gender gaps and exacerbated by climate change, the document would benefit from a better description of how these gaps will be addressed through the different instruments of public policy raised in the SPCR;
- Participation and involvement of the private sector, not only as a beneficiary of government programs, but as a relevant actor for transformation and to contribute significant investments in key sectors could be reviewed and emphasized;
- Honduras hopes to strengthen its capacities to comply with a series of key institutional functions for adaptation, such as: (i) information management, (ii) coordination, (iii) planning and (iv) financing, besides the investments that are contemplated in the prioritized sectors. These capacities will be enhanced if there is an effective mechanism for the recovery and dissemination of lessons learned among the actors. The document can give a more assertive mandate to the actors responsible for its implementation to consider learning and knowledge management processes as an empowering dimension;
- The document describes the integration of PPCR climate funding with other existing programs or potential programs financed by the MDBs and briefly describes Honduras' strategy to access climate finance. The possibility of leveraging additional climate financing resources such as for example, those of the Green Climate Fund, as well as other public and private sector resources, have not been sufficiently addressed.

Overall, the reviewer assessed a total of 34 criteria and indicators with the following scoring:

18	The criteria and/or indicator has been generally met and there is no need for any revision or larger complement at this stage
12	The criteria and/or indicator is partially met, it is recommended to relook at some of aspects that need further clarification
4	The criteria and/or indicator is partially met and need to be developed [or, at the current stage the criteria is not relevant]

#### Recommendations:

R: The team appreciates the recommendations, the team feels the Strategic relevance of the objective and componentes has been strengthened providing mor eifnformation and claryifyny the inkages between each suprogram.

- Highlight the strategic nature of the components and how they are linked in a theory of change and results framework;
- Make the link with the strategic objectives of the country more visible in terms of NDCs, SDGs and poverty reduction and others that are considered strategic with the objectives of the SPCR of Honduras;
- Increased visibility of the knowledge and learning management mechanisms, for example, by providing them with a mandate and a strategic space in the structure of the SPCR;
- Greater visibility, where appropriate, on how the SPCR responds to the needs of the most vulnerable groups;
- Provide more visual invormation (a listo r chart) on climate investment in Honduras, its links with existing and potential programs and the possibilities or intent of leveraging climate funding;

#### References

---

Main document reviewed:

- SPCR-Honduras

Additional documents consulted (add more if needed):

- PPCR Design Document (2009)
- PPCR Programming and Financing Modalities (2011)
- Revised PPCR Results Framework (2012)
- PPCR Revised procedures for the preparation of independent technical reviews of the SPCR (2016)

## Annex 7. Projects in Pipeline from MDBs and Partners with Interventions that will contribute to the SPCR Subprograms

Table 6. WBG Projects in Pipeline with Interventions in Climate Resilience

MDB Project	Indicative Budget	Financial Mechanism	Subprogram it Informs	Current Situation	Comments
<b>World Bank Group</b>					
Disaster Risk Management Project	USD 10 M <sup>17</sup>	Credit/Loan	Subprogram 1: Climate risk information systems	Approved and under implementation	Partial funding is aimed to support the implementation of activities defined under Subprogram 1, specifically the implementation of the Modernization Plan for the Hydro Meteorological National Systems.
Promoting Resilience in Water Supply and Sanitation Sectors	USD 66.5 M + USD 10 M	Credit/Loan and Guarantee	Subprogram 2: Water resource and WSS service delivery	In preparation	The objective of the project is to strengthen water and sanitation service delivery in urban cities, most of the located in the dry corridor, in alignment with the Water and Sanitation National Plan.
GAFSP	USD 25 M	Grant	Subprogram 3: Climate smart agriculture	Approved	The project is framed within the interventions of the Dry Corridor Alliance which supports the intervention of the Government's Food Nutrition strategy which has a strong water harvesting and sanitation and hygiene component.
<b>Total</b>	<b>USD 101.5 M</b>				

Source: WBG, Water Team, 2017.

<sup>17</sup> Total funding for this credit is USD 26 M.

Table 7.IDB Projects in Pipeline with Interventions in Climate Resilience

<b>MDB Project</b>	<b>Indicative Budget</b>	<b>Financial Mechanism</b>	<b>Subprogram it Informs</b>	<b>Current Situation</b>	<b>Comments</b>
<b>IDB</b>					
WSS interventions models	USD 0.5 M	Grant	Subprogram 2: Water resource and WSS service delivery	Approved	This CT aims to develop model guidelines for intervention in water and sanitation in rural dispersed, based on a systematization of existing experiences, delivery models for rural and dispersed zones, and the demonstration and piloting of sustainable technological alternatives
Emerging Cities Initiatives	USD 0.55 M	Grant	Subprogram 2: Water resource and WSS service delivery	Approved	
Residual Management Initiative in Urban Areas	USD 0.25 M	Grant	Subprogram 2: Water resource and WSS service delivery	Approved	
Smart Solar for Commercial Scale	USD 3.33 M	Credit/Loan	Subprogram 4: Institutional Strengthening	Approved	The objectives of the project are to install renewable energy system in the Honduran industrial sector, under an innovative financial structure that is scalable.
Update local mangrove inventories, conservation, mitigation and adaptation to c	USD 0.17 M	Grant	Subprogram 3: Climate smart agriculture	Approved	Mangrove conservation of African descendant and indigenous communities' territories and the implementation of several community projects for poverty reduction based on sustainable use and management of biodiversity and ecosystem services of the mangroves.
Update local mangrove inventories, conservation, mitigation and adaptation to c	USD 0.2 M	Grant	Subprogram 3: Climate smart agriculture	Approved	
Resilience of the Blue Economy and Coastal Ecosystem in Northern Honduras "MiPESCA"	USD 2.1 M	Grant	Subprogram 3: Climate smart agriculture	Approved	Increase income of Atlantic coastal communities of Honduras, through sustainable productive activities that allow them better access to local markets and conserve coastal ecosystem on which they depend
Resilience of the Blue Economy and Coastal Ecosystem in Northern Honduras "MiPESCA"	USD 3.44 M	Grant	Subprogram 3: Climate smart agriculture	Approved	
Private Investments Incentive Mechanism for Rural Solar Energy in Honduras	USD 0.22 M	Grant	Subprogram 4: Institutional Strengthening	Approved	Provide access to energy for lighting, phone charging and shared agro-processing mills to off-grid 2-3 communities in Gracias a Dios
Experience Exchange in Renewable Energy in Insular Systems	USD 0.344 M	Grant	Subprogram 4: Institutional Strengthening	Approved	Carry out an exchange of experiences and lessons learned between the Republic of Ecuador and Honduras on the planning

Experience Exchange in Renewable Energy in Insular Systems	USD 0.32 M	Grant	Subprogram 4: Institutional Strengthening	Approved	and introduction of renewable energy in island systems,
Sustainable Forest Management	USD 25 M	Credit/Loan	Subprogram 2: Water resource and WSS service delivery	Approved	The general objective of the project is to recover and maintain forest ecosystem services in priority watersheds affected by the bark beetle
Sustainable Forest Management	USD 0.25 M	Grant	Subprogram 2: Water resource and WSS service delivery	Approved	
Boosting the Competitiveness of Small Forest Producers and Communities in Honduras	USD 1.08 M	Grant	Subprogram 3: Climate smart agriculture	Approved	The introduction of new business models based on integrated and diversified use of forest resources (timber and non-timber) to increase productivity and production quality
Boosting the Competitiveness of Small Forest Producers and Communities in Honduras	USD 1 M	Credit/Loan	Subprogram 3: Climate smart agriculture	In preparation	
Rural Electrification Program	USD 7.32	Grant	Subprogram 4: Institutional Strengthening	In preparation	
Boosting the Competitiveness of Small Forest Producers and Communities in Honduras	USD 0.5 M	Guarantee	Subprogram 3: Climate smart agriculture	In preparation	
<b>Total</b>	<b>USD 46.5 M</b>				

Source: IDB Focal Point, First and Second Joint Mission, data 2017.

