

Funding Proposal

FP089: Upscaling climate resilience measures in the dry corridor agroecosystems of El Salvador (RECLIMA)

El Salvador | Food and Agriculture Organization of the United Nations (FAO) | Decision B.21/34

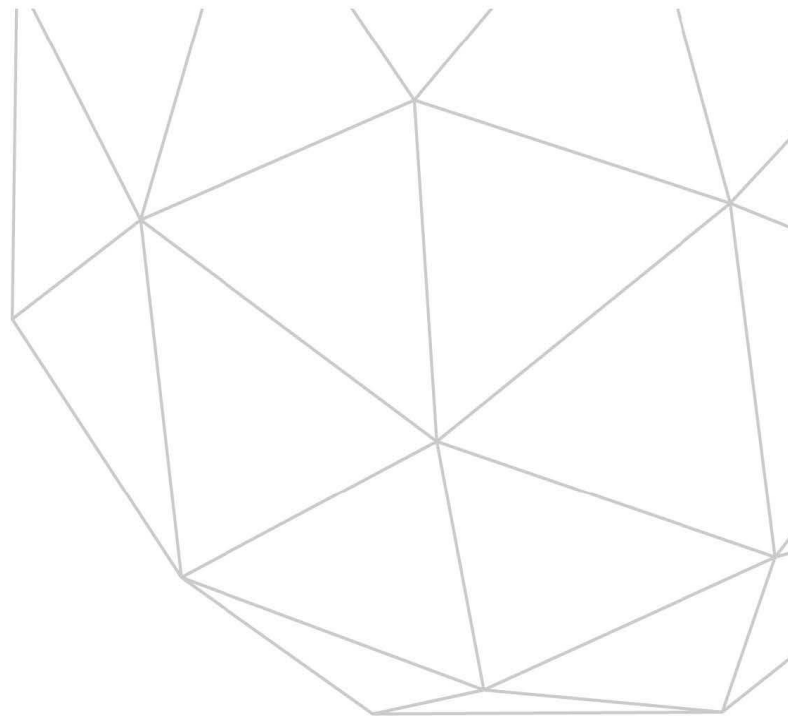
28 November 2018



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Funding Proposal

Version 1.1

The Green Climate Fund (GCF) is seeking high-quality funding proposals.

Accredited entities are expected to develop their funding proposals, in close consultation with the relevant national designated authority, with due consideration of the GCF's Investment Framework and Results Management Framework. The funding proposals should demonstrate how the proposed projects or programmes will perform against the investment criteria and achieve part or all of the strategic impact results.

Project/Programme Title: Upscaling climate resilience measures in the dry corridor agroecosystems of El Salvador (RECLIMA)

Country/Region: El Salvador

Accredited Entity: Food and Agriculture Organization of the United Nations

Date of Submission: 26 February 2018



LIST OF ACRONYMS

ADESCO	COMMUNITY DEVELOPMENT ASSOCIATION
AMAS	AHUACHAPÁN SUR MICRO REGION ASSOCIATION
AMRCA	ASSOCIATION OF MUNICIPALITIES MICRO REGION CENTRO
ANDA	GENERAL ADMINISTRATION OF AQUEDUCTS AND SEWAGE
ASIGOLFO	INTERMUNICIPAL ASSOCIATION OF THE GULF OF FONSECA
ASINORLU	THE INTERMUNICIPAL ASSOCIATION OF NORTH OF THE UNION
BCR	CENTRAL RESERVE BANK OF EL SALVADOR
BFA	AGRICULTURAL DEVELOPMENT BANK
CABEI	CENTRAL AMERICAN BANK FOR ECONOMIC INTEGRATION
CAC	CENTRAL AMERICAN AGRICULTURAL COUNCIL
CDA	DEPARTMENTAL COUNCILS OF MAYORS
CENDEPESCA	GENERAL DIRECTORATE FOR THE DEVELOPMENT OF FISHERIES AND AGRICULTURE
CENTA	NATIONAL CENTER FOR AGRICULTURE AND FORESTRY TECHNOLOGY
DGEA	GENERAL DIRECTORATE OF AGRICULTURAL ECONOMY
ECLAC	ECONOMIC COMMISSION FOR LATIN AMERICA AND THE CARIBBEAN
ESC	EXECUTIVE STEERING COMMITTEE
FAO	FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
FIAES	FUND OF THE INITIATIVE OF THE AMERICAS EL SALVADOR
GCF	GREEN CLIMATE FUND
IDB	INTER-AMERICAN DEVELOPMENT BANK
IFAD	INTERNATIONAL FUND FOR AGRICULTURAL DEVELOPMENT
IPCC	INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE
JICA	JAPAN INTERNATIONAL COOPERATION AGENCY
MAG	MINISTRY OF AGRICULTURE OF EL SALVADOR
MANORSAM	MICRORREGION MANANTIALES THE NORTH OF SAN MIGUEL
MARN	MINISTRY OF THE ENVIRONMENT AND NATURAL RESOURCES OF EL SALVADOR
NNLO	NORTH-ORIENTAL REGION OF MORAZÁN
OPIM	OPERATIONAL PARTNERS IMPLEMENTATION MODALITY
PAF	FAMILY AGRICULTURE PLAN
PB	PROJECT BOARD
PMU	PROJECT MANAGEMENT UNIT
PREP	NATIONAL PROGRAM OF RESTORATION OF ECOSYSTEMS AND LANDSCAPES
RLC	FAO REGIONAL OFFICE FOR LATIN AMERICA AND THE CARIBBEAN
SDG	SUSTAINABLE DEVELOPMENT GOALS
SICA	SECRETARY OF INTEGRATION OF CENTRAL AMERICA
TOU	TERRITORIAL OPERATING UNIT
TSC	TERRITORIAL STEERING COMMITTEE
UNDP	UNITED NATIONS DEVELOPMENT PROGRAM
USDA	DEPARTMENT OF AGRICULTURE OF THE UNITED STATES
WFP	UNITED NATIONS WORLD FOOD PROGRAMME

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Note to accredited entities on the use of the funding proposal template

- Sections A, B, D, E, and H of the funding proposal require detailed inputs from the accredited entity. For all other sections, including the Appraisal Summary in Section F, accredited entities have discretion in how they wish to present the information. Accredited entities can either directly incorporate information into this proposal, or provide summary information in the proposal with cross-references to other project documents such as project appraisal document.
- The total number of pages for the funding proposal (excluding annexes) is expected not to exceed 50.

Please submit the completed form to:

fundingproposal@gcfund.org

Please use the following name convention for the file name:

FP-FAO-26-02-2018-RECLIMA

A.1. Brief Project / Programme Information		
A.1.1. Project/programme title	“Upscaling climate resilience measures in the dry corridor agroecosystems of El Salvador (RECLIMA)”	
A.1.2. Project or programme	Project	
A.1.3. Country(ies)/region	El Salvador	
A.1.4. National designated authority(ies)	Deputy Minister of Development Cooperation	
A.1.5. Accredited entity	Food and Agriculture Organization of the United Nations (FAO)	
A.1.5.a. Access modality	<input type="checkbox"/> Direct <input checked="" type="checkbox"/> International	
A.1.6. Executing entities/beneficiaries	Food and Agriculture Organization of the United Nations (FAO) Ministry of Agriculture and Livestock (MAG) Ministry of the Environment and Natural Resources (MARN) Initiative for the Americas Fund (FIAES)	
A.1.7. Project size category (Total investment, million USD)	<input type="checkbox"/> Micro (≤ 10) <input type="checkbox"/> Small ($10 < x \leq 50$) <input checked="" type="checkbox"/> Medium ($50 < x \leq 250$) <input type="checkbox"/> Large (> 250)	
A.1.8. Mitigation / adaptation focus	<input type="checkbox"/> Mitigation <input type="checkbox"/> Adaptation <input checked="" type="checkbox"/> Cross-cutting	
A.1.9. Date of Submission:	February 2018 Updated version sent on April 2018	
A.1.10. Project contact details	Contact person, position	Daniel Gustafson Deputy Director General
	Organization	FAO
	Email address	Daniel.Gustafson@fao.org ; FAO-GCF-Team@fao.org
	Telephone number	+39 0657056320
	Mailing address	Viale delle Terme di Caracalla 00153 Rome, Italy
A.1.11. Results areas (mark all that apply)		
<u>Reduced emissions from:</u>		
<input type="checkbox"/> Energy access and power generation (E.g. on-grid, micro-grid or off-grid solar, wind, geothermal, etc.)		
<input type="checkbox"/> Low emission transport (E.g. high-speed rail, rapid bus system, etc.)		
<input type="checkbox"/> Buildings, cities and industries and appliances (E.g. new and retrofitted energy-efficient buildings, energy-efficient equipment for companies and supply chain management, etc.)		
<input checked="" type="checkbox"/> Forestry and land use (E.g. forest conservation and management, agroforestry, agricultural irrigation, water treatment and management, etc.)		
<u>Increased resilience of:</u>		
<input checked="" type="checkbox"/> Most vulnerable people and communities (E.g. mitigation of operational risk associated with climate change – diversification of supply sources and supply chain management, relocation of manufacturing facilities and warehouses, etc.)		
<input checked="" type="checkbox"/> Health and well-being, and food and water security (E.g. climate-resilient crops, efficient irrigation systems, etc.)		
<input type="checkbox"/> Infrastructure and built environment (E.g. sea walls, resilient road networks, etc.)		
<input checked="" type="checkbox"/> Ecosystem and ecosystem services (E.g. ecosystem conservation and management, eco-tourism, etc.)		

A.2. Project / Programme Executive Summary (max 300 words)

1. El Salvador, which is located in the dry corridor of Central America, is one of the most vulnerable countries to climate risks in the world. Projected increases in the variability of rainfall, temperature, and the occurrence of extreme rainfall events threaten the food and water security and livelihoods of family farmers living on heavily deforested and degraded hilly lands. Projections for Central America estimate reductions in water availability of between 35% and 63%; El Salvador will be the country most affected. The Intergovernmental Panel on Climate Change predicts that rising temperatures will reduce the country's yields of main crops by 30% by 2050, mainly through recurrent drought. Crop simulation models predict that sorghum and maize yields could decrease by up to 20% and dry beans yields could decrease by 50% by 2065,¹ with direct implications on food security, especially in the dry corridor of the country.
2. The project aims to improve the resilience of vulnerable family farmers to climate change through an integrated landscape approach, featuring: the promotion of practical on-farm measures for increasing the resilience of agricultural production systems (which form the principal bases of livelihood support systems); the introduction of household and community level systems for ensuring water supply through rainwater capture and storage; the maintenance of flows of environmental services of importance for livelihoods and agriculture, through improvements to production systems on-farm and the restoration and conservation of degraded ecosystems off farm.
3. The project will directly benefit a total of approximately 225,000 people in 50,000 family farms, increase the resilience of agricultural production systems over 56,600 ha on these farms, and restore 17,333 ha of degraded ecosystems of importance for the provision of environmental services (this will benefit the target population of 225,000 people and also, indirectly, other people living in and downstream of the target municipalities through improved flows of environmental services).
4. By scaling up adaptation measures to landscape and sub-national levels, the project will bring about a paradigm shift in relation to agroecosystem-based climate change adaptation. The current approaches to resource management and smallholder support, focused narrowly on issues of crop productivity, soil fertility and erosion control, the promotion of non-resilient productive options and the top-down transfer of static technological packages. Under this pathway and with climate change impacts, the livelihoods and food security of farm families will be increasingly undermined, the ecosystem services needed by rural communities will be threatened, and in the worst cases farm livelihoods will collapse entirely leading to farm abandonment and emigration. The project interventions aim to shift behaviors and practices to a sustainable pathway focusing on agroecosystem-based adaptation, productive, livelihood and structural diversification, farmer-led technology development and knowledge management, community-based landscape governance ecosystem restoration and provision of increased services and information-led approaches to adaptation.
5. The project outcomes will be sustained through a) an exit strategy based on the selection and promotion of agroecosystem-based adaptation measures which are financially viable and offer economic benefits, which will require initial "pump-priming" support by the project; b) a focus on participation and ownership in the identification, generation and adoption of adaptation measures, including the participatory identification of areas for ecosystem restoration; c) the mainstreaming of adaptation measures into producer support and incentive programmes, primarily technical support to producers by MAG, input support (the *Paquete Agrícola* programme of CENTA), and support to local financial institutions in designing products that support adaptation; and d) the effective dissemination of information on benefits, targeted at decision-makers and policy formulators to encourage a favourable enabling environment for the sustainability and scaling up of the proposed adaptation and mitigation measures.

A.3. Project/Programme Milestones

Expected approval from accredited entity's Board (if applicable)	Approved by FAO Programme and Project Review Committee
Expected financial close (if applicable)	Not applicable
Estimated implementation start and end date	Start: January 2019 End: December 2023
Project/programme lifespan	5 years

¹ Vara Prasad (n.d.). Impact of Climate Change and Climate Variability on Productivity of Grain Crops. Accessed at: <http://www.centa.gob.sv/docs/guias/granos%20basicos/Prasad-PVV-Climate-Change-El-Salvador-Final.pdf>

B.1. Description of Financial Elements of the Project / Programme

6. The project consists of three interlinked components and will be executed for a period of 5 years. The total cost is US\$127.7 million, composed of US\$91.8 million national and regional co-financing and a grant from the Green Climate Fund of US\$35.8 million. Co-financing letters are presented in Annex D.

7. FAO will monitor the disbursement of co-financing and include information in the Annual Performance Reports submitted to the GCF.

8. The project will deliver both adaptation and mitigation benefits: a disaggregation of financial resources by mitigation and adaptation is not plausible, however, because project activities will achieve both results.

Table 1. GCF Budget by component

Institution	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
1: Improved resilience of livelihoods and production systems in family farms	\$4052,995	\$9397,303	\$5208,461	\$2309,000	\$1007,296	\$21975,054
2: Increased resilience of flows of environmental services at landscape level	\$759,447	\$3184,712	\$2525,897	\$1567,889	\$489,253	\$8527,198
3: Improved governance and information flow in support of sustainability and scaling up	\$459,961	\$1046,840	\$956,592	\$540,416	\$642,863	\$3646,671
Project Management Unit	\$368,774	\$365,580	\$331,464	\$339,264	\$295,606	\$1700,688

Table 2. Budget by source

Institution	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
GCF-Green Climate Fund	\$5,641,177	\$13,994,435	\$ 9,022,413	\$4,756,568	\$2,435,018	\$35,849,612
Ministry of Agriculture and Livestock (MAG)	\$13,722,403	\$14,179,346	\$14,814,791	\$15,572,695	\$16,005,749	\$74,294,983
Ministry of the Environment and Natural Resources (MARN)	\$741,727	\$741,727	\$741,727	\$741,727	\$741,727	\$3,708,634
Initiative for the Americas Fund (FIAES)	\$2,434,509	\$2,850,000	\$2,850,000	\$2,850,000	\$2,850,000	\$13,834,509
Total Government Institutions (GI) + FIAES	\$16,898,638	\$17,771,073	\$18,406,517	\$19,164,422	\$19,597,476	\$91,838,126
GCF + GI + FIAES	\$22,539,815	\$31,765,508	\$27,428,930	\$23,920,990	\$22,032,494	\$127,687,738

Financial Contribution GCF	Contribution El Salvador Government + FIAES	Total Financial Contribution
US\$	US\$	US\$
\$35,849,612	\$91,838,126	\$127,687,738
28.1%	71.9%	100.0%

Table 3. Budget by Financing Source

COMPONENTS AND ACTIVITIES	BUDGET	GCF	NATIONAL	MAG	FIAES	MARN
	A = B+C	B	C = D+E+F	D	E	F
	127687,738	35849,612	91838,126	74294,983	13834,509	3708,634
Component 1: Improved resilience of livelihoods and production systems in family farms	92406,037	21975,054	70430,983	70430,983	0	0
Activity 1.1: Promotion of climate-resilient agriculture	81893,470	14244,309	67649,161	67649,161	-	-
Activity 1.2: Improvement of water collection and management	4863,039	3311,865	1551,174	1551,174	-	-
Activity 1.3: Strengthen human and institutional capacities for sustainability and scaling up of adaptation strategies	5649,528	4418,880	1230,648	1230,648	-	-
Component 2: Increased resilience of flows of environmental services at landscape level	23636,261	8527,198	15109,062	0	13254,745	1854,317
Activity 2.1: Restoration of vegetation cover in critical locations to promote hydrological services and increase carbon stocks	23636,261	8527,198	15109,062	-	13254,745	1854,317
Component 3: Improved governance and information flow in support of sustainability and scaling up	5400,644	3646,671	1753,973	715,556	0	1038,418
Activity 3.1: Strengthened local planning and governance structures in support of adaptation	2030,500	1733,809	296,691	-	-	296,691
Activity 3.2: Adjustment of regulatory, policy, planning and incentive instruments in support of the proposed adaptation and mitigation measures	1228,604	486,878	741,727	-	-	741,727
Activity 3.3: Improved access to reliable and relevant information to guide the formulation and medium-term planning of adaptation measures	2141,540	1425,984	715,556	715,556	-	-
Project Management Unit	6244,796	1700,688	4544,108	3148,444	579,764	815,900

B.2. Project Financing Information

	Financial Instrument	Amount	Currency	Tenor	Pricing		
(a) Total project financing	(a) = (b) + (c)	127.7	million USD (\$)				
(b) GCF financing to recipient	(i) Senior Loans	0					
	(ii) Subordinated Loans	0					
	(iii) Equity	0					
	(iv) Guarantees	0					
	(v) Reimbursable grants *	0					
	(vi) Grants *	35.8	million USD (\$)				
<p>* Please provide economic and financial justification in section F.1 for the concession that GCF is expected to provide, particularly in the case of grants. Please specify difference in tenor and price between GCF financing and that of accredited entities. Please note that the level of concession should correspond to the level of the project/programme's expected performance against the investment criteria indicated in section E.</p>							
	Total requested (i+ii+iii+iv+v+vi)	35.8	million USD (\$)				
	Financial Instrument	Amount	Currency	Name of Institution	Tenor	Pricing	Seniority

(c) Co-financing to recipient	Grant	74.3	Million USD	Ministry of Agriculture and Livestock (MAG)			
	Grant	3.7	Million USD	Ministry of the Environment and Natural Resources (MARN)			
	Grant	13.8	Million USD	Initiative of the Americas Fund (FIAES)			
<p><i>* Please provide a confirmation letter or a letter of commitment in section I issued by the co-financing institution.</i></p> <p>Confirmation of commitments are in Annex D.</p>							
(d) Financial terms between GCF and AE (if applicable)	<p>Not applicable.</p> <p>The requested fee is 7% of the GCF Proceeds for the project in accordance with the GCF Fees Policy approved in B.19.</p>						

B.3. Financial Markets Overview (if applicable)

9. The activities to be supported with GCF funds will entail no revenue generation or cost recovery for the Government of El Salvador. Consequently the Government seeks 100% grant resources for the proposed project, and as such the financial market overview is not applicable.

C.1. Strategic Context

Underlying vulnerability to climatic stresses

10. The Dry Corridor of El Salvador, on which the project will focus, is inherently vulnerable to climatic stresses. It forms part of the Central America Dry Corridor, an area of tropical dry forest region on the Pacific side of Central America covering the lowlands of the Pacific coastal area, and most of central pre-mountain region of El Salvador, Guatemala, Honduras, Nicaragua, Guanacaste in Costa Rica and Panama's Arco Seco area (Figure 1). This area is known for the irregular frequency and intensity of its rainfall, and has become one of the most susceptible regions in the world to climate change and variability.

Figure 1. Location of the Central American Dry Corridor²



11. Even without climate change, El Salvador has the highest level of water stress in Central America (0). Of particular concern are the increasingly erratic and unpredictable patterns of seasonal rainfall (Figure 3) and increasing temperature (Figure 4). During years of El Niño, precipitation drops by 30-40%, including long periods of heatwaves during which there is hardly any rainfall. In contrast, during years of more intense rains, there are tropical storms that often have devastating effects on the environment and agricultural production. The frequency and intensity of droughts and floods in El Salvador has been increasing in recent years, as intensified by El Niño events and climate change. In 2015, severe drought resulted in the losses of 85,858 ha of maize (Ministry of Agriculture and Livestock), representing the destruction of 60% of national production. River levels were 20-60% lower than normal. In eastern areas, rivers were up to 90% lower, rainfall was below average and temperatures were above average. There is already clear evidence that the increasing scarcity of domestic water is leading to livelihood failures and the consequent desertion of rural communities³

12. Crop yield loss and lack of access to water is severely affecting people's livelihoods and food security: it has been estimated that 190,000 people are moderately to severely food insecure in the area⁴. This situation is compounded by socioeconomic vulnerability and environmental degradation.

² Source: IICA, 2015b, Based on the Central American Atlas for Sustainable Development

³ For example all 14 members of one of the communities to be attended by SCCF/GEFTF project "Climate Change Adaptation to Reduce Land Degradation in Fragile Micro-Watersheds located in the municipalities of Texistepeque and Candelaria de la Frontera" migrated for this reason between the time of project formulation and implementation.