Annex 8. List of participants of the first workshop

**Anexo I**  
**Estado de participantes (orden alfabético)**

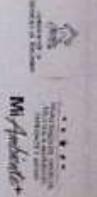
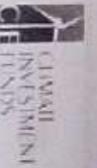
Nombre	Institución	Cargo	Correo Electrónico
Alvaro Urbina	Secretaría de Desarrollo e Inclusión Social	Técnico	arurbina@psico.com.mx
Ava Bucher	Banco Mundial	Esp. Cambio Climático	abucher@worldbank.org
Ava Campos	Banco Mundial	Esp. Cambio de riesgo	acampos@worldbank.org
Ava Fortin	Randerson Alliance	Gerente	afortin@raa.org
Ava Méryna Suarez	Universidad Nacional de Agricultura	Recursos Naturales	ameryna29@gmail.com, ameryna1@icrmail.com
Ava Velazquez	Instituto de Conservación Forestal	Técnico Biología	avavelazquez@icf.org
Aurora Silva	Confederación de Pueblos Asociados de Honduras (COPAH)	TEL	aurora@copah.net
Amy Brooks	Centros Nacionales de Turismo de Honduras	Fiscal	ambrooks14@hotmail.com
Berta Aguilera	MAmbiente	Técnico Finanzas del Clima (TCN)	bertaaguileras4@gmail.com
Berta Argente	Secretaría de Infraestructura y Servicios Públicos	Directora TIOA	bergarte@ambiente.gob.hn
Bianca	Agua de Deseño	Administradora	bianca@gmail.com
Carlos Bonilla	Academia Municipal del Distrito Central	Comité de Emergencia Municipal (COEMU), Proyectos Sociales	caribonilla077@gmail.com
Carlos Pizarra	Universidad Nacional Autónoma de Honduras	Técnico Instituto Hondureño de Ciencias de la Tierra (IHCTI)	caripizarra72@gmail.com
Carlos Gallegos	Banco Mundial	Consultor	cgallegos@worldbank.org
Carlos Rivera	Agencia de los Estados Unidos para el Desarrollo Internacional (USAID)	Sobrelider, programa Proequipo	carlos_rivera@usaid.gov
Carsten Padilla	RIVEST-41	Especialista Ambiental	carsten.padilla@rivest41.org
Carst Eusebia	Medicas TILPDAVA	Terapeuta	carst_eusebia@yahoo.com
Christian Duarte	Banco Mundial	Coordinador Comunitarios	cduarte@worldbank.org
Christopher Seely	Agencia de los Estados Unidos para el Desarrollo Internacional (USAID)	Director, programa Proequipo	chrisseely@usaid.gov
Clara Hernández	Instituto Hondureño de Investigación Agrícola	Técnico - BTA (BTA)	clahernandez@ihia.org
Clara Valladao	Nación IV Agraria (Nación)	Investigadora	clavalladao27@gmail.com
Christian Rios	Secretaría de Agricultura y Ganadería	Investigador Agrónomo, (DR) IAV	christianrios@siagro.gub.hn
Dayana Martínez	MAAmbiente	Investigadora Ambiental	dayana12@yahoo.com



GRUPO DEL BANCO MUNDIAL



Inter-American  
Development Bank



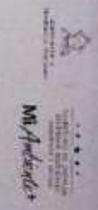
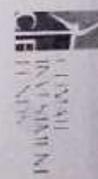
Nombre	Institución	Cargo	Correo Electrónico
Daisy Méndez	Programa de Investigación de OGIAR en Cambio Climático, Agricultura y Seguridad Alimentaria (CCAS)	Coordinadora ejecutiva Programa de Investigación de OGIAR en Cambio Climático, Agricultura y Seguridad Alimentaria (CCAS)	dmendez@igiar.org
Dennis Flores	Programa de las Naciones Unidas para el Desarrollo	Ejecutivo de Programa	dennis.flores@undp.org
Dennis Andino	ICR1	Periodista	dennisandino28@yahoo.com
Digna Zelaya	Asociación el Cerezo	Jefe CC	dignazelaya@post.escuelita.com
Dionela Pérez	Comisión Permanente de Coordinación (COPRECO)	Cooperadora Internacional	dionelaperez@guatemala.gov.gt
Dany Avila	MLAmbiente	Analista Ambiental CIBCCO	danyavilac@guatemala.gov.gt
Edas Mantos	Fundación Vida	Director	edilberto@fundacionvida.org
Edilberto Zelaya	consi G2 Honduras	Dir. Civil	hyperomra_hu@guatemala.gov
Elda Meléndez	Comitadono Nacional de los Derechos Humanos (CONADH)	Técnico	pedigulier@ambiterre.gub.gt
Elietana Aguilar	MLAmbiente	Analista Ambiental	emec.comas@guatemala.gov
Ely Nee	Consejo Nacional de Agua Potable y Saneamiento (CONASA)	Consultor	elynee@unhcr.org
Franco Castillo	Banco Interamericano de Desarrollo	Especialista Frente	francc@fortislab.org
Federico Uribe	Federación de Organizaciones No Gubernamentales para el Desarrollo de Honduras (FOGDEH)	Cooperador proyectos	fruri@fortislab.org
Fernando García	Servicios Técnicos Legales y Económicos (STELI/E)	Director	fgarcia@rshoo.com
Felisa Batangus	Secretaría de Desarrollo e Inclusión Social	Técnico Agrícola	batangusfelisa@gmail.com
Francoisco Aragón	Comisión Permanente de Coordinación (COPECO)	Sub jefe CENACOS	francois@guatemala.gov
Gabriela Aguilera	Comisión Nacional de Turismo de Honduras	Directora ejecutiva	hcastaguilera@guatemala.gov
Gandy Alvarado	Mesa de Organizaciones Co-manejadoras de Avares (Organización de Honduras (MOCOH)	Consultor	gandyalvarado@guatemala.gov
Gemma Flores	Organización de las Naciones Unidas para la Alimentación y la Agricultura (FAO)	Gerente SAN	gemma.flores@fao.org
Gemma Poyon	Alcaldía Municipal del Distrito Central	Coordinador TIC-BTD	gemma.poyon@guatemala.gov
Gianlo Prisci	Banco Interamericano de Desarrollo	Representante Banco Mundial Honduras	gianloprisci@idsb.org
Georgio Valeriano	Banco Mundial	Técnico	georgiovaleriano@idsb.org
Gracia Casillas	MLAmbiente	Analista	gracia.casillas@ambiente.gub.gt
Gladys Rojas	Servicio Autónomo Nacional de Acueductos y Alcantarillado	Asesora técnica	gladysrojas@sanaguatemala.gov
Gustavo Orta	Secretaría de Turismo	Asesor	gustavo.ortad@turismo.gub.gt
Héctor L. Duran	Nación MIV-75	Asesor	hector@nacionmiv75.org
José Raúl Cerón	Ente Regulador de los Servicios de Agua y Saneamiento (ERSA/18)	Director	joseraul@ersa.gov



GRUPO DEL BANCO MUNDIAL



Inter-American Development Bank



Nombre	Institución	Cargo	Correo Electrónico
Diana Cardona	México	Asesora Dirección de Biodiversidad	mdcardon@interam.intec.gub.hn
Ingrid Ordóñez	INVEST-H	Adquisiciones	ingrdonez@investh.intec.gub.hn
Jorge Ortega	México	Asistente Técnico Mitigación CC (PTCN-PMUD)	lorjorge@interam.intec.gub.hn
Juan Bascobat	Finca Regulador de los Servicios de Agua y Saneamiento (ERSAS)		jbascobat@ersa.hn
Jacobo Flores	Secretaría de Finanzas	Especialista de Proyectos	jbflora@sefin.gub.hn
Jacobo Toledo	México	Exp. Energía	
Jorge Lahera	Agencia de los Estados Unidos para el Desarrollo Internacional (USAID)	Especialista Agroforestal	jorge_lahera@usda.com
Jorge Quiñones	México	Asistente Técnico AGC	jquinhonez@interam.intec.gub.hn
José Del Cid	Secretaría de Agricultura y Ganadería	Ing. de Proyectos	josedelcid@agr.gub.hn
José Manuel G.	México	Técnico GR	manuelg@agr.gub.hn
José Manuel Cordero	Canal 51	Periodista	manuelc@canal51.com
Juan Araya	Rancharos Altiplano	Coor. Técnico	juanaraya@raa.org
Juan Ponce	Noticias RCTI	Periodista	juanponce@rcti.hn
Juan Meza	Instituto Hondureño de Turismo	Jefe	juanmeza@iht.hn
Julia Schmitz	Agencia de Cooperación Alemana al Desarrollo (GIZ)	Coordinadora CC	julia.schmitz@giz.de
Karen Rice	Carroll de Honduras	Ing. Ambiental Honduras	karenrice@carroll.com
Karen Rice	México	Analista CC Dirección de Biodiversidad	karenr@interam.intec.gub.hn
Karen Ahmed	Banco Mundial	PPCR Focal	karen.ahmeder@worldbank.org
Kenia Hernández	Programa de las Naciones Unidas para el Desarrollo	Asesora	kenia.hernandez@un.org
Lagoe	Comuna Nacional de Turismo de Honduras	Dirección ejecutiva	directora@comuna.tur.hn
Laura Saura	Universidad de Zamorano	Dirección del Depto. Ambiente y Desarrollo	laura.saura@unzam.ac.cr
Laura Gracia	Gobierno de las Naciones Unidas para la Alimentación y la Agricultura (FAO)	Representante	
Laura R. Ochoa	Asociación Hondureña de productores de Frijoles (AHPHF)	Directora Ejecutiva	laura.ochoa@ahphf.org
Lily Cahalera	Banco Mundial	Coordinadora	lilycahalera@worldbank.org
Luz Patricia	Servicio Autónomo Nacional de Ingresos y Aduanas (SINA)	Especialista en el sector del comercio	luzpatricia@sinah.gub.hn
Luis Guadalupe	Asociación Municipal del Desarrollo (AMUD)	Coordinador de Proyectos de Energía y Medio Ambiente	luisguadalupe@amud.com
Luis Molar	Fundación Vida	Coordinador	luis.molar@fundacionvida.com