⁴ <http://www.fao.org/3/a-br092e.pdf>

Figure 2. Actual water availability in El Salvador ($m^3/person/year$)⁵

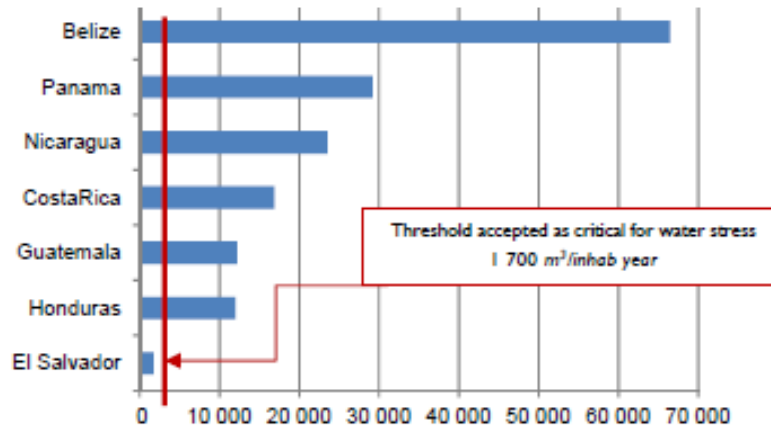


Figure 3. Annual accumulated precipitation and Hodrick-Prescott filter, 1950-2006, showing high levels of annual variation in rainfall⁶

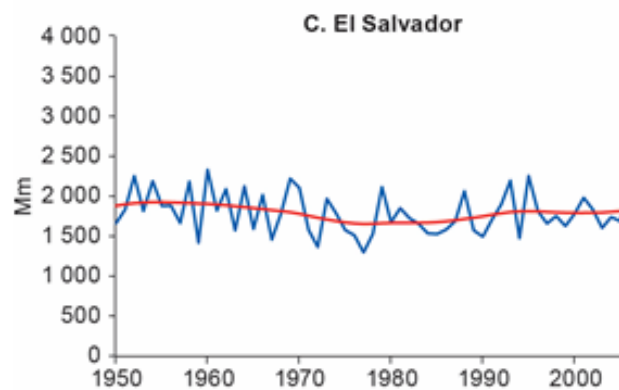
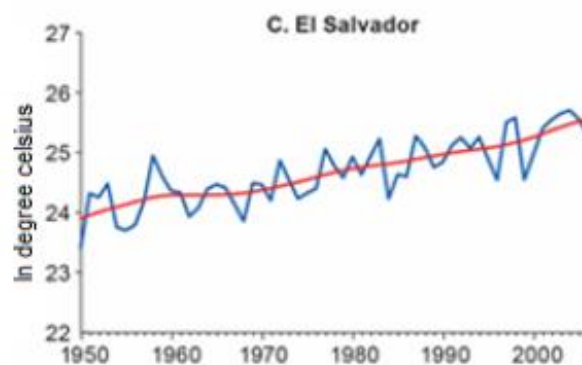


Figure 4. Mean annual temperature and Hodrick-Prescott filter, 1950-2006, showing progressive increase of around 1.5°C since 1950⁷



Landscapes, livelihoods and production systems

13. Agriculture contributes 11% to the country's GDP⁸, and 75% of the country's land area is used for agricultural activities⁹. Smallholder family farmers, who account for 82.2% of all producers in the country, are particularly vulnerable to climatic stresses: they are mostly located on hillsides, and are among the poorest people in the country. Their vulnerability is largely due to the dependence of their traditional rainfed production systems (principally of maize, beans and sorghum) on the reliability of rainfall levels and on the timing of wet and dry seasons.

14. The climatic vulnerability of these smallholders is also closely related to the characteristics and configuration of the landscape within which they operate. With a total area of only 21,041 km^2 and a high population density (303/ km^2), El

Salvador is the second most deforested country in Latin America, with only around 5% forest cover remaining: this situation has resulted from the gradual replacement of forest by the expansion of smallholder agriculture, as well as agricultural and ranching activities on larger properties. This process of expansion has in turn resulted from a combination of demographic growth and the marginalization of the smallholder population onto less productive and hilly lands by the expansion of commercial agriculture on the fertile coastal lowlands. Today, forest cover is largely limited to occasional fragments of secondary woodland, typically around watercourses and springs and on more inaccessible slopes, while at higher altitudes tree cover is mostly in the form of shaded coffee farms. Smallholders' access to water for domestic use from springs is strongly dependent on the protection of watersheds by these remnant areas of tree cover.

15. The rest of the landscape is mostly used for the rainfed production of staple grains in smallholdings, which are generally 5 hectares in size or less. Due to labour constraints, only around 1ha of this is normally under cultivation at any time. Most production (85%) in these units consists of basic grains which account for around 57% of the cropping area. Basic grains are normally planted using monoculture practices, although some farmers use intercropping (40%) or use crop rotation (3%). Common crop combinations, in order of importance, are: sorghum-maize, bean-maize, and bean-sorghum. Subsistence farmers consume about 54% of the production while transition farmers (those with some degree of market insertion) around 30%, and most of the dietary consumption comes from their own productive units. Besides crop production, family farmers normally manage an area of fruit trees in their back yards (*solares*), together with herbs and poultry. Depending on land availability, many farmers also have small numbers of cattle (typically 2-5) in uncontrolled grazing, as a source of capital and in some cases for the small-scale production of dairy products.

16. Staple grains are normally grown using basic manual techniques. Smaller farmers, with around 1ha of land, may cultivate the same plot year after year, maintaining production levels through the application of high levels of synthetic fertilizers and pesticides, a practice which eventually results in degradation of the biological, chemical and physical properties of the soil, undermining both the sustainability and the climate change (CC) resilience of agricultural production. Those with more land typically cultivate the same plot for a number of years and then, once fertility is exhausted, leave the land fallow, allowing the natural regeneration of trees and shrubs through seed rain and coppice regrowth. Typically, livestock are introduced for a short time at the end of the cropping period, to feed on crop residues. The result is a shifting patchwork in which fields alternate on a cyclical basis with fallows and temporary pastures. Under conditions of low population pressure (not the case in the project area), this cyclical system can be sustainable if the length of the fallow periods is considerable allowing fertility to be restored, and relatively CC-resilient due largely to the numbers of trees present and the high levels of organic matter in the soil, replenished during fallow periods.

17. The hilly, rugged terrain and, in the case of staple grains, low crop value, make irrigation and mechanization impractical for most farmers, even if the necessary water supply and technical and financial resources were available. Crop yields of staple grains are therefore highly dependent on the maintenance of soil humidity, which in turn depends on the infiltration of rainfall and runoff water, and is strongly affected by how farmers manage their land. Many farmers apply practices that degrade soil humidity and fertility: for example, the use of fire for land clearance leads to the loss of organic matter and live tree material, leaves the soil exposed to rainfall impact and humidity loss through evaporation, and often leads to uncontrolled wildfires that damage areas of remnant vegetation in the wider landscape. The application of these damaging practices is often related to labour shortages, or to the cultivation of areas which have lost their on-farm tree material due to their history of previous use.

18. Farmers with greater opportunities for market insertion, typically those with greater access to financial capital, may in some cases cultivate small plots of market vegetables such as tomatoes and sweet peppers. These are typically maintained through irrigation, using water drawn by hoses from local springs and applied through sprinkler systems, resulting in high levels of water wastage due to poor targeting and evaporation, as well as soil degradation due to drop impact and runoff erosion.

19. By contrast, traditional production systems feature the maintenance of large amounts of on-farm tree material, in the form of live coppice stumps that persist throughout cropping periods and re-sprout during fallow periods, as well as dispersed trees that farmers allow to develop in the midst of their crops to provide them with posts and timber. This live on-farm material plays important roles in facilitating infiltration and protecting soil moisture, as well as cycling nutrients and providing farmers with firewood, posts and building materials; it also generates off-farm benefits by contributing to the recharge of aquifers and therefore the maintenance of springs used for water supply. In some areas, farmers also use felled fallow vegetation as mulch, as a strategy for protecting soil humidity and reducing weed growth.

⁵ ECLAC/CCAD/SICA/UKAID/DANIDA (Danish International Development Agency) (2011), *La Economía del Cambio Climático en Centroamérica. Reporte Técnico 2011* (LC/MEX/L.1016), Mexico City.

⁶ Idem

⁷ Idem.

⁸ World Bank (2017). *World Development Indicators: Structure of Outputs*. <http://wdi.worldbank.org/table/4.2>

⁹ World Bank (2017).

Access to domestic water

20. Most rural families obtain their water for domestic consumption from small local springs or wells, conveying it to the house either manually, through individual pipes or through community-level water supply systems. The springs are often at a considerable distance from the house, sometimes located in private properties and used by many families, leading to conflicts. In addition, they are often contaminated by livestock which also use them, and in some cases, domestic consumers may compete for the scarce water resources from these springs with agricultural producers using them to feed inefficient irrigation systems. The maintenance of water yield in these springs during dry periods is strongly reliant on the existence of areas of remnant vegetation in the recharge areas of the micro-catchments in which they are located: this vegetation serves to promote infiltration and gradual release of runoff water, and to protect against evaporative losses. The continued existence of these vegetation remnants around springs and their recharge areas is typically dependent on a combination of topographical and social constraints on their clearance for cultivation; despite this, they face continuing pressures from factors such as wildfires, uncontrolled grazing and tree felling for local use, meaning that water yields are often highly unreliable.

Structure of tenure at national level

21. Analyzing the 2016 household nationwide survey, access to land in rural areas appears to be dominated by land leasing for 45 % of farmers (varying from 40 to 47% depending on department); followed by the status of informal occupant for 27% of farmers (variation from 20 to 32%); and then by ownership for 21% of farmers (varying from 12 to 21%). Between and within departments, there are wide variations.

Key institutional actors

The Ministry of Agriculture and Livestock (MAG)

22. Currently, the strategic objectives of MAG are focused on the reduction of extreme poverty; availability of food in rural areas of the country; generation of employment and income through agricultural transformation and rural livelihoods; sustainable diversification of value-added, profitable, and competitive production; reducing degradation and vulnerability; forest conservation; building institutional capacity to efficiently and effectively respond to the development needs of the broader agriculture and livestock sector; and risk prevention and mitigation of natural phenomena in the most vulnerable agricultural areas of the country.

23. MAG has important human technical resources in the areas of soil and water management and agricultural practices to support the project activities. Some of these resources reside in MAG's extension service, the National Centre for Agricultural and Forest Technology (CENTA), which will be engaged in the project. At local level, MAG has broad experience in the execution of programs and projects (e.g. Family Farming Plan, Rural Territorial Competitiveness Program "Rural Dawn, Rural Development and Modernization Project for Paracentral and Central Zone of the Country, Rural Development Project in the Central Region) with associations [ASITECHI, ACROPOERIC, Las Bromas, etc.] focused on promoting producers' capacities. MAG has worked with several international organizations including: United States Department of Agriculture (USDA), World Bank (WB), International Fund for Agricultural Development (IFAD), Central American Bank for Economic Integration (CABEI), Japan international Cooperation Agency (JICA) and others (described in more detail in Section E.5.2), and thus has considerable experience managing large investment projects.

Ministry of the Environment and Natural Resources (MARN)

24. Article 117 of the Constitution of the Republic of El Salvador establishes that it is "the duty of the State to protect natural resources as well as the diversity and integrity of the environment to guarantee sustainable development". MARN was created based on this mandate in May 1997, and the Environmental Law was passed in May 1998. MARN's current Operations Plan highlights actions to meet strategic objectives including: a) Preparing the country to address the effects of climate change and reduce environmental degradation, and b) Strengthening and transforming the institution to lead coordinated, energetic, efficient, effective, and transparent public environmental management.

25. MARN is a key implementing partner in this project because its regulatory framework deals with climate change adaptation and mitigation, and ecosystem management. Additionally, MARN is responsible for the Meteorological Observatory and has invested considerable resources in building climate monitoring capacity. It has an institutional presence in the areas targeted by the proposed project, and will bring human technical capacities to the project in the areas of: disaster risk reduction; climate change adaptation and mitigation; ecosystem and landscape restoration; integrated water management and environmental sanitation; promotion of environmentally responsible citizenship; environmental assessment services; technology and administrative processes for institutional work with the territories, and; project and program management.

The Ministry of Foreign Affairs of El Salvador.

26. The MFA is a governmental institution whose mission is to exercise diplomatic relations and promote development and cooperation; as well as consular relations that promote the protection of the rights of Salvadorans abroad. It is the National Designated Entity in El Salvador to address issues related to the Green Climate Fund.

The Initiative for the Americas Fund (FIAES)

27. FIAES is a non-profit organization which catalyzes resources with governments, civil society and the private sector to generate transformational change in the sustainable use of natural resources that help climate change adaptation, ensuring the wellbeing and preservation of wealth. It is an environmental fund that leads natural resource preservation processes into priority areas.

28. Since 1993 FIAES supports the preservation of ecosystems such as forests, wetlands, coastal areas, basins and agro ecosystems, all of which are basic for human development due to all the environmental services and ecological functions they provide such as water production, food, climate regulation, CO2 capture, climate change mitigation, amongst the most important.

29. Its objectives are generating information for natural resources management and preservation; support training in environmental issues and capacity building for organizations and communities; consolidating and expanding the network of strategic allies to invest in landscape development, influencing on environmental issues, particularly where climate hazards are stronger, through territorial restoration and environmental recovery processes and placing the environment in the Government's agenda, as well as creating mechanisms to fund preservation efforts and sustainable development.

30. FIAES invests in preservation areas such as protected natural areas, which are important for climate change mitigation and the preservation of biodiversity; in RAMSAR sites, which are wetlands included in a global list, given their importance for fishing, tourism and as refuge for native and migratory birds; and biosphere reserves which are territories where sustainable development, environmental education, research and natural resource preservation is promoted. As organization, own an important capacity to complement RECLIMA, as a partner with significant experience in natural resource and protected area management and sharing lesson learned., in El Salvador and elsewhere,

Key Territorial Actors

Departmental Political Governorship

31. El Salvador is organized politically in 14 departments; with equal number of Departmental Political Governorships depending on the Ministry of the Interior and Territorial Development. All of them are presided by a Governor who directly represents the President of the Republic. Governors are non-elected government officials, as Municipal Councils and Congressmen are directly designated by a presidential appointment.

32. The Departmental Governorship is a constitutional figure that operates as an intermediate instance between the Central Government and local Governments. The role of the Governors is to articulate the policies, plans, programs and projects at the territorial level. On this sense, Departmental Governorships represents for RECLIMA, a political and governmental agencies and local organization coordination space as main point of territorial coordination and political support¹⁰.

Municipal associations (*mancomunidades*) and micro-regions

33. In El Salvador, municipal governments come together in the form of geographical groupings or associations (*mancomunidades*) based on shared territorial interests. The national Five-Year Development Plan 2014-2019 describes the need to include territorial development as a fundamental component of national development. The challenge is the needed transformations at the national level to enable decentralization to catalyze territorial development processes. Close coordination between the central and local governments is required in the design, implementation, and evaluation of public policies, and to focus public investment to reduce territorial inequalities. The project will work with municipal *mancomunidades*, offering an opportunity to strengthen municipal governance, and provide new perspectives in achieving climate resilient development objectives, in particular in the environmental/agricultural sectors.

34. Territorial organization structures in the project intervention area include: Ahuachapán Sur Micro-Region Association (AMAS), Central Ahuachapán Municipal Micro-Region Association (AMRCA), Inter-Municipal Association of the Tecapa Chinameca Range (ASITECHI), Inter-Municipal Association of the Jiquilisco Bay Municipalities (ASIBAHIA), Manantiales del Norte Micro Region in the Department of San Miguel (MANORSAM), Association of Municipalities of Northern Morazán (AMNM), Northeastern Morazán Micro-Region (NOR-ORIENTAL), the Cacahuatique Sur Micro-Region

¹⁰ See http://www.gobernacion.gob.sv/?page_id=209 for more information.

(MICSUR), Inter-Municipal Association of the Municipalities of La Unión (ASINORLU), and Inter-Municipal Association of the Gulf of Fonseca (ASIGOLFO).

Local governments

35. The Constitution of the Republic, in its Art. 203, grants Municipalities full independence in all economic, technical and administrative aspects; the creation of Municipal Codes to determine the main principals of their organization, operation and exercise of their independent powers.

36. Art. 4 of the Municipal Code empowers municipalities to draft, approve and implement their own local development plans, which must provide strategic guidance to the municipality's development base on population consulting mechanisms (citizenship participation Art. 115) that demands municipal governments to promote local participation.

37. Strategic Planning Documents are management tools for each Municipality, which through an assessment prioritizes and establishes strategies, through the implementation of programs and projects that will provide guidance to the municipality's development in an organized fashion. RECLIMA's actions will be focus on reflecting improvement in local governance for population climate adaptation actions.

Departmental Council of Mayors (DCM/CDA)

38. Departmental Council of Municipalities, also known as a Departmental Council of Mayors, are professional associations at departmental level. DCMs are local organizational structure of El Salvador's Municipalities Corporation (COMURES). Each DCM groups Mayors of each 14 departments. They are all created under COMURES legal framework, and constitute a forum to analyze and discuss each Department's issues, contributing promoting economic, social, political, and cultural development in the department. They are associated to validate and post municipal issues of interest and represent an important alternative for coordination spaces for those regions where mancomunidades or microregion associations are not available to support territorial RECLIMA actions.

Community Development Association (ADESCOs)

39. ADESCOs are groups of neighbors of communities, which are legalized to ensure the welfare of their members and promote social and economic development at community level. They work together with Mayor's office to promote and implement projects that benefit the community and improve their living conditions, in areas such as agriculture, health, education, water or infrastructure. They are formed by a maximum of 25 representatives, call community assemblies to discuss public issues and the needs of citizens, and mediate between citizens and authorities. These instances of participation are recognized by the Municipal Code of El Salvador and have spread throughout the country at the local level. For RECLIMA these territorial spaces will let the project to aboard directly the beneficiaries to maximize local participation.

NGOs

40. NGOs are nonprofit private organizations that contribute to the improvement of the standard of living of rural population that implement agrarian projects or others, depending on the funding. The responsibilities of the NGOs [include contribution to the](#) protection of the environment and nature, its flora and fauna. In El Salvador, a score of NGOs have been identified that manage natural resources in different ways.

41. The stakeholder mapping reveals that there is a significant number of nongovernmental organizations that act to develop the agricultural sector and that they do so at different levels of El Salvador's social and economic spectrum, including organizations such as CORDES, FUDSYRAM, PROINNOVA, OXFAM, CARITAS, World Vision, among others. A complementary relation of RECLIMA with these nongovernmental organizations will let the project to have more territorial coverage, technical capacity and high quality sharing knowledge on the intervened territories.

Producer associations

42. There are many organizations distributed throughout the country. According to the registry of the Ministry of Agriculture and Livestock, in the intervened territories there are approximately 900 agricultural and 370 fishing cooperative associations. The existence of these organizations will be an opportunity for RECLIMA to extend its territorial coverage and a more effective climate adaptive communication as well as the identification of local beneficiaries.

Civil Protection Committees and Municipal Committee of Civil Projection

43. The Civil Protection Plan for Disaster Prevention and Mitigation establishes that the Departmental and Municipal Commissions must initiate a process to formulate and validate plans for Civil Protection, Prevention and Mitigation of the territories. The General Directorate of Civil Protection is in charge of supervising this process and promoting the

formulation of sectoral and institutional plans. Similarly, the Municipalities are responsible for the implementation of the respective Municipal Civil Projection Committee, and it is expected to benefit with RECLIMA.

Indigenous peoples

44. The 2007 Census reported that a total of 13,310 people identified as indigenous, constitute 0.23% of the total population of the country. This population is distributed in four groups: Cacaopera (31%), Nahuatl Pipil (27%): Lenca (15%) and others (27%). These indigenous populations face high social and economic vulnerabilities, and historical processes have removed them from the best lands. Many live in extreme poverty, subsisting as day laborers on neighboring farms in their communities. Despite these adversities, an important agro-ecological knowledge base and communal organization (brotherhoods) exist, which the projects hope to incorporate into its proposed resilient agroecosystems. (DIGESTYC, 2008).

45. They represent a very important citizen group for the project, although in El Salvador they represent a minimum percentage of the whole population. Their presence is determined by important formal entities represented mainly by the National Indigenous Leadership Team, the National Indigenous Roundtable on Natural Resources, the Salvadoran Indigenous Coordinating Council (CCNIS), COPULENKA, the Council of elders of the Lenca and Kakawira peoples, MUPOKCH, among others.

Planning instruments

46. There is a well-developed framework of planning instruments at regional and local levels, including the following:

- Territorial Planning Documents: these are planning instruments with an economic, social environmental and political/institutional perspective at the territorial level.
- Watershed Management Plans: these are also documents at territorial scale with special emphasis on the management of water resources.
- Participatory Strategic Plans: also at local level, these promote citizen participation and forms of local governance.
- Municipal Risk Management Plans: these are planning instruments with special emphasis on the environmental dimension of the territory to reduce vulnerability.
- Local Sustainable Development Plans: these are more focused on economic and social development with a perspective of the use of resources and sustainability in general.

Policy commitments and investments to date

47. Climate change is a pillar of the National Environment Policy (2012). Considering the interactions and interdependencies between farmlands and forest remnants, as well as variables such as weather, water, carbon, nitrogen, energy and knowledge, various sectors in the country including government, donors¹¹, academia, farmers and other stakeholders have identified responses to climate change require ecosystem and landscape restoration approaches that reorient actions to promote social, productive, institutional and financial adaptation, and bring together various government institutions to work with the locally organized population to address climate vulnerability. This is the base of the Ecosystem and Landscape Restoration Program (PREP) and the National Restoration and Reforestation Plan, both developed by MARN. These initiatives are consistent with the need for a highly-integrated approach encompassing risk management, adaptation and mitigation as promoted by the National Climate Change Plan (PNCC, 2013). The PNCC provides the framework for the generation of climate information services, the ongoing development of the National Adaptation Plan that promotes transformation and diversification of forestry and agroforestry practices, and the development of the Environmental Institutional Strategy for the Adaptation of Agriculture to Climate Change, which considers that family farming plays a fundamental role in natural resource conservation, particularly land and water, as the foundation upon which the balance between nature, society, the economy, and political and social sustainability rests.

48. In the agriculture sector, which is particularly vulnerable to the effects of climate change, the Climate Change Adaptation and Mitigation Strategy for Agriculture, Forestry and Fisheries (2012) aims to ensure the environmental sustainability of family agriculture, in the context of the country's vulnerability to climate change: this complements the Family Farming Plan (PAF 2011) of the Ministry of Agriculture and Livestock (MAG), that includes a series of measures to support production and marketing by small-scale family producers. The major investments that have been made in support of family farms over the last several decades have helped to improve crop yield levels and to address problems

¹¹ World Bank, CIAT, CATIE (2014). *Climate Smart Agriculture in El Salvador*. CSA County Profiles for Latin America Series. Washington, D.C.: The World Bank Group.

such as soil erosion, but have not as yet equipped farmers to adapt effectively to the specific challenges posed by climate change, as they have not sufficiently addressed key determinants of climatic resilience, particularly soil humidity.