GRUPO DEL BANCO MUNDIAL



Inter-American Development Bank



CLIMATE INVESTMENT FUNDS



MI AMBITO

Nombre	Institución	Cargo	Correo Electrónico
Luis Zazuaga	Red Hondureña de Reservas Naturales Privadas	Presidente	zazuaghs@yahoo.es
Mamuel Martínez	Agencia Suiza para el Desarrollo y la Cooperación (COSUDE)	Oficial Programas	manuel.martinez@cosud.admin.ch
Marcos Carrillo	Malabonense	Director UCI	marcillo@minambiente.gob.hn
Marcos Lantier	Alcalde Municipal del Distrito Central	Director UGA	marcos_lantier@hotmail.com
Marcos Quim	Programa de las Naciones Unidas para el Desarrollo	Asesor	marcos_quim@undp.org
Margaret Arnold	Banco Mundial	Especialista de desarrollo social	marnold@worldbank.org
Marta Jose Benilla	Malabonense	Técnico Dirección Nacional de Cambio Climático	mibenilla@dirnacionalcambio.gob.hn
Marta Rodríguez	McAubonense	Planificadora	mpreg@dirnacionalcambio.gob.hn
Martina Sansocha	Instituto Hondureño de Turismo	Ejecute de Planeamiento	msansocha@iht.hn
Martina Daren	Secretaría de Agricultura y Ganadería	Coordinador Investigaciones	martina.daren@yahoo.es
Martín Méndez	Comisión Permanente de Contingencias (COPRECO)	Dir. Cooperación	martinmendez@copreco.gob.hn
Martín Moreno	Organización de las Naciones Unidas para la Alimentación y la Agricultura (FAO)	Consultor	mmoreno25@iel.org
Mía Rodríguez	Corporación Financiera Internacional (CIFI)	Asistente Oficial de Inversiones	mrodriguez@iif.com
Miguel Ernesto Torres	Secretaría de Agricultura y Ganadería	Consulta Monitoreo	migueltorres@yahoo.com
Miguel Ramírez	Instituto de Conservación Forestal	Análisis Seguimiento a la Declaración de Escozoma (GSED)	miguelramirezramirez@yahoo.com
Nadia Cruz	Programa de las Naciones Unidas para el Desarrollo	Asesor GDR	nadiazcruz@undp.org
Nelson Molina	Mancorunidad de Municipios del Golfo de Fonseca (MUNGOFO)	Experto Ambiental	nelsonm@nacion.com
Nicole Mariner	Chancra Nacional de Turismo de Honduras	Secretaria	nicole62@mariner.com
Oscar Iglesias	Consejo Hondureño de la Energía Privada (COHEEP)	Asesor Ambiental	oiglesias31@yahoo.com
Oscar Katsi	Asociación Hondureña de Productores de Energía Eléctrica (AHPEEP)	Junto Directiva	okatsi@ahpeep.com
Oscar Masaranga	Confederación de Partidos Autócratas de Honduras (CONPAH)	Técnico	oscar@conpaht.com
Oscar Navarro	Agencia de Cooperación Alemana al Desarrollo (GIZ)	Gobernador Nacional	oscar.navarro@giz.de
Omar Barahona	Servicio Autónomo Nacional de Acetados y Alantarrillos	Ing. Proyectos	omarbarahona@sanac.com
Paola Balir	Banco Mundial	Consultor	paola.balir@worldbank.org
Paola Vidals	Secretaría de Agricultura y Ganadería	Consultor	paola@sanacion.com
Rafael Martínez	Programa de las Naciones Unidas para el Desarrollo	Asesor Ambiental	rafael.martinez@undp.org
Raúl Raudales	Mesamunicipal (Mecida) en el Interior	Proctor	raul@mesamunicipal.com
Rene Patricia Menck	Ayuda en Acción	Coordinadora	renepatricia@menck.com



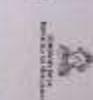
GRUPO DEL BANCO MUNDIAL



Inter American Development Bank



CLIMATE INVESTMENT FUNDS



Ministerio del Medio Ambiente y Recursos Naturales

Nombre	Institución	Cargo	Correo Electrónico
Robert Turbey	Mesoamerican Development Institute	Director de programas	rturbey@mesoamerican.org
Roberto Muñoz	Red Financiera de Recursos Naturales Privadas		rmunoz@yahoo.com
Roberto Perillo	MiAmbiente	Coord. Técnico REED	rperillo@ambiente.com
Rodolfo Quevedo	Agencia de los Estados Unidos para el Desarrollo Internacional (USAID)	Coordinador RRD	rodolfo_quevedo@usaid.gov
Saddy Penabaz	Instituto de Cooperación Ecuatorial	Jefe departamento cambio Climático	spenabaz@ecgob.int
Samuel Apitanez	Agencia Forestal	Asistente Técnico	samuel.apitanez@forestal.com
Scarleth Inestroza	McAmbiente	Jefe de Unidad de Descontaminación y Seguridad	scarly_2_3@mba.com
Scarleth Muñoz	Banco Interamericano de Desarrollo	Consultora CC	scarlethmu@iadb.org
Sergio Bacon	Noticias TELEMAYA	Canalógico	sbacon@noticias.com
Sirenia Huardi	INVEST-H	Exp. Financiera	sireniah@investhonduras.com
Sofía Viquez	Banco Interamericano de Desarrollo	Iniciativa de Ciudades Emergentes y Resilientes	sofiav@iadb.org
Susana Zelaya	Universidad de Zamorano	Exp. Cambio Climático	szelaya@unz.edu.hn
Suzann Archibode	Noticias Universal	Periodista	suzann@news.com
Tania Peña	Universidad Nacional Autónoma de Honduras	Instituto Hondureño de Ciencias de la Tierra (IHCT)	vpalderon13@unah.edu.hn
Vicente Calderón	Ente Regulador de los Servicios de Agua y Saneamiento (ERCSA)	consultor	vcalderon13@gmail.com
Wendy Rodriguez	McAmbiente	Departamento de Ingeniería, DSRH	wendyrod@mba.com
Yani Ramirez	Cámara de Turismo de la Celiba	Asesor	y.ramirez@yaho.com
Yeni Astudiz	Consejo Hondureño de la Empresa Privada (COHEP)	CIES	yeniastudiz@cohep.com
Yessica Rodríguez	Agua de Daali	Gerente	yessica11@yahoo.com

## Annex 9. Agenda of the Workshop of the first Joint Mission

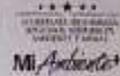
		
<b>Anexo 2</b> <b>Agenda del taller</b>		
<b>Martes 8 de marzo de 2016 (Hotel Clarión)</b>		
Hora	Tema	Participantes
8:30 – 9:00	Inscripción de participantes	Asistentes
9:00 – 9:30	Palabras de apertura e instalación de la Primera Misión Conjunta PPCR - Honduras	- Ministro José A. Galdames, - Viceministro Elvis Rodas Flores - Representante BM: Giorgio Valentini - Representante BID: Sra. Mirna Lievano
9:30 – 10:15	Presentación introductoria sobre el PPCR - Introducción al Programa Piloto de Resiliencia Climática (PPCR)	Equipo técnico BMD
10:15 – 10:30	Receso café	
10:30 – 10:45	Objetivos, agenda y resultados esperados del taller: - Presentación sobre objetivos, agenda y resultados esperados del taller	Equipo técnico Mi Ambiente (Sergio Palacios, Luis Alfredo Rivas)
10:45 – 11:30	<b>PRIMERA SESIÓN: Panel sobre la planificación del desarrollo y CC en Honduras</b> (3 presentaciones de 15 minutos cada una)  - Presentación sobre la agenda de desarrollo del país y grado de integración de la dimensión climática - Estrategia Nacional de Cambio Climático, INDC: avances y perspectivas - Síntesis de inversiones, actores, procesos y áreas geográficas beneficiadas.	<b>Presentación 1:</b> - Viceministro Elvis Rodas Flores  <b>Presentación 2:</b> - Director Nacional de CC: Sergio Palacios  <b>Presentación 3:</b> - SEFIN Gustavo Oliva y Jacobo Flores
11:30 – 1:00	Sesión de preguntas y respuestas	Facilitadores: equipo BMD
1:00 – 2:00	Receso almuerzo	
2:00 – 2:30	Importancia de la información para la toma de decisiones resiliencia climática	<b>Presentación 4:</b> - Ana Elisa Bucher (Especialista en Cambio Climático, Banco Mundial)
2:30 – 3:00	<b>Escenarios climáticos en Honduras:</b> Cambios en precipitación y temperatura) y tendencias a futuro	<b>Presentación 5:</b> - Francisco Argueñal (COPECO-CENAOS)
3:00 – 4:30	<b>Avances en el Plan Nacional de Adaptación al CC de Honduras</b>  - Presentación de los avances en el proceso del PNA - Propuesta de priorización de sectores para el PNA	<b>Presentación 6:</b> - María José Bonilla (DNCC) - Jorge Quiñonez (Proyecto Tercera Comunicación Nacional)
4:30 – 4:45	Receso café	



GRUPO DEL BANCO MUNDIAL



CLIMATE INVESTMENT FUNDS



**Martes 8 de marzo de 2016 (Hotel Clarión)**

Hora	Tema	Participantes
4:45 – 5:15	Sesión de preguntas y respuestas	Facilitadores: equipo BMD
5:15	Cierre del primer día del taller	