49. The Salvadorian Institute for Agrarian Transformation (ISTA) delivered 73,266 land certificates between 2009 and 2017 and aims to deliver another 18,000 by the end of 2019. This has served to increase farmers' security of occupancy and their consequent confidence in investing in sustainable land management and adaptation measures.

50. Despite the progress being made, and government's strong commitment to climate change adaptation and mitigation. El Salvador still requires support to tackle climate change issues. The project will meet this challenge by a) implementing restoration/reforestation activities in 17,333ha of degraded ecosystems to promote the protection of water sources and aquifer recharge, contributing at the same time to carbon stocks; b) promoting the resilience of rural livelihoods and family-based farming systems through the application of an adaptive agroecosystem management approach over 56,600 ha, benefiting 225,000 people directly; and c) generating mitigation benefits (4,216,835 tCO_{2eq}) by increasing the capture and storage of carbon in biomass and soils. The project will also support the development and strengthening of the policy, planning and regulatory frameworks required to ensure the sustainability and scaling up of these adaptation and mitigation measures, and the strengthening of relevant institutional capacities at national and local levels. The project presented here is aligned with, and further builds on, the national plans and strategies (e.g. PREP; PNCC) that support the use of landscape and ecosystem restoration approaches as a response to climate change.

51. Measures and strategies capable of promoting adaptation and resilience do exist in El Salvador, but to date have not been sufficiently extended in rural areas, including the dry corridor. The project will upscale models tested through existing national strategies and initiatives, including lessons learned through the following projects:

- The SCCF/GEFTF project *Climate Change Adaptation to Reduce Land Degradation in Fragile Micro-Watersheds located in the municipalities of Texistepeque and Candelaria de la Frontera* (these municipalities are not covered by this proposal). This is a joint initiative between MARN, MAG and other national partners. The project adaptation objective is to reduce vulnerability to the adverse impacts of CC and variability, and to increase adaptive capacity to respond to the impacts of CC and variability, with the participation of small-scale rural producers - linked to the Family Agriculture Plan (FAP) - in targeted micro-watersheds of the Santa Ana Department. The project has tested and developed methodologies and guidelines for costs efficient climate change adaptation technologies and practices which have successfully allowed family farmers to increase the climate resilience of their production systems. The project has also tested participatory and inclusive implementation approaches for capacity building, including Farmer Field Schools, the establishment of technical demonstration households as well as inter-sectorial institutional strengthening. More information is available in Feasibility Study Annex B and Other documents, Annex F.
- The National Program for the Restoration of Ecosystems and Rural Landscapes (PREP) (launched by MARN in 2012 and supported by the French Global Environment Facility) uses a landscape approach that promotes the restoration and conservation of critical ecosystems, and climate resilient agriculture. The program promotes soil and water conservation, using new crop species and varieties, installing water capture and irrigation systems, and utilizing climate information systems. PREP provides important lessons in incorporating climate resilient agriculture as a component of wider landscape restoration programs and scaling up, lessons that have guided the development of this proposal.
- The Sustainable Agriculture on Hillside Zones project (CENTA-FAO, 2002): Key lessons learned, to be applied in the project proposed here, include the following: communities generally are aware of the problems that affect them and their causes, but do not know how to overcome inertia and initiate actions to correct them; training is only effective when it is framed within practical ongoing actions, allowing knowledge to be used immediately; gender issues must be considered at during the design phase; the plans and actions of extension agents must reflect those of the beneficiary communities.
- Central American Agro-Chains (Agrocadenas) - Sustainable Linkages between Organized Producers, SMEs and Agro-Food Markets (2011-2015, technically supported by FAO and funded by the Italian Development Cooperation) aimed to improve food security of small and medium scale producers and enterprises by linking them to formal markets, addressing: (i) improvement of processes of production, processing and marketing; (ii) compliance with standards of quality and safety; (iii) strengthening of organizational and management capacity to integrate into business alliances; and (iv) strengthening the capacity of public institutions to provide quality services to producers, their organisations and SMEs. The project achieved a change of mentality and increased self-esteem in the producers, their organizations and SMEs, as well as generating additional jobs in post-harvest work and infrastructure. Many producers improved their incomes, together with a professionalization of their organizations and the creation of new opportunities for young people and women. In addition, producers and

their organizations improved their bargaining power in the market, gained representation in the institutions and participated in a more equitable manner in the decision-making process of the sector.

- The El Salvador Environmental Program, PAES (MAG, 2004). Lessons learned through the project include the following: the implementation of the project made it possible to share learning between project staff, beneficiary producers and their families; defining the micro-watershed as the unit of work allowed technical personnel and beneficiaries a global vision of the problems, and the concentration of their efforts; the individual planning of farms allowed technicians and producers find the most appropriate for each farm solutions, respecting the capacity of the land use and socio-economic conditions of the producer, in a process of conciliation of interests between the beneficiary and the project; the project successfully involved practitioners and beneficiaries through different organizational structures (ADESCOs) and Government entities; the technologies promoted were adjusted to the biophysical and socio-economic reality of the producer and his family group and supported; a promotion strategy was developed at the inception phase, allowing villagers, local organizations, local councils and political decision-makers to identify with the philosophy, principles, objectives, methods of work, results and impacts of the project.

The implementation of the project will support the international commitments of the Government of El Salvador including the following Sustainable Development Goals (SDGs):

- GOAL 1: No Poverty
- GOAL 2: Zero Hunger
- GOAL 6: Clean Water and Sanitation
- GOAL 13: Climate Action
- GOAL 14: Life Below Water
- GOAL 15: Life on Land

52. It will also contribute to the country's Nationally Determined Contribution (NDC) which considers agriculture, forestry and livestock sector actions to establish and manage by 2030 one million hectares through a "Sustainable Landscapes Resilient to Climate Change" approach, as detailed in the box below. The project would initiate meeting this commitment with the first 10% of the targeted area covered.

NDC Action 3.2.1 – By 2030, El Salvador will establish and manage one million hectares through a "Sustainable Landscapes Resilient to Climate Change" approach

"This integrated landscape restoration approach will rehabilitate and conserve forests, and establish biological corridors through the adoption of agroforestry systems and the update of low-carbon sustainable agricultural practices. The current tree cover – mangroves, natural forests, agroforests, and forest plantations that cover 27% of the territory – will be conserved. Forest carbon stocks will be increased through agroforestry and reforestation activities in critical areas such as watersheds and hillsides."

Translated from: Gobierno de El Salvador, Ministerio de Medio Ambiente y Recursos Naturales (MARN) (2015). *Contribución Prevista y Determinada a Nivel Nacional de El Salvador*, p.12

C.2. Project/Programme Objective against Baseline

53. The project objective is to a) restore and reforest degraded ecosystems to promote the protection of water sources and aquifer recharge, and b) improve the resilience of the livelihoods of the vulnerable population of El Salvador's' dry corridor to the effects of climate change, through adaptive agroecosystem management.

Target locations and beneficiaries

54. The population in the Dry Corridor of El Salvador is 2.2 million people, of which it is estimated that 1.9 million are vulnerable to being affected by climate change. This includes approximately 152,580 family farmers for a total of 686,000 people, given the average family size of 4.5 people.

55. Project interventions will be specifically targeted at localities and stakeholders in the Dry Corridor considered to be at highest risk from the effects of climate change, by virtue of the interactions between CC effects and underlying livelihood vulnerability, and where there is consequently the greatest potential to generate adaptation and mitigation benefits. The target areas of the project were selected through a step-wise process, as follows:

- 1) Ranking of municipalities nationwide through a multi-variate analysis considering the variables such as historical exposure to drought and poverty levels (data on these variables are only available at municipal level). The inclusion of socioeconomic variables in the prioritization process reflects the assumed relation that exists between

vulnerability to the effects of climate change and poverty: the poorest members of the national population are assumed to have the least ability to invest in diversifying their livelihoods to reduce their exposure to CC impacts, and least access to social and financial safety nets¹².

- 2) The overall area of intervention was then defined by the limits of the hydrographic regions within which the greatest concentrations of high-vulnerability municipalities, defined as described above, were located, resulting in the final selection of a total of 114 target municipalities.
- 3) Within these selected target municipalities, the project will focus on the areas of highest socioeconomic and environmental vulnerability, identified through the application of a further layer of biophysical variables of direct relevance to vulnerability and the potential for achieving adaptation and mitigation benefits (productive potential of soils and hydrological recharge potential).
- 4) Within these selected highest vulnerability areas of the 114 target municipalities, the project will work with small-scale family farmers (defined as subsistence producers relying on family labour, and therefore with limited access to the human, physical and financial resources required for adaptation), and who are at greatest risk of being pushed into conditions of extreme food insecurity due to climate change (all of those in conditions of poverty or extreme poverty fall into this group). The project will be closely linked to the *Paquete Agrícola* programme of MAG, and will target the same beneficiary population, which is limited to subsistence farmers, with less than 3 ha of land, who principally produce maize and beans.

56. It is estimated that the application of the criteria presented above will result in the selection of around 50,000 target households (225,000 people) out of a total of 152,580 households (686,610 people) in the target municipalities as a whole. Female headed households will be prioritized: this account for 13% of the total in the population as a whole, and as a result of preferential selection it is estimated that they will make up 38% of the target households. An estimated 9.1% of the target population in indigenous.

Table 4. Criteria for step-wise selection of target localities and beneficiaries

Criterion	Level	Weighting	Reasoning
Step 1: National prioritization of municipalities			
Drought risk	Municipal	Severe = 2 Moderate = 1	Areas with baseline high exposure to drought are at highest risk of complete livelihood collapse under CC
Levels of extreme poverty	Municipal	Severe = 2 High = 1	Poverty implies limited access to financial resources to buffer against the impacts of climate change on livelihoods, and limited financial and social safety nets, under conditions of non-adaptation
Malnutrition	Municipal	Severe = 2 High = 1	Those with highest baseline malnutrition levels are at highest risk if CC further worsens access to nutrition
Step 2: Grouping of municipalities			
Grouping into hydrographic regions			Optimization of cost-effectiveness of project implementation; optimization of upstream-downstream environmental service flows related to adaptation
Step 3: Selection of target areas within selected hydrographic regions			
Productive (agronomic) potential	Sub-municipal	Class I, II y III: 2 Class IV, V, VI: 1	Soils with lowest baseline productive potential are at greatest risk of agronomic collapse due to further CC stresses
Hydrological recharge potential	Sub-municipal	>350mm/year = 2 <350mm/year = 1	Adaptation actions in high recharge areas will have greatest impact on aquifer conditions
Step 4: Definition of project beneficiaries within target areas			
Family farmers (reliant on family labour)			Reliance on family labour implies limited access to financial resources to buffer against the impacts of climate change on livelihoods under conditions of non-adaptation

57. Once the target households have been identified, through the process described above, the target areas for off-farm ecosystem restoration activities will be selected: these activities will be focused on areas of remnant vegetation identified as being of importance for the resilience of water supplies to the selected target beneficiaries, and where access, tenure

¹² See e.g. <http://www.oecd.org/env/cc/2502872.pdf> regarding the poverty/vulnerability nexus

and governance conditions are favorable (or can be made so) for the restoration and maintenance of vegetation. This selection process will be informed by a combination of technical studies and community consultations.

58. Figure 5 and 0 show how the target areas of the project coincide with the areas of highest vulnerability to climate change in the country.

Figure 5. Critical areas of vulnerability to climate change in El Salvador based on productive and hydrological recharge potential (see Table 4). Red= high vulnerability, orange= medium vulnerability, green= low vulnerability.

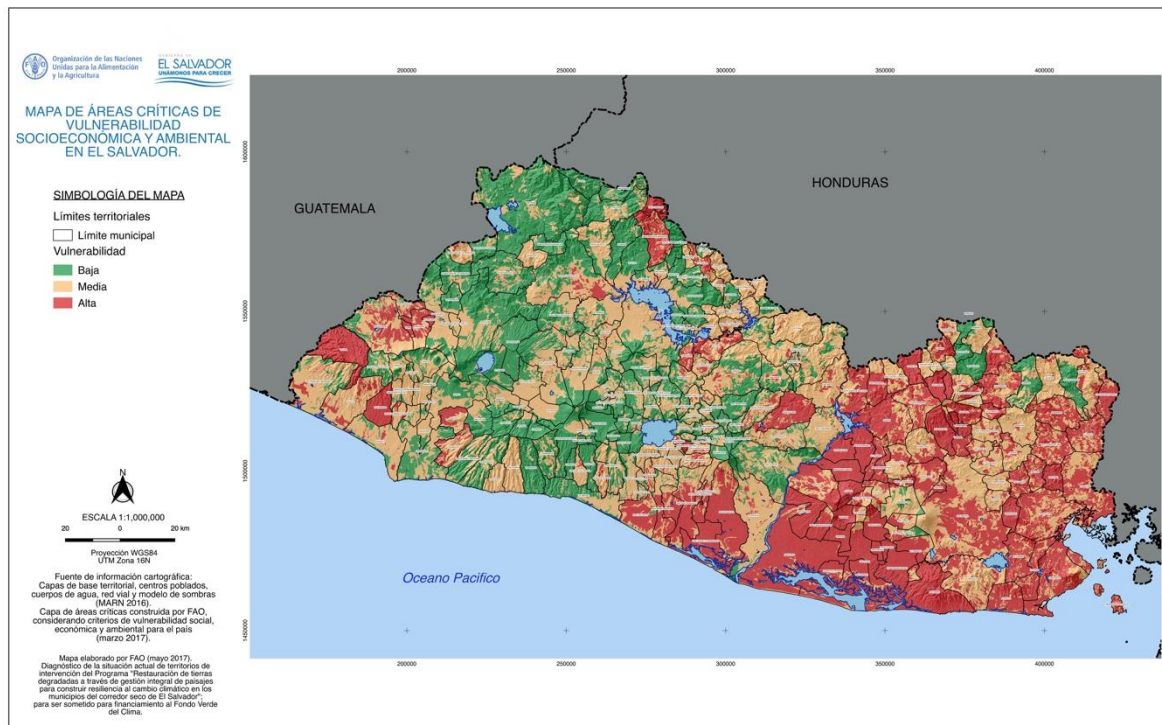


Figure 6. Hydrographic regions prioritized on the basis of concentrations of municipalities with areas of high vulnerability

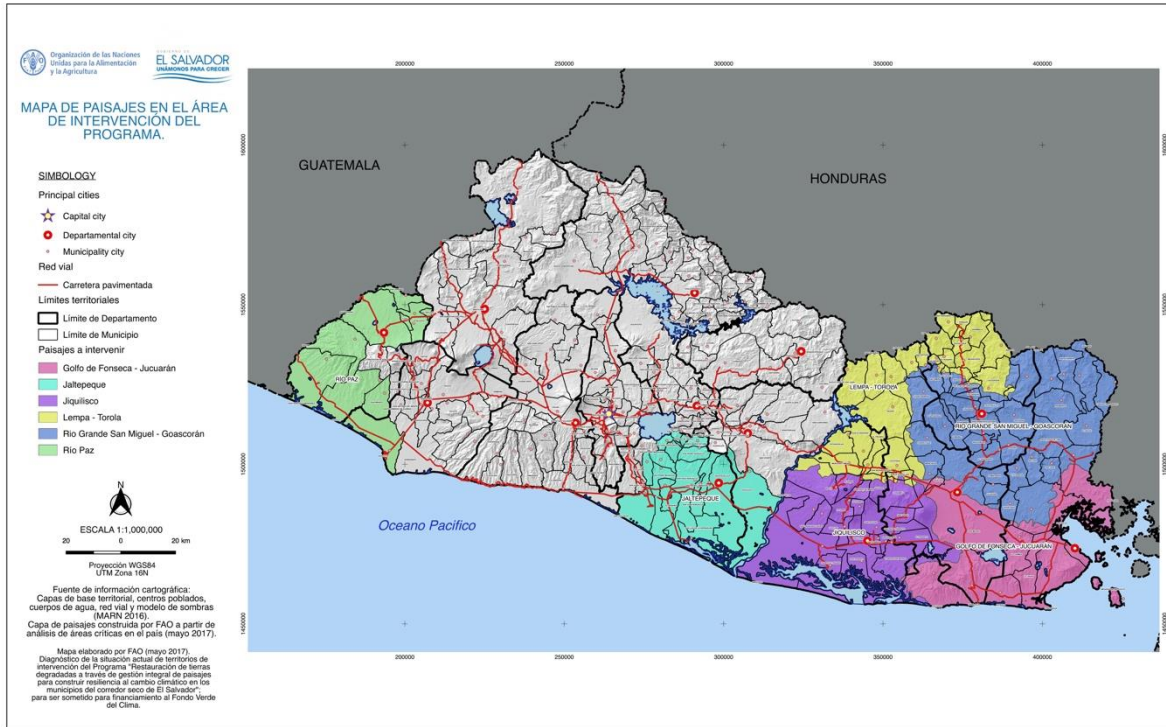
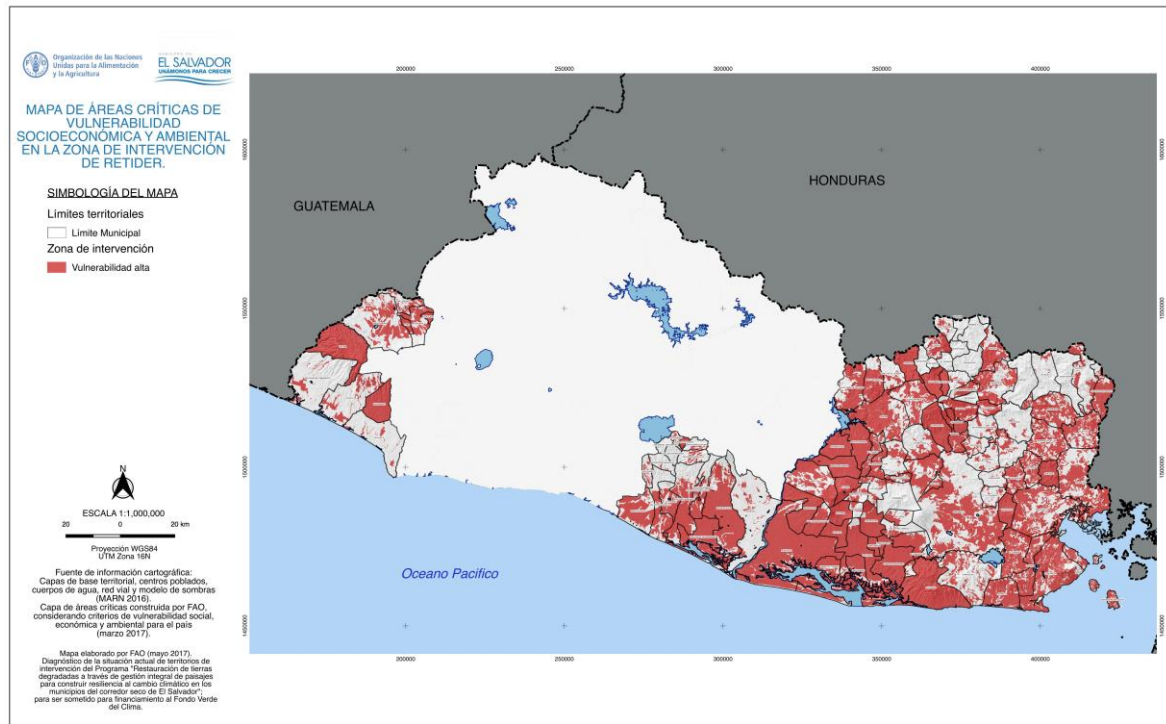


Figure 7. Selected areas of high vulnerability within target municipalities



59. The MAG *Paquete Agrícola* program also targets its beneficiaries according to the same definition of family farmers explained in paragraph 55 above. The estimated numbers of families of different types within the overall beneficiary population (selected as explained in paragraph 56 above) are presented in Table 5. Each of these four different farmer types will be targeted by a different package of adaptation options, as explained in Section C.3.

Table 5. Characteristics of target family farmers

Characteristics	Beneficiary group				Total numbers in target areas*
	I. Hill farmers without livestock or irrigation	II. Hill farmers with livestock	III. Flat land farmers with irrigation	IV Flat land farmers with livestock	
A. Affected by mild, moderate or severe drought, affecting the productivity of their crops and livelihoods.	✓	✓	✓	✓	152,580
B. Beneficiaries of agricultural inputs from the MAG “Paquete Agrícola” for maize and beans.	✓	✓	✓	✓	152,580
C. Recipients of MAG/CENTA Agricultural Extension Services.	✓	✓	✓	✓	12,600
D. Producers who do not receive MAG/CENTA Agricultural Extension Services but may receive technical assistance (TA) from NGOs.	✓	✓	✓	✓	140,420
E. Farmers with irrigation for vegetables or other crops			✓		4,900
F. Staple grain producers with 2-5 cows for dairy or beef.		✓		✓	37,954
G. Farmers carrying out soil conservation practices with TA from MAG/CENTA or NGOs.	✓	✓	✓	✓	17,767
H. Farmers on steep lands.	✓	✓			99,177
I. Farmers who cultivate on flat lands			✓	✓	53,403
Totals of selected farmers	32,500	6,000	3,500	8,000	50,000

*Numbers with each characteristic cannot be totaled as characteristics are repeated between beneficiaries

60. The remaining population of the target municipalities (around 109,487 farm families with around 501,912 members, living in areas categorized as of medium or low relative vulnerability) will constitute the indirect beneficiaries of the project, given that they will benefit indirectly from improved resource governance conditions at municipal and landscape.

Baseline “without project” scenario in Intervention Area

61. Under the baseline scenario, family farmers (whose livelihoods are already severely stressed due to a combination of climatic variability and the historical degradation of the ecological and productive functions of the dry forest agroecosystem resulting from demographic growth and concentration onto marginal lands by commercial agriculture, see paragraph 14), will be pushed by climate change into conditions of livelihood collapse and extreme food insecurity. Box 1 summarizes the principal aspects of historical and projected climate change with implications for family farmers in the project area, as presented in the Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC).