**Miércoles 9 de marzo de 2016 (Hotel Clarión)**

Hora	Tema	Participantes
8:00 – 8:30	Síntesis del día 1 del taller	Facilitadores: equipo BMD
8:30 – 10:00	<b>SEGUNDA SESIÓN: aspectos conceptuales y propuestas sobre resiliencia climática (panel de presentaciones, 30 minutos c/u)</b> - Agricultura Sostenible Adaptada al Clima - Propuestas de resiliencia climática en el sector agropecuario (SAG) - Seguridad Alimentaria y Nutricional	Panel de presentaciones: - Deissy Martínez Barón (CGIAR) - Presentación SAG - Banco Mundial (por confirmar)
10:00 – 10:15	Receso café	Participantes.
10:15 – 11:00	Continuación de la sesión 2 (Panel de presentaciones, 30 minutos c/u) - Ciudades Emergentes y Resilientes (caso de Tegucigalpa) - Propuestas de resiliencia climática en el sector agua (SANAA+DGRH) - Seguridad Hídrica	- Sofía Viguri Gómez (Banco Interamericano de Desarrollo) - Presentación SANAA + DGRH - Banco Mundial (por confirmar)
11:45-12:30	Sesión de preguntas y respuestas	Facilitadores: equipo BMD
12:30 – 2:00	Receso almuerzo	

## Annex 10. Agenda First Joint Mission to discuss the SPCR Document.



**SECRETARÍA DE ENERGÍA, RECURSOS NATURALES, AMBIENTE Y MINAS  
PROGRAMA PILOTO DE RESILIENCIA CLIMÁTICA (PPCR)  
Gobierno de Honduras - Bancos Multilaterales de Desarrollo (BMD)<sup>1</sup>**

**Taller  
“Revisión de la Propuesta de la Estrategia Piloto de Resiliencia Climática de Honduras  
(SPCR)”**

### AGENDA DEL TALLER

#### 1. Resumen de la actividad

<b>Objetivo general</b>	Revisión del Borrador de la Propuesta de la Estrategia Piloto de Resiliencia Climática para Honduras (SPCR por sus siglas en Inglés), en el Marco del Programa Piloto de Resiliencia Climática (PPCR), a ser presentados al Comité del Fondo de Inversión del Clima (CIF), con las diferentes Instituciones involucradas en el tema de Agricultura y Seguridad Alimentaria, Recursos Hídricos, Gestión del Conocimiento y Fortalecimiento Institucional ante el Cambio Climático.
<b>Fecha del Taller</b>	Viernes 08 de Septiembre de 2017
<b>Hora:</b>	09:00 am a 5:00 pm
<b>Lugar</b>	Hotel Marriot, Salón “La Leona”
<b>Coordinación general</b>	Secretaría de Energía, Recursos Naturales, Ambiente y Minas (MiAmbiente)

#### 2. Participantes

No.	Nombre de la Persona	Institución
1	Orlando Sierra	Secretaría de Desarrollo Económico (SDE)
2	J Albino	Secretaría de Desarrollo Económico (SDE)
3	Jorge Aguilera	Presidente Asociación de Prestadores de Agua y Saneamiento
4	Ricardo Velásquez Lazo	Director Unidad de Gestión de Agua de la AMDC
5	Juan Carlos Fuentes	Especialista en Regulación Ente Regulador (ERSAPS)
6	Roberto Zablah	Gerente SANAA
7	Carmen Cartagena	Directora de Recursos Hídricos MiAmbiente
8	Sergio Palacios	Director de Cambio Climático MiAmbiente

<sup>1</sup> Los Bancos Multilaterales de Desarrollo (BMD) que están apoyando al GdH en el marco del PPCR son: el Grupo del Banco Mundial (incluyendo el Banco Mundial y la Corporación Financiera Internacional) y el Banco Interamericano de Desarrollo (BID).

9	Ricardo Peña	Director de UPEG de la SAG
10	Miguel Ernesto Briceño	UPEG SAG
12	Wilmer Henríquez	Secretaría de Coordinación General de Gobierno
13	Bertha Aguilera	Dirección Clima + Plus
14	Roberto Portillo	Oficina Coordinadora de Proyectos MiAmbiente
15	Saddy Pineda	Departamento de Cambio Climático y Bosques ICF
16	Alejandra Reyes	Departamento de Cambio Climático y Bosques ICF
17	Maria José Bonilla	Dirección de Cambio Climático MiAmbiente
18	Roberto Aparicio	Dirección de Cambio Climático MiAmbiente
19	Gabriela Cruz	Secretaría de la Presidencia
20	Fernando Ochoa	UNACIFOR
21	Cristian Irias	Jefe unidad tecnológica / Dirección de Ciencia y Tecnología Agropecuaria, (DICTA) SAG
22	Carlos Flores	Técnico Instituto Hondureño de Ciencias de la Tierra (IHCIT) UNAH
23	Deissy Martínez	Coordinadora científica Programa de Investigación de CGIAR en Cambio Climático, Agricultura y Seguridad Alimentaria (CCAFS)
24	Francisco Argeñal	Comisión Permanente de Contingencias (COPECO)
25	Ely Noe	Consejo Nacional de Agua Potable y Saneamiento (CONASA)
26	Dinoska Pérez	Comisión Permanente de Contingencias (COPECO)
27	German Pavon	Gerente SAN AMDC
28	Gustavo Oliva	Especialista en proyectos DGIP/SEFIN
29	Irma Escobar	Ente Regulador de los Servicios de Agua y Saneamiento (ERSAPS)
30	Jacobo Flores	SEFIN
31	Jorge Rojas	Servicio Autónomo Nacional de Acueductos y Alcantarillados
32	José Del Cid	Secretaría de Agricultura y Ganadería (GR)
33	Luis Flores	Servicio Autónomo Nacional de Acueductos y Alcantarillados
34	Tania Peña	Universidad Nacional Autónoma de Honduras
35	Marco Aguero	Banco Mundial
36	Lily Caballero	Consultora Banco Mundial
37	Luis Alfredo Rivas	MiAmbiente
38	José Manuel Gonzales	MiAmbiente
39	Carmen Padilla	Invest-H
40	Paola Vides	Secretaría de Agricultura y Ganadería

### 3. Agenda Propuesta

<b>Hora</b>	<b>Tema</b>	<b>Participante</b>	<b>Lugar</b>
8:30-9:00 am	Inscripción de los participantes	Asistentes	Hotel Marriot Salón "La Leona"
9:00-9:15 am	Bienvenida y presentación de participantes		
9:15-9:45 am	<b>Presentación 1:</b> Antecedentes PPCR	Marco Agüero Banco Mundial	
9:45-10:15 am	<b>Presentación 2:</b> PPCR Honduras	Luis Rivas Suplente Punto Focal Político	
10:15-10:30 am	<b>Coffe Break</b>	Asistentes	
10:30-11:15 am	<b>Presentación 3:</b> Propuesta SPCR Honduras	José Manuel González Asesor MiAmbiente	
11:15-12:00 am	<b>Presentación 4:</b> Metodología y organización de grupos de trabajo	Luis Rivas Suplente Punto Focal Político	
12:00-1:00 pm	<b>Almuerzo</b>	Asistentes	
1:00-3:00 pm	Trabajo en grupo por tema	Asistentes	
3:00-4:00 pm	Presentaciones por grupo de trabajo	Asistentes	
4:00-4:15 pm	<b>Coffe Break</b>	Asistentes	
4:15-4:30 pm	Preguntas y respuestas	Asistentes	
4:30-5:00 pm	Próximos pasos y cierre del taller	Luis Rivas Suplente Punto Focal Político	

**Annex 11. Images of the technical workshops preparing the SPCR document.**



Work tables for review of the program portfolio of the SPCR



Presentation of the portfolio of programs agreed upon from the start with the participants of the first workshop.

## Annex 12. Agenda Second Joint Mission to validate the SPCR Document



### **AGENDA GENERAL** **Segunda Misión Conjunta** **Revisión del SPCR**

*“Promoviendo la Adaptación al CC a través de la Gestión del Recurso Hídrico generando mejor calidad de vida con Agua Segura y Agricultura Resiliente”*

Time	Actividad	Coordinador	Lugar
<b>Martes octubre 10</b>			
9:00 am	Inscripción de Participantes y Café	MiAmbiente+	Hotel Clarion
9:30 am	Apertura de la Segunda Misión Conjunta del PPCR Honduras con la participación de: <ol style="list-style-type: none"> <li>1. Ministro de MiAmbiente</li> <li>2. Representante de Banco Mundial en Honduras</li> </ol>	Ministro de MiAmbiente+ Ing. José Antonio Galdámes  Representante de Banco Mundial en Honduras Sr. Giorgio Valentini	Hotel Clarion
10:30 am	Ponencia Internacional: El Impacto del SPCR en Bolivia / Preguntas y Respuestas	Mr. Ibert Lugones, Coordinador PPCR en Bolivia y Representante del Ministerio del Agua	Hotel Clarion
12:30 pm	Almuerzo		
1:30 pm to 3:00 pm	Acciones y Estrategias que fundamentan el SPCR y presentación de la Estrategia.  Modalidad Tipo Foro, Presentaciones: <ol style="list-style-type: none"> <li>1. Avances del PNA Honduras</li> <li>2. Plan Maestro ABS Honduras</li> <li>3. Importancia de la Seguridad Hídrica del País y sus Acciones Transformadoras ante el Cambio Climático</li> <li>4. Acciones de País en Agricultura y Seguridad Alimentaria Resiliente al Cambio Climático</li> <li>5. Importancia de los Servicios Hidrometeorológicos para la</li> </ol>	Punto Focal PPCR Honduras  Dirección de Cambio Climático  Delegado Presidencial de Cambio Climático  Dirección de Recursos Hídricos  Secretaría de Agricultura y Ganadería  CENAOS/COPECO	Hotel Clarion

	Gestión del Conocimiento ante el Cambio Climático		
	6. Financiamiento en Proyectos relacionados al Cambio Climático en Honduras	SEFIN	
2:30 a 3:00 pm	Presentación del programa SPCR, líneas estratégicas y componentes	Punto Focal PPCR Honduras	Hotel Clarion
3:00 a 3:30 pm	Espacio para Preguntas y Respuestas	MiAmbiente+	Hotel Clarion
3:30 a 3:45 pm	Resumen del Día y Explicación de la Jornada Miércoles 11	Punto Focal PPCR Honduras	Hotel Clarion
4:00 pm	Refrigerio y cierre de jornada	MiAmbiente+	Hotel Clarion
<b>Miércoles octubre 11</b>			
9:00 am	Inscripción y Refrigerio	MiAmbiente+	Hotel Clarion
9:30 am a 10:00 am	Resumen de la Jornada anterior y explicación de trabajo grupales	MiAmbiente+	Hotel Clarion
10:00 am to 12:30 pm	Sesiones de Trabajo organizadas de acuerdo a los Subprogramas/Proyectos del SPCR para validar alcances	Punto Focal PPCR Honduras	Hotel Clarion
12:30 pm	Almuerzo		
2:00 pm	Sesiones de Plenaria	Participantes	Hotel Clarion
3:30 pm	Café		
4:00 pm	Conclusiones, Próximos Pasos y Explicación Gira de Campo	MiAmbiente+	Hotel Clarion
<b>Viernes octubre 13</b>			
8 am to 5 pm	Gira de Campo a Proyectos de Cosecha de Agua implementándose en Honduras	Punto Focal PPCR Honduras	Jesús de Otoro, Intibucá



## El Gobierno de Honduras

A través de la Secretaría de Energía, Recursos Naturales, Ambiente y Minas

Y con Apoyo de los Bancos Multilaterales de Desarrollo (BMD)

Tenemos el agrado de invitarle al Taller Interinstitucional

### Honduras - Segunda Misión Conjunta

**Socialización de la Propuesta del Programa Estratégico para la Resiliencia Climática (SPCR), en el marco del Programa Piloto de Resiliencia Climática (PPCR)**

#### Participantes

Gobierno, Sociedad civil, Academia, gremios, Sector Privado,  
Cooperantes y Bancos Multilaterales de Desarrollo

**Fecha:** 10 y 11 de Octubre de 2017

**Lugar:** Hotel Clarion

**Salón:** "Real Madrid III y IV"

Por favor confirmar su asistencia con Ana Cabrera Secretaria de la  
Subsecretaría de Energía/MiAmbiente al correo:  
[anacabrera.serna@gmail.com](mailto:anacabrera.serna@gmail.com) al Tel: (+504) 2232-5813

Esperamos contar con su valiosa presencia.



**PPCR** PILOT PROGRAM  
FOR CLIMATE  
RESILIENCE

**HONDURAS**

**LISTADO DE PARTICIPANTES**

OBJETIVO: Taller Interinstitucional Segunda Misión Conjunta PPCR

FECHA: 10/10/17

LUGAR: Hotel Clarión

No	NOMBRE	INSTITUCION	CARGO	CORREO ELECTRONICO	TELEFONO	FIRMA
1	Roy Alonzo	SEFIN	Consultor Inf.	ralonzo@sefin.gob.hn	97836351	
2	Maria Dolores Sanchez O.	SESA	Asesora Legal	msandovalsaxo@gmail.com	99721250	
3	Fernando SA	UNICEF	Tefe Opfo Cambio climatico	UCC@unicef.org.hn	88888920	
4	Gabriel Rivera Falopa	Consultor		grivera558@gmail.com	9953-1233	
5	FERNANDO A. MONCADA	Aguar de Chobame	Gerente tecnico	fermoncadam@yahoo.es	32597773	
6	MARTIN Edgardo Jimenez	Consultor		mmejimenaza@gmail.com	99850107	
7	Jorge A. Urquiza	Consultor		JA-Urquiza@yahoo.com	998920714	
8	Scarlett Frustranza	DGRH/MiAmbiente	Coordinadora Tecnica	coly23@hotmail.com	95524464	
9	Alejandro Jose Corea Irias	UAP/SEFIN	Asistente Tecnico	acorea@sefin.gob.hn	9982-4276	
10	José Mario Zoriza	Consultor		jzoranbaza@yahoo.com	9993-0708	
11	Rosalía Montoya	Consultor		2177@cichong.org	95909203	

**LISTADO DE PARTICIPANTES**

OBJETIVO: \_\_\_\_\_

FECHA: 10/10/17

LUGAR: \_\_\_\_\_

No	NOMBRE	INSTITUCION	CARGO	CORREO ELECTRONICO	TELEFONO	FIRMA
1	Karides Quintana Triguera	INSEP	Ing. Coordinador	karides_F@hotmail.com	9889-2607	Karides
2	ELIAS GARCIA URQUIA	UNAH	PROFESOR AUXILIAR	elias_urquia82@gmail.com	3385-3252	Elias Garcia
3	Diego Obando B.	CIAT-CCAFS	As. Investigador	d.obando@ciat-ccafs.org	33396147	Diego
4	Antonio Silva	IICA	Tecnicos de Ingesta	antonio.silva@iica.int	33042847	Antonio
5	Elsy Urcano R	Ensaps	Asesor Legal	urcano@ensaps.hn	33787705	Elsy
6	Maria Eugenia Ruiz	INSEP	Asit. Técnico	mayurvizb@gmail.com	8733-4525	MER
7	Alba Alvarado	SANM	JEFE de U. P. S.	albalicia_alvarado@yahoo.es	99311040	Alba
8	Eleonora Aguilar	ICA-Mi Ambiente	Analista Amb.	paguilar@miambiente.gob.hn	99909811	Eleonora
9	Mia Rodriguez	IFC-BM	Oficial Inversion	mrodriguez25@ifc.org	2264-0242	Mia
10	Ana Maria Loboguerrero	CCAFS-CIAT	Director CCAFS America Latina	a.m.loboguerrero@cgiar.org	5724450000 Ext 3526	Ana Maria
11	Gladiz Rojas I.	Consultor/UNAH	Consultor	gladizrojas1@gmail.com	9978-2391	Gladiz

**LISTADO DE PARTICIPANTES**

OBJETIVO: \_\_\_\_\_

FECHA: 10/10/17

LUGAR: \_\_\_\_\_

No	NOMBRE	INSTITUCION	CARGO	CORREO ELECTRONICO	TELEFONO	FIRMA
1	Roxedo Galeano	UGA/INSEP	Analista Ambiental	UGAINSEPHN@gmail.com	2225-1771	
2	Ramon Cuellar H.	Consultor/BIOS	Consultor	ramon.cuellar@yahoo.es	9961-5263	
3	Armando Lenin Alvert H.	AHJASA	Coord. Proyecto	ahjasahonduras@yahoo.com	22 39 06 07 3394 8675	
4	Daniela Sorai Reyes Pereira	AMHON	Unidad Ambiental	dreyes@amhon.org	8738-7413	
5	José Nelson Durán	AMDC	UGASAM	jndv50@yahoo.com	97698440	
6	Julio Cesar Sandoval	AJASSFRAM	Presidente	Julio196648@yahoo.es	99-88-82-81	
7	Suyapa Matute	AJASSFRAM	Vice Presidenta	Suyapamatute@hotmail.com	9796906	
8	Delmer O. Mejía Horca	UPI	Estudiante	delmer.mejia@upi.edu.hn	3171-6806	
9	Alexis García Rodríguez	APAS chobara	titular	Alexisgarcia1969@outlook.es	99929620	
10	Vktor Cuellar	Sarasa	Jefe Planta DR	2945@cichang.org	98611535	
11	Andy Aguilar Torres	MIAMBIENTE	Analista A.	andy.aguilar.torres@gmail.com	98579126	

**LISTADO DE PARTICIPANTES**

OBJETIVO: \_\_\_\_\_

FECHA: 10/10/17

LUGAR: \_\_\_\_\_

No	NOMBRE	INSTITUCION	CARGO	CORREO ELECTRONICO	TELEFONO	FIRMA
1	Gerson Urtecho	CONATS	Asist. Técnico	gurtzcho@gmail.com	3237-6004	
2	Norman Zuniga Borjas	UGESM - BMDC	ASIST. TECNICO	nzuniga102@hotmail.com	9885-2003	
3	Oscar A. Carbajal	S.C.	Ingeniero	oscarbajal25@gmail.com	9920-6323	
4	Oscar Berriganza	PROMOJAS USD/SEFIN	Exp Ambiental	oberganza@sefin.gob.hn	9990 6712	
5	Lilian Garcia	UGESM/AMDC	Asistente	lilianmgarcia@yahoo.com	9957-2243	
6	Pedro E Ortiz B.	SANAA	Asesor Técnico	pedroortiz_b@yahoo.com	22094620	
7	Juan Carlos Sagastume	Consultor	Independiente	ing.sagas@hotmail.com	99422680	
8	Marco Tulio Carrillo	UCI-MiAmbiente	Director UCI	mtcarrillo25@gmail.com	9980626	
9	Jennifer Baneegas	COPECO	coordinador Climatología	jennifer.baneegas@gmail.com	33050433	
10	Claudia María Ortega	FONAE	Facilitadora Obs. 3	cortega@fonae.hn	33780934	
11	Barbara Fletcher	IOCAPH/Cuso	Asesora	barb.fletcher@gmail.com	9440 5432	