Box 1. Principal aspects of climate change observations and projections for Central America¹³

Significant trends in precipitation and temperature have been observed in Central America (CA) and South America (SA) (high confidence). In addition, changes in climate variability and in extreme events have severely affected the region (medium confidence). There have been decreasing trends in annual rainfall in CA, in common with central-southern Chile (−1 mm day^{−1} 50 yr^{−1} during 1950–2008). Warming has been detected throughout CA and SA (near 0.7°C to 1°C 40 yr^{−1} since the mid-1970s). Increases in temperature extremes have been identified in CA and most of tropical and subtropical SA (medium confidence).

¹³ Magrin, G.O., et al., 2014: Central and South America. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Barros, V.R., et al., (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 1499-1566.

Climate projections suggest increases in temperature, and increases or decreases in precipitation for CA and SA by 2100 (medium confidence). In post-Fourth Assessment Report (AR4) climate projections, warming varies from +1.6°C to +4.0°C in CA, and rainfall changes for CA range between –22 and +7% by 2100.

Changes in streamflow and water availability have been observed and projected to continue in the future in CA and SA, affecting already vulnerable regions (high confidence). Increasing runoffs in CA in the second half of the 20th century were associated with changes in precipitation (high confidence). Risk of water supply shortages will increase owing to precipitation reductions and evapotranspiration increases in semi-arid regions (high confidence), thus affecting water supply for cities (high confidence) hydropower generation (high confidence) and agriculture. Current practices to reduce the mismatch between water supply and demand could be used to reduce future vulnerability (medium confidence). Ongoing constitutional and legal reforms toward more efficient and effective water resources management and coordination constitute another adaptation strategy (medium confidence). {27.3.1.2}

Socioeconomic conditions have improved since AR4; however, there is still a high and persistent level of poverty in most countries, resulting in high vulnerability and increasing risk to climate variability and change (high confidence). The economic inequality translates into inequality in access to water, sanitation, and adequate housing, particularly for the most vulnerable groups, translating into low adaptive capacities to climate change.

Changes in agricultural productivity with consequences for food security associated with climate change are expected to exhibit large spatial variability (medium confidence): in CA, increases in temperature and decreases in rainfall could decrease the productivity in the short term (by 2030), threatening the food security of the poorest population (medium confidence). Some adaptation measures include crop, risk, and water use management along with genetic improvement (high confidence).

Table 6. Regional projected changes in temperature, precipitation, and climate extremes in different sectors of Central America (CA) and South America (SA)¹⁴.

Variable	Projected changes	Reference	Models and scenarios
Leaf Area Index (CA)	– 20% + 0.94mm/day/58 years by 2070 – 2099	Imbach et al. (2012)	23 CMIP3 models, A2
Evapotranspiration (CA)	+20% by 2070 – 2099		
Air temperature (CA)	+2.2°C by 2075 +3.3°C by 2100	Aguilar et al. (2009)	9 CMIP3 models, A2
Rainfall (CA and Venezuela)	–10% /+10% by 2079.	Kitoh et al. (2011); Hall et al. (2013)	20 km MRI-AGCM3.1S model, A1B
Air temperature (SA)	+2.5°C to +3.5°C by 2079		
Precipitation (most SA)	–5 mm day ⁻¹	Nakaegawa et al. (2013b)	20 km MRI-AGCM3.1S model, A1B
Evaporation (most SA)	+3 to +5 mm day ⁻¹ ;		
Soil moisture (most SA in all seasons)	–5 mm day ⁻¹		
Temperature (all SA)	+3°C to +6°C by 2071– 2100	Campbell et al. (2011)	PRECIS forced with HadAM3, A2
Precipitation (CA)	– 24% to – 48% by 2100	Karmalkar et al. (2011)	PRECIS forced with HadAM3, A2
Temperature (CA)	+4°C to +5°C by 2100		
Air temperature (CA)	+3°C to +5°C by 2100	Giorgi and Diffenbaugh (2008)	23 CMIP3 models, A1B
Precipitation (CA)	–10% to – 30% by 2100		

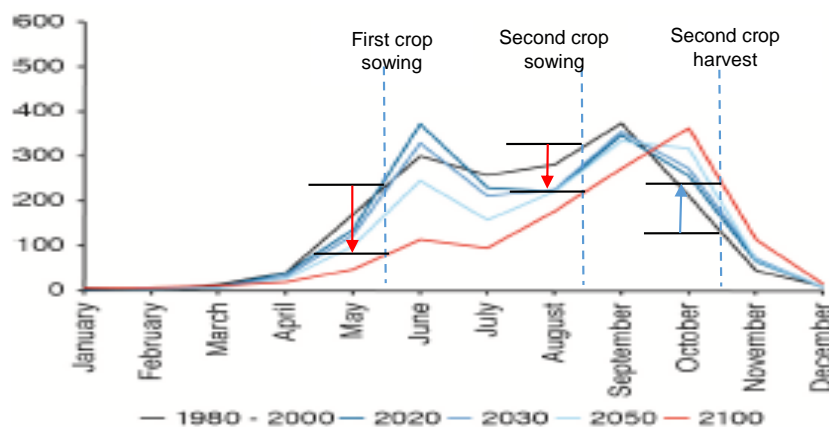
62. Larger precipitation reductions are expected during the rainy season, resulting in a longer and stronger mid-summer drought with important implications for the agricultural sector.

63. The types of climate change phenomena projected in AR5 largely coincide with those projected in the earlier AR4 (2007), which also highlighted predicted effects of climate change on the timing of the natural fluctuations in monthly rainfall: this is of particular concern for the rainfed production of staple grains in the Dry Corridor, in farming systems which are designed around these natural fluctuations of dry and wet seasons (Since around 1950, in CA and the North American Monsoon System (NAMS), rainfall has been starting increasingly later and has become more irregular in space

¹⁴ Idem

and time, while rainfall has been increasing and the intensity of rainfall has been increasing during the onset season. Rainfall levels early in the wet season are predicted to decline, affecting the success of the first (primera) crop of maize; while rainfall is expected to continue until later in the year, potentially creating difficulty for the harvesting of the second (postrera) crops of maize and beans. Projections for Central America estimate reductions in water availability of between 35% and 63%; El Salvador will be the country most affected. The Intergovernmental Panel on Climate Change predicts that rising temperatures will reduce the country's yields of main crops by 30% by 2050, mainly through recurrent drought. Crop simulation models predict that sorghum and maize yields could decrease by up to 20% and dry beans yields could decrease by 50% by 2065,¹⁵ with direct implications on food security, especially in the dry corridor of the country.¹⁶

Figure 8. Timing of crop production in relation to monthly rainfall, 1980-2000 average and scenario A2 up to 2100, showing predicted declines in rainfall at the time of first crop sowing and increases at the time of second crop harvesting¹⁷



64. Despite progress some key barriers remain, including:

1. Limited awareness and capacities among farmers regarding the availability and application of agroecosystem management options for adapting to climate change

65. The continued application by farmers in the target area of practices that exacerbate their vulnerability to the effects of climate change is due to a number of factors:

- Farmers lack knowledge and experience of more resilient options that are compatible with their agro-climatic conditions and their access to human, physical and financial resources;
- The extension support provided to farmers mostly emphasizes considerations of agricultural productivity within a narrow range of assumed climatic conditions, without adequate consideration of how to adapt to conditions that fall outside this range; there is also a predominant focus on soil erosion control rather than soil moisture conservation, which is a more critical consideration under conditions of climatic variability and change;
- Farmers typically depend on external extension support (Government or NGOs) for resolving productive issues, and lack capacities to innovate and develop solutions themselves in response to changing circumstances;
- Farmers have access to a limited range of genetic material, resulting in limited on-farm productive diversity and consequent exposure to risk in the event of climatic or other stresses: Government and NGO support typically focuses on a narrow range of improved varieties, but farmers fail to take advantage of the wide range of crops and varieties currently managed by some farmers in the landscape, many of which offer superior resilience characteristics to improved varieties, even if their maximum potential yield under ideal conditions may be less.
- Farmers have inadequate access to financial resources for investing in adaptation strategies. Family farming relies heavily on government support, because crop yields are often so low that value and surpluses cannot be generated and they do not qualify for access to loans or micro-financing, which currently does not provide incentives for climate resilient practices.

¹⁵ Vara Prasad (n.d.). Impact of Climate Change and Climate Variability on Productivity of Grain Crops. Accessed at: <http://www.centa.gob.sv/docs/guias/granos%20basicos/Prasad-PVV-Climate-Change-El-Salvador-Final.pdf>

¹⁶ ECLAC, 2010b. AR4 projected that nationwide, maize yields are expected to decline by more than 16% by 2100 under the B2 scenario and more than 37% under the A2 scenario, and bean yields are expected to decline by around 17% and 49% respectively.

¹⁷ ECLAC/CEL (Comisión Ejecutiva Hidroeléctrica del Río Lempa de El Salvador)/MARN (Ministerio de Ambiente y Recursos Naturales de El Salvador)/COSEFIN/CCAD/SICA/UKAID/ DANIDA (2012), *La economía del cambio climático en Centroamérica: Dos casos de impactos potenciales en la generación de hidroelectricidad. Serie técnica 2012 (LC/MEX/L.1070)*, Mexico City.

2. Limited capacities for restoring ecosystems and ecosystem service flows in the wider landscape

66. The importance, under conditions of climate change, for stable water yield of maintaining adequate vegetation around water sources and recharge areas is widely recognized among most stakeholders (the vegetation facilitates runoff infiltration, but the dry-season deciduous nature of the trees that predominate in the tropical dry forest is likely to minimize pressures on soil moisture from evapotranspiration relative to other forest types): in practice, however, adequate measures are seldom taken to restore degraded vegetation remnants and their capacities to generate ecosystem services. This is due in part to financial and technical limitations: active restoration typically requires significant investment in the establishment of nurseries, the purchase of seed, materials and nursery equipment, equipment and materials for maintenance (such as fence posts and wire), and paid labour, for nursery management, the establishment and maintenance (weeding) of trees and the protection of restored areas against threats such as grazing and wildfires. Further barriers include limited technical knowledge, for example in terms of how to match species to sites, how to germinate seed and manage seedlings in the nursery, and how to plant trees and maintain restored areas after planting; and organizational difficulties, especially when nurseries are intended to be established and managed as community-based enterprises.

67. Also typically lacking is awareness of alternative approaches to restoration, for example those based on assisted natural regeneration, which may have the potential to achieve the same results as active planting (albeit potentially over a longer period) but at lower costs. Such approaches have the potential to side-step many of the technical and financial challenges facing more conventional approaches to restoration based on the planting of trees, such as the costs and the technical and organizational difficulties of producing potted stock in nurseries. Often lacking in this process is the consideration of the long-term strategic impact of some of these practices, including the introduction or utilization of alien invasive species instead of native species.

3. Inadequate conditions for the adaptive and collaborative management of responses to climate change

68. The ability of Government personnel, including extension workers, to understand the challenges associated with climate change and offer relevant and effective solutions is constrained by their limited access to information on climate risks and on options for adaptation and mitigation. The Meteorological Service of MARN collects and manages meteorological data from a network of observation stations distributed around the country, and MARN and MAG are collaborating on making these data available to farmers in such a way as to help them take decisions on agricultural activities such as when to plant; missing, however, is the provision to planners and decision-makers of reliable and useful guidance on medium and long-term trends in climatic conditions, including regional and global factors. Without this, they are unable to formulate coherent strategies to prepare for these threats, for example through investment in human and institutional capacities reflecting the nature and magnitude of the threats, in research to identify appropriate adaptation measures, and in the breeding of crop varieties specifically adapted to the predicted conditions, all of which require significant lead-in time.