10/10/17

No	NOMBRE	INSTITUCION	CARGO	CORREO ELECTRONICO	TELEFONO	FIRMA
1	Alex Antonio Medina	Insep	tecnico ambiental	qamc.20@hotmail.com	22251771	
2	José Francisco Alvarado	Mocaph	t. coordinador	woalvarado@yahoo.com	89504135	
3	Francisca J. Argüal P.	COPECO	depa Meteorología	fjargual@gmail.com	33259991	
4	Mary Carmen Mademore	AMHON	depto de comunicación	maricarmenm@gmail.com	99621071	
5	Dexter Zoublas	INVEST-H	ATP-Recursos	dexzoublas@mac.com	99780132	
6	Mario M. Meyra	SEFIN	esp. Marketing	mmeyra@sepin.gov.hn	2220933	
7	GIOVANNI ESPINOSA	CONSULTOR	CONSULTOR	gioespinalfano@gmail.com	99722934	
8	Xavier Gonzalez	Cons. BM	BM			
9	Geuman P. Pavao	AMDC	Gerente /SAM	geuman.pavao@amdc.hn	94800200	
10	Marc Antonio Blair	Academia Nacional del Comercio	Punto Focal del Agua	marblair@yahoo.co.uk	9990-9005	
11	Diana Calix	ABEL	Directora	diana-calix@yahoo.es	99112505	
12	Cena Foney	BM				
13	Cena Cabrera	Mi ambiente				
14	Heyself Padilla	BM				

10/10/17

No	NOMBRE	INSTITUCION	CARGO	CORREO ELECTRONICO	TELEFONO	FIRMA
1	Jose Antonio Galdames	Hi Ambiente				
2	David Alexander Izcano	Mi Ambiente	Protocolo	izcanodavid@gmail.com	9557-7481	
3	Karla Alexa Sanchez Torres	MI AMBIENTE	Protocolo		32097863	
4	Sara Velazquez	Hi Ambiente				
5	Luis Eveline	UPI/ECOMAC	Gerente de Proyectos	leveline@upi.edu.hn	9990-7416	
6	Jorge A. Quinónza	SCGG/UTSAN	Jefe Depto Gestión SAN	jaunasquinton4@gmail.com	8392-9162	
7	Sandra Sierra	UPI	Estud	Sandra.hszi@yahoo.es	96188767	
8	Karla Cristheth Pineda	UPI	Estudiante	karpinzi@yahoo.com	8886-3503	
9	Natasha Solís	GIZ	Coordinadora CC CLIFOR	natasha.solis@giz.de	31499545	
10	Luis Romero R.	CONASA	Coordinador Técnico	laroque07@yahoo.com	9992-6673	
11	Oscar E. Gora	SANAA	Dir. PTA	osagoh@yahoo.com	99707312	

No	NOMBRE	INSTITUCION	CARGO	CORREO ELECTRONICO	TELEFONO	FIRMA
1	Morces Madru	SEFIN	Esp. de proyectos	mmadru@sefin.gob.hn	3248-2976	
2	Gustavo Oliva	"	"	gaoliva@sefin.gob.hn	9988-7252	
3	Miguel Bricio Torres	SAT-UPEU	Especialista en Mantenimiento de Proyectos	mbricotorres@yahoo.com	9976-3306	
4	Luis Guardiola	PTCN/PNUD	Coordinador Proyecto	lguardiola.t@gmail.com	99851514	
5	Maria José Borilla	Mi Ambiente	Técnico Adop- ción	mjbavilla@miambiente.gob.hn	2232-1828	
6	Jose Manuel Gonzalez	Mi Ambiente	Asesor	manuelgonzalez@gmail.com	22325813	
7	Marco Antonio Agiero	BID				
8	Mirra Lievano	BID				
9	Luis Alfredo Rivas	Mi Ambiente				
10	Kazi Fatéha Ahmed	BID				
11	Estrella Peinado	BID				
12	Omar Samayoa	BID				
13	Elvis Rodas	Mi Ambiente				
14	Marlon Escoto	OPCC				

No	NOMBRE	INSTITUCION	CARGO	CORREO ELECTRONICO	TELEFONO	FIRMA
1	Carmen Padilla V.	INVEST-H	Espec. Ambiental	cpadilla@mcshonduras.hn	97868474	
2	Irma Escobar	consultar		irmaescobar@gmail.com	95030958	
3	Quiny Jaco	Agos. Oshoma	Compras	quinyjaco@hotmail.com	3254411	
4	AURA LILL MENDOZA	Cuauco/STNAT	Analista Ambiental	mendozalaura@gmail.com	97753464	
5	OSCAR ACOSTA	DIAT/Kanaa	Asistencia tecnica	oscastooscar@a@yahoo.com	99809294	
6	Andres Ching Melo	CLIMAPLUS	Comunicaciones	ching-melo@gmail.com	9727333	
7	MAX VELAZQUEZ	BID	Especialista	maxvel@iadb.org	87320381	
8	Bianca Roelaga	Agos de Dat	admon	bianca.roelaga@ce.gub.hn	74545585	
9	Said Alundores	Agos de Dat	Catastro de Hebs	msaidalundores@hotmail.com	(849-05)6	
10	Bernardino Reyes P.	Municipalidad Sin.	Residencia	bernardinoreyescostill.93@gmail.com	99702278	
11	Santiago López	Municip. Aspet	condominio	sloph3487@gmail.com	99317743	
12	Aracelis Rodelinas	Bio.Mundial	Analista operaciones	aracelisr@wobeldbank.org	2264-0208	
13	Sheila Handal	INVEST-H	Especialista Financiero	shandal@mcshonduras.hn	9761-0013	
14	MANIVEN OSEGUEGA T.	COHEP	ESPECIALISTA SECTOR AGRICOLA Y C.C.	manivn.oseguega@cohep.com	2255-3538	

10/10/17

No	NOMBRE	INSTITUCION	CARGO	CORREO ELECTRONICO	TELEFONO	FIRMA
1	Luis Miguel Flores	Bancos/SANAA	Jefe U.G.A	luis.m.flores79@gmail.com	9931 0146	
2	Amelia E. Santa Uziel	Consulta.	Consulta.	ameliaelizabeth92@gmail.com	98254759	
3	Kenya Arroyo Jega	Agua de Siguatepeque		kenyarroyo@yahoo.com	97265902	
4	Orlando Garner	climat	asesor	ogarner96@gmail.com	974761533	
5	Francisco Tillatín	Agua de Siguatepeque	asesor	francisco.tillatin@gmail.com	3212-9157	
6	ROBERTO RIVERA MORAN	SANAA	ASISTENTE GERENCIAL	josrivera1599@gmail.com	99851694	
7	Rodolfo Ochoa Alvarez	SANAA	director DIA T	rochoa11varez@yahoo.es	22206506	
8	Nery Cervato	AMHON	presidente	nerycervato@gmail.com	961188210	
9	BESSY ASPAS	INSEP	DIRECORA UG	asprabessy@gmail.com	96139105	
10	Lara Ayala	ISEFIN	coordinadora Proyectos	layala@sefin.rob.hn	22226120	
11	Héctor Meléndez	USASAI/ANDE	asesor	asesorhidiario@gmail.com	9959-6937	
12	Enoc Guerrero	Canal 20	Gerente	enoc.guerrero@canal20.com	9766-8236	
13	Berluis Rodríguez	Save the Children	Infraestructura	berluis.rodriguez@save-the-children.org	99111419	
14	Lily Caballero	BM	Consultora	zeitun.lily@am.com	97220852	

11/oct/2017

No	NOMBRE	INSTITUCION	CARGO	CORREO ELECTRONICO	TELEFONO	FIRMA
1	Jennifer Banegas	COPECO	Coordinador Climatología	jennifer.banegas@gmail.com	33050433	
2	Luis Maval Flores	SAVANA	Jefe U.G. A	luis.m.flores@gmail.com	99310146	
3	Manuel Aguilar	Save the children	Gerente Regional	manuel.aguilar@save-the-children.org	99925268	
4	Claudia Melike Barahona	SDG UPEG	Técnico	claudmibar@gmail.com	99030003	
5	Bernardino Reyes C	Municipalidad	Residor Pte Cortas	bernardinoreyescastillo93@gmail.com	99702271	
6	ANNA CRACCO	FUNDACION AGR	COORDINADORA	anahcracco@acra.it	95887717	
7	Armo-Esobar	Consultor	-	armo.esobar@gmail.com	95030158	
8	Alexis Garcia Rodriguez	A. Choluteca	Oficial	Alexis196@gmail.com	99929620	
9	Dimpida Melindro	SDG/UPEG	Asistente Técnico	dimpime@yahoo.com.mx	99695947	
10	Scarlett Trovora	DGRH/Miambank	asistente técnico	caly_23@hotmail.com	95526464	
11	Vicente Calderón	ERSAPS	Consultor	vcalderon23@hotmail.com	9770-715	
12	Gladiz Rojas I.	Consultor/UNAH	Consultor	gladizrojan@gmail.com	9978-2391	
13	Angel Muñoz					
14	Ivo Francisco Alvarado	MOCAPH	Coord. Técnico	ivoalvarado@yahoo.com	89504135	

No	NOMBRE	INSTITUCION	CARGO	CORREO ELECTRONICO	TELEFONO	FIRMA
1	Armando Lenin Avesto Hernandez	AHJASA	Coord. Proyecto	leninhernandez2012@yahoo.com	33948675	
2	Hector El Midence	IGASAP/ANPC	asesor tecnico	asesorhidi@gmail.com	9939-6937	
3	Hector Tablas	INVEST-H	ATP-Recursos h	hctablas@inca honduras hn	99782132	
4	Rosalía Montoya	Consultor/AIDIS	Secretaria	aidishonduras@gmail.com 2177@cichorg.org	95909203	
5	Luis Rivas	Mi ambiente				
6	Marco Aguero	BM				
7	Zaki Fratiles	BM				
8	Anna Suer	BM.				
9	Anna Cabrera	Mi ambiente				
10	Luis Romero Q.	CONASA	Coordinador Técnico	laroque@cyalco.com	9942-6673	
11	Tupac Mejia	Water for people	Director de País	tmejia@waterforpeople.org	99325977	
12	David Izceno	Mi Ambiente.				
13	Marcos Rosas	BM				
14	ELÍAS GARCÍA URQUÍA	UNAH	PROFESOR AUXILIAR	elias.garcia201@gmail.com	3385-3252	

No	NOMBRE	INSTITUCION	CARGO	CORREO ELECTRONICO	TELEFONO	FIRMA
1	Roy Alonzo	SEFIN	Consultor Inf.	ralonzo@sefin.gob.hn	97846451	Roy Al.
2	José Velásquez C.		consultor	jdvelcero@yahoo.com	99904643	José Vel.
3	Daniela Reyes Pereira	AMHON	Jefa de Unidad Ambiental	dreyes@amhon.org	87387413	Daniela Reyes
4	Barbara Fletcher	NO LAPH / Cuso	Asesora	barb.fletcher@gmail.com	9440 5432	Barbara Fletcher
5	Santrigo López	Municipalidad	coordinador	sloph1987@gmail.com	9931 7743	Santrigo López
6	Quincy Jao	Aguas Platomá	Jefe Operación	quincyjao@hotmail.com	32594418	Quincy Jao
7	Elylliana R	Encaps	Asesora Legal	elylliana@encaps.hn	33787705	Elylliana R
8	Karles O. Trigueros	INSEP	Ing. Proyectos	karles_o_f_6@hotmail.com	98892607	Karles Trigueros
9	Said Alvarado	Aguas de Danlí	Cabecera de Red	mauricio1814@hotmail.com	8999-0536	Said Alvarado
10	Blanca Rodríguez	Aguas de Danlí	Admin	blrodriguez67@gmail.com	98545585	Blanca Rodríguez
11	Jessica Rodríguez	Aguas de Danlí	Gerente	jazz281@yahoo.com	9686 2194	Jessica Rodríguez
12	Mario M. Mejía	SEFIN	Esp. Naviera	mmejia@sefin.gob.hn	2220132	Mario M. Mejía
13	German R. Pavón	ANDC/SAM	Gerente	german.pavon@amdc.hn	94860200	German R. Pavón
14	Luis Zacapa	RehNAP	Presidente S.P.	ZacapaLuis@yahoo.com	97510892	Luis Zacapa

No	NOMBRE	INSTITUCION	CARGO	CORREO ELECTRONICO	TELEFONO	FIRMA
1	Jesús F. Quesada	SESA	ASIST. Técnico	jesusquesada@yahoo.com	95950410	[Signature]
2	Lara Ayala	SEFIN	Coordinadora Proyectos	layala@sefin.gob.hn	22226120	[Signature]
3	Belkis Poz	JATHA	Supervisor	belkis_poz@yahoo.com	98061965	[Signature]
4	Kenya Arrojo Vega	Aguas de Siguatepeque		kenyarrojo@yahoo.com	97260902	[Signature]
5	Alejandro Jose Corea Irias	UAP/SEFIN	Asistente Técnico	acorea@sefin.gob.hn	9982-4276	[Signature]
6	FERNANDO A. MONCADA	Aguas de Choloma	Gerente técnico	fernandadam@yahoo.es	32597773	[Signature]
7	Fernando Yip Altir	Aguas de Siguatepeque	Gerente Técnico	[Signature]	82123157	[Signature]
8	ESTRELLA PEINAPUVA	BID	Exp. Sr.	estillape@ids.org	3531	[Signature]
9	Delmer O. Mejía Lara	UPI	Estudiante	delmer.mejia@upi.edu.hn	3171-6806	[Signature]
10	Alba Alicia Alvarado	SAWAN	Jefe de Unidad	albaliciaalvarado@proton.es	99311040	[Signature]
11	Jorge Urquiza	Consultor PROMASO		Xa-Urquiza@choloma	99825717	[Signature]
12	OSCAR BERGONZO	UAP-SEFIN	Csp. Onbusta	obergonzo@sefin.gob.hn	99904717	[Signature]
13	Fernando BA	UNACFOR	Jefe. Unidad Cambio Climático	vcc@unacfor.edu.hn	88888920	[Signature]
14	Javier Gonzalez	Bay.				[Signature]

No	NOMBRE	INSTITUCION	CARGO	CORREO ELECTRONICO	TELEFONO	FIRMA
1	Moises Madro	SEFIN	Exp. Proyectos	mmadro@sefin.gob.hn	3248-2976	
2	Costavo Oliva	"	"	gcoliva@sefin.gob.hn	99887232	
3	Giovani ESPINAL	CONSULTOR	CONSULTOR	gidespinaltena@gmail.com	99722934	
4	Oscar Corcho	S.C	consultor	oscorcho125@gmail.com	9990-6323	
5	Lilian Barria	AMPC-UGSIAM	Asistente	lilianmgarcia@yahoo.com	9957-2243	
6	Pedro F. Ortiz B	SANAA	Asesor. Técnica	pedrorf-6@yahoo.com	22094620	
7	Gianina Marcela Alas	Fundación Vida SCGG/USAN	Asist de Proyectos Jefe Depto. Gestión SAN	gianina_alas@fundacion-vida.org	9857-1300	
8	George A. Quinonez G.			gquinonez19@gmail.com	3392-9162	
9	Suzanna Matute	Abassfrain	Vecepresidenta	Suzannamatute@hotmail.com	97969016	
10	Juan Carlos Sagastume	Consultor	Consultor	joanca_sag@yahoo.es	99422680	
11	Maria Delaw Sandoval	SESAL	Asesora Legal	msandoval20saf@gmail.com	99728250	
12	Alex Medina	INSED	Tecnico Ambiental	gome_20@hotmail.com	22251721	
13	Lily Caballero	BH	Consultora	zeitunlily@yahoo.com	97220852	
14	Javier Ruera	SANAA	Sub Gerente Inv. Resonables	gdsanra@yahoo.com	9817-3167	

No	NOMBRE	INSTITUCION	CARGO	CORREO ELECTRONICO	TELEFONO	FIRMA
1	Antonio Silva	IICA	Tel I	antonio.silva@iica.int	33042847	
2	Oscar Acosta	DIAT/SANAA	ASISTENTE SIG	robertoscar20@yahoo.com	94809294	
3	Ricardo Galeano	USA/PNSEP	Analista Ambiental	usainsephx@gmail.com	3225-1771	
4	Deivid Rodriguez	Save the Children	Gerente de Infraestructura	deivid.rodriguez@save-the-children.org	94111419	
5	Rodolfo Ochoa Alvarez	SANAA	Director DIAT	rochoa@varex.es	22206504 98423768	
6	Julio Cesar Sandoval	AIASSFRAM	Presidente	Julio196648@yahoo.es	09-88-82-84	
7	Gabriel Rivas Falope	Individual	Consultor	1084@cch.org.org	9953-1233	
8	Gerson Urtecho	UNDA	Asist. Tecnico	gurtucho@gmail.com	3232-6888	
9	Eleonora Aguilar	DGA-MiAmbiente	Analista Amb	aguilar@miambiente.gob.hn	99909811	
10	Amelia E. Santos V.	Consultora APS	Consultora APS	ameliaelizabeth9@gmail.com	98254759	
11	Ramon R. Cuellar	AIDIS	vice presidente	ramon.cuellar@yahoo.es	9961-5263	
12	Claudia Maria Ortega	FONAC	Tecnico	cortega@fonac.hn	23780839	
13	NORMAN ZUNIGA BORRIS	UGASDM-DNOC	ASIST. TECNICO Especialista	nzuniga182@hotmail.com	9885-2005 97863474	
14	Carmen Pedilla V.	INVEST-H	Ambiental	cpedilla@macabanduras.hn		