69. The key government agencies with authority on climate change in the agricultural sector are MAG/CENTA and the Ministry of Environment and Natural Resources (MARN). Until recently, these agencies frequently held opposing views on agriculture, with MAG considering MARN's emphasis on environmental sustainability as a threat to the achievement of production goals and vice versa. Although the work of these two agencies is now fully integrated at a policy level, in practice, there are still some gaps and overlap particularly at the territorial level. Some policies are more closely aligned to the new integrated strategies, while others, such as the extension agency CENTA, continue to focus more on productivity objectives. In particular, the "Paquete Agrícola" (Agricultural Package), administered by MAG, provides free seeds and fertilizers to family farms but falls short in including comprehensively climate change adaptation and mitigation measures.

70. Although the Government has well-developed technical capacities, it lacks the financial and technical resources required to meet the additional challenges posed by climate change, and to bring about the paradigm shift that is needed in the provision of institutional support to those who will be affected by climate change impacts. For example, the well-established extension service of MAG, CENTA, has wide national reach, but lacks the additional capacity required to provide climate resilient production advice and establish family farmer learning systems, such as Farmer Field Schools (FFS), to ensure rapid technology transfer and uptake of new policies, agronomic resilient practices and improved germplasm, which would form key elements of the enabling environment required to sustain the roll-out of adaptation measures. In fact, some climate resilient technologies exist both at farmer and indigenous communities level (older but more resilient crop varieties and practices), and some, less commonly promoted, in CENTA.

71. The different institutions with responsibilities of relevance to climate change issues also lack the resources required to bring about the required paradigm shift in how they coordinate their responses to climate change: a recent World Bank study highlighted such coordination among the different relevant central ministries and local stakeholders (municipalities and community organizations) as being critical for effective results¹⁸. The sectoral nature of planning and implementation

is complicated by a multitude of actors at the local level making it difficult for institutions to coordinate and work together. A lack of inter-institutional engagement has limited the development of a common approach to adaptation and mitigation. There are weaknesses and overlaps in the role of government institutions, and the current institutional arrangement of the national and territorial governments are not strong enough to adopt a landscape approach. The absence of a strong coordinating mechanism is a constraint to sustainable management of land through ecosystem restoration and the implementation of agriculture adapted to climate variability. There are however positive recent examples of collaboration between MARN and MAG, for example the SCCF/GEFTF project described in paragraph 51.

72. Another key issue is that although there is a strong baseline of institutional investments in the agricultural sector, natural resource management and rural development issues, in many cases these are not targeted in such a way as to optimize adaptation benefits: incentive and financing mechanisms, for example, do not specifically include adaptation measures in their portfolios, despite their potential benefits in terms of reduced exposure to financial risk. The agrarian reform initiatives undertaken by ISTA do not make specific provisions for ensuring that farmers in CC vulnerable areas have access to the tenure security that they require for carrying out investments in adaptation.

Adaptation (with project) Scenario

73. In order to increase resilience of farming households to climate change conditions, the project proposes the implementation of an agroecosystem-based approach to adaptation in production and livelihood support systems. This approach includes:

- a. the promotion of agroforestry practices, taking advantage wherever possible of the wide diversity of multi-purpose trees that occur naturally in the area (minimizing risks of competition for moisture with crops through the use of dry-season deciduous species and those with different rooting depths to crops), in order to contribute to the conservation of soil moisture and its recharge through the infiltration of rainfall and runoff water, the creation of sheltered microclimatic conditions, and the inclusion into the soil of organic matter that contributes to moisture retention;
- b. the promotion of community-based landscape-level environmental governance, in order to protect forest remnants of importance for water supply, and reduce the use of fire for land clearance (with its potential to result in landscape-wide wildfires);
- c. the restoration of ecosystem services e.g. water conservation and utilization, soil restoration and agronomic adaptations;
- d. the promotion of climate-resilient varieties of staple grain crops (featuring for example resistance to drought, to lodging during storm events, and to rain damage at harvest time), including the valuation, recovery and sharing of traditional varieties;
- e. the increased integration of climate risk management and adaptation mainstreaming into initiatives addressing poverty alleviation, livelihood opportunities (including looking at the whole food system), agricultural production and food security;
- f. the emphasis on adaptive management, stakeholder involvement and the simultaneous achievement of multiple objectives¹⁹.

C.3. Project / Programme Description

74. Through the project, GCF grant resources, in conjunction with government and NGO co-financing, will invest in innovative agro-ecosystem models and practices for resilient landscape management, sustainable production and improved environmental governance. The Government of El Salvador aims to strengthen the climate resilience of family farmers, who face increasing risks of rising temperatures, erratic rainfall, and extreme weather events, attributable to climate change.

75. The Theory of Change for the project (Figure 9) shows how the components of the project will address identified barriers to adaptation, allowing a shift from the dominant current paradigm which focuses narrowly on productivity, fertility and erosion control, the promotion of non-resilient productive options, and the top-down transfer of static technological packages, to one which is characterized by the promotion of agroecosystem-based adaptation, productive, livelihood and structural diversification, farmer-led technology development and knowledge management, community-based landscape governance and adaptive information-led approaches, and which thereby enables farmers to adapt effectively to the effects of climate change.

76. The project objective will be achieved through the following complementary and mutually reinforcing Components:

¹⁸ Program on Forests (Profor) and World Bank (2015). *Adaptation –Based Mitigation in Degraded Landscapes Vulnerable to High Climatic Variation*. Accessed at: <https://www.profor.info/countries/el-salvador>.

¹⁹ Climate Smart Agriculture Source Book. FAO (2013)

- Component 1 will focus on ensuring the resilience of family food production systems and access to water through investments and technical assistance at household level, on 50,000 family farms
- Component 2 will focus on the restoration of areas of degraded ecosystems off farm, in order to restore and maintain the services that these areas provide in reducing erosion and promoting the infiltration of rainfall and runoff water, thereby contributing to aquifer recharge and the stabilization of the water flows on which the target households depend for their domestic water supply.
- Component 3 will ensure the existence of a favourable enabling policy and governance environment for sustainability and scaling up of adaptation to national level.

77. As shown in Figure 10, these three components are highly interrelated. The effectiveness and sustainability of the activities proposed under Component 1 will be dependent on the appropriate management and effective restoration of the surrounding landscapes, which will be achieved under Component 2: in particular, these off-farm areas of vegetation serve to stabilize water flows on which the on-farm water supply systems proposed under Component 1 depend. The livelihood resilience of the target households depends on reliable access to both food and water, and without these off-farm restoration activities, under conditions of climate change the target households would face increasing conditions of water insecurity, which would eventually render their livelihoods unsustainable regardless of the success of the investments in their food production systems. At the same time, the management of agricultural system and vegetation on farm, including the agroforestry systems proposed under Component 2, which also influence hydrological and resilience conditions across the landscape as a whole. The activities under Component 3, meanwhile, will allow the ground level investments under Components 1 and 2 to be sustainable and to be scaled up to national level, resulting in the intended paradigm shift in approaches to adaptation.

Figure 9. Project Theory of Change

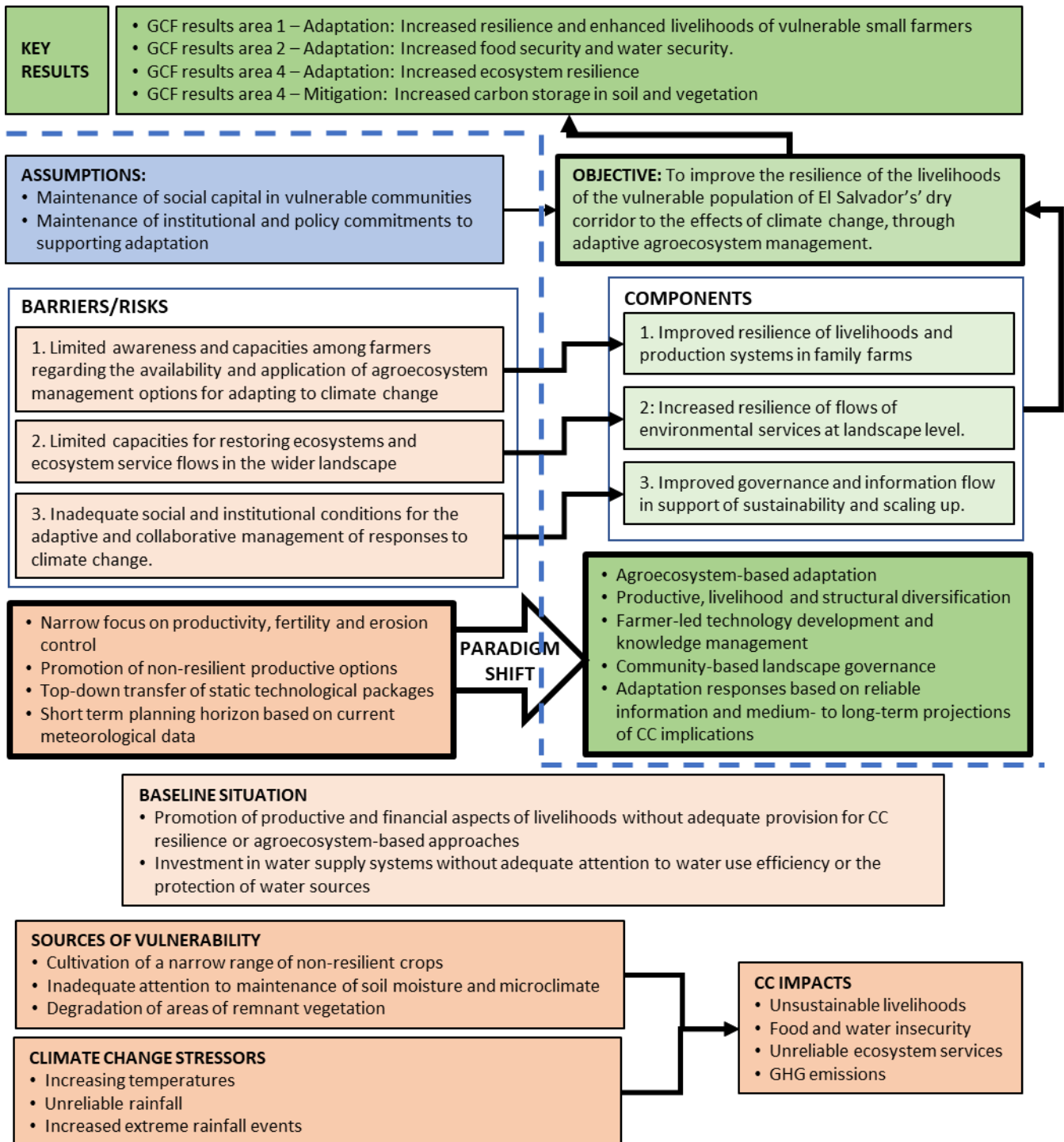