## BIBLIOGRAPHY

- Aguilar, I. (2011). Impacts of Climate Change on Central American Agriculture and on Basic Grain Producing Families. Obtained from [www.suswatchla.org](http://www.suswatchla.org).
- AMDC. (2017). Plan of Protection of Water for Consumption of the Los Laurels Reservoir. Municipality of the Central District of Honduras AMDC, Municipal Management Unit for Water and Municipal Sanitation of the AMDC, Tegucigalpa, Honduras.
- Anton Eitzinger, P.L-F. (sf). Tortillas in the Comal (Tortillas on the Burner): Corn and Bean Systems of Central America and Climate Change. (CIAT, Producer) Recovered on August 15, 2017, from CIAT. Policies in synthesis. [www.ciat-libraryciatcigar.org](http://www.ciat-libraryciatcigar.org).
- Argeñal, F. (2010a). Climate Variability and Climate Change in Honduras. SERNA, UNDP, Tegucigalpa, Honduras.
- Argeñal, F. (2010b). Inventory of available information on threats, vulnerability and climate risk in Honduras. IISD and UNDP.
- Alavian, V., Maher, H., Dickson, E., Diez, S., Danilenko, A., Fatehali, R., Puz, G., Pizarro, C., Jacobsen, M. y Blankespoor, B. 2009. Water and Climate Change: Understanding the Risks and Making Climate-Smart Investment Decisions. The World Bank, Water Sector Board, Bank-Netherlands Water Partnership Program, Norwegian Ministry of Foreign Affairs: Washington D.C.
- Blaikie, P., Cannon, T., Davis, I., y Wisner, B. 1996. Vulnerabilidad. El Entorno Social, Político y Económico de los Desastres. La Red e ITDG: Bogotá
- World Bank. Rapid assessment of the impacts of climate change on water resource management and the availability of water for human consumption in the dry corridor and 12 municipalities in Honduras, 2017.
- World Bank. Concept Note PPCR Phase 1 Project for Honduras.
- World Bank. Systematic Diagnosis of the Country (SCD, 2016).
- World Bank. Framework Country Strategy, (CPF) 2016.
- World Bank. Closing Report on the Modernization of the Water Supply and Sanitation Sector in Honduras (2017).
- World Bank. (2015). Honduras Economic DNA.
- Caballero Zeitún, E. L. (2012). Transición Espacial y Gestión de la Ciudad. . IUDPAS-UNAH. Tegucigalpa, Honduras: Universitaria
- Caballero Zeitún, E. L. (2015). Systematization of information on climate change and disaster risk management in Honduras. Draft, World Bank, Washington.
- Caballero Zeitún, E. L. (2015a). Indicators of territorial organization in the nation plan. Secretariat of the Presidency, Executive Directorate of the National Plan, General Direction of Territorial Organization (DGOT), Interagency Commission of Spatial Data (CIDES), ODETCA, Tegucigalpa, Honduras.
- CEPAL. (2012). The Economics of Climate Change in Central America. Potential Impacts on the Intra-annual and Spatial Weather Patterns. Technical Series 2012. Retrieved on August 15, 2017, from [www.repositorio.cepal.org/.../26120/M20120029\\_en.pdf?sequence=1](http://www.repositorio.cepal.org/.../26120/M20120029_en.pdf?sequence=1).
- CEPAL. (2014). Preliminary overview of the economies of Latin America and the Caribbean. 2014. Retrieved on April 27, 2015, from [www.cepal.org](http://www.cepal.org).
- CONADEH (2016). Special Report the pine bark Beetle and other serious environmental threats to a worthy life for Hondurans of both sexes. National Commissioner for Human Rights - Honduras (CONADEH) National Environmental Defense Office, Tegucigalpa, Honduras.

- CONASA. Monitoring the Country Progress in Potable Water and Sanitation (MAPAS 1 and 2), versions 2013 and 2017.
- National Congress, Republic of Honduras. (2010). Country Vision 2010 - 2038 and Nation Plan 2010-2022. Tegucigalpa, Honduras.
- Presidential Delegation Climate Change. (2017). Master Plan Water, Forest Soil (ABS Plan). Presidential Office for Climate Change Climate Plus (Climate +), Tegucigalpa, Honduras.
- Water Resource Directorate. (2014). Evaluation of the Water Resource in its Natural Regime, Honduras, C.A. SERNA, UNAH, Tegucigalpa, Honduras.
- Eitzinger, Sonder, & Schmidt. (2012). Summary of the study tortillas in the burner, corn and bean systems in Central America and climate change. (C. CIAT, Producer) Recovered on August 13, 2017, [resumen-del-reporte-tortillas-en-el-comal.pdf](https://www.crs.org/sites/default/files/tools-research/resumen-del-reporte-tortillas-en-el-comal.pdf): <https://www.crs.org/sites/default/files/tools-research/resumen-del-reporte-tortillas-en-el-comal.pdf>
- FAO. (2012). Characterization study of the Central American Dry Corridor. FAO, Tegucigalpa.
- GERMANWATCH. (2015). Global Climate Risk Index 2015.
- Germanwatch. (2015). Global Climate Risk Index 2015. Retrieved on August 10, 2017, from <https://germanwatch.org/de/download/10343.pdf>
- Government of Honduras, WB (2017). Plan for the Modernization of Hydro-meteorological and Climatic Services Honduras
- Government of Honduras, World Bank. (2006b). Strategic Plan for the Modernization of the Water and Sanitation Sector (PEMAPS). Tegucigalpa, Honduras.
- Government of Honduras. (2006). Strategic Plan for Modernizing the Water Sector
- GWP. (sf). Fact Sheet: Honduras, Progress at political and strategic level in adapting to climate change. Tegucigalpa, Honduras.
- ICF. (2009). National Forest, Protected Areas and Wildlife Program PRONAFOR Honduras 2010 - 2030. National Institute for Forest Conservation and Development, Protected Areas and Wildlife, Tegucigalpa, Honduras.
- IISD. (2013). Climate Risk Management for Smallholder Agriculture in Honduras. New York, USA.
- INE. (2013). EPHPM XLIV Encuesta Permanete de Hogares de Propósitos Múltiples - EPHPM - Mayo 2013. Tegucigalpa, Honduras.
- ICF. (2014) Anuario Estadístico Forestal 2013. Tegucigalpa, Honduras.
- MIAMBIENTE. (2014). Informe del Estado del Ambiente, GEO Honduras 2014. Tegucigalpa, Honduras.
- ICF, 2016. Anuario Estadístico Forestal de Honduras 2015. Volumen 30. Año 30/ Julio, 2016. Tegucigalpa, Honduras
- INE. (2016). LIV Permanent of Homes Multiple Purpose Survey -EPHPM - JUNE 2016. Tegucigalpa, Honduras.
- Kawas. (2010). Country document Honduras. VI DIPECHO Program. Tegucigalpa, Honduras.
- Kawas. (2011). Map of Honduras Floods. Geo-morphological Method. Working Document. IISD, Winnipeg. UNDP, Tegucigalpa, Honduras.
- MiAmbiente, DGRH. (2016). Current diagnosis of the state of the national network of hydro-meteorological stations of the General Directorate of Water Resources. Tegucigalpa, Honduras.
- MIAMBIENTE, UNDP, Adaptation Fund. (2014). Preliminary Diagnosis of the Central Forest Corridor. Program Addressing Climate Risks in Water Resources in Honduras: Increasing Resilience and Reducing Vulnerability in Poor Urban Areas, Tegucigalpa, Honduras.
- MIAMBIENTE, UNAH, Adaptation Fund. (sf) Evaluation of Water Resources in its Natural Regime at National Level. Draft. Tegucigalpa, Honduras.
- MIAMBIENTE (2014). Report of the State of the Environment, GEO Honduras 2014. Tegucigalpa, Honduras.

- MiAmbiente. (2015). Climate Change Adaptation Policy to Climate Change Vulnerability and Adaptation to Climate Change Conference. Tegucigalpa, Honduras.
- OFRANE. (sf). Black Fraternal Organization Honduran Garífuna People. Retrieved on March 15, 2015, from WWW. OFRANE.ORG
- UNDP (2011). Human Development Report Honduras 2011 Reduce inequity: an urgent challenge. Tegucigalpa, Honduras.
- UNDP. (2010). Millennium Development Goals, Honduras 2010, Tegucigalpa, Honduras.
- UNDP. (2010). Millennium Development Goals Honduras 2010 Third Country Report. Tegucigalpa, Honduras.
- Legislative Power. (2014). Law of Climate Change, Decree No. 297-2013. Tegucigalpa, Honduras.
- National Plan for Potable Water and Sanitation (PLANASA). Tegucigalpa, Honduras.
- Rivera, A. (2011). Community consultations on climate risk management in Honduras. UNDP/IISD, Tegucigalpa, Honduras.
- SAG. (2014) National Adaptation Strategy for Climate Change for the Agro-food Sector of Honduras (2014-2024). Tegucigalpa, Honduras.
- SERNA, CATIE, Municipality of Tela. (2005). Integrated Management Plan, Sub-watersheds of the La Esperanza Rivers (*bañaderos*), Lancetilla, Highland Creek and the Quebrada de Arena, Municipality of Tela, Atlántida, Honduras.
- SERNA, FAO. (2014). National Action Plan to Combat Desertification. (PAN-LCD) 2014-2022. Tegucigalpa, Honduras.
- SERNA. (2009). Cleaner Production Strategy of Honduras and its Plan of Action. Tegucigalpa, Honduras.
- SERNA. (2010). Honduran National Climate Change Strategy. Secretariat of Natural Resources and Environment, National Directorate of Climate Change, Tegucigalpa, Honduras.
- SERNA. (sf). National Water Policy. Tegucigalpa, Honduras.
- SICA-CCAD. (2010). Regional Strategy for Climate Change. San Salvador, El Salvador.
- UNAH. (2012). Climate and Risk Management Atlas in Honduras. Tegucigalpa, Honduras.
- USAID. (2014). Vulnerability and Resilience to Climate Change in Western Honduras.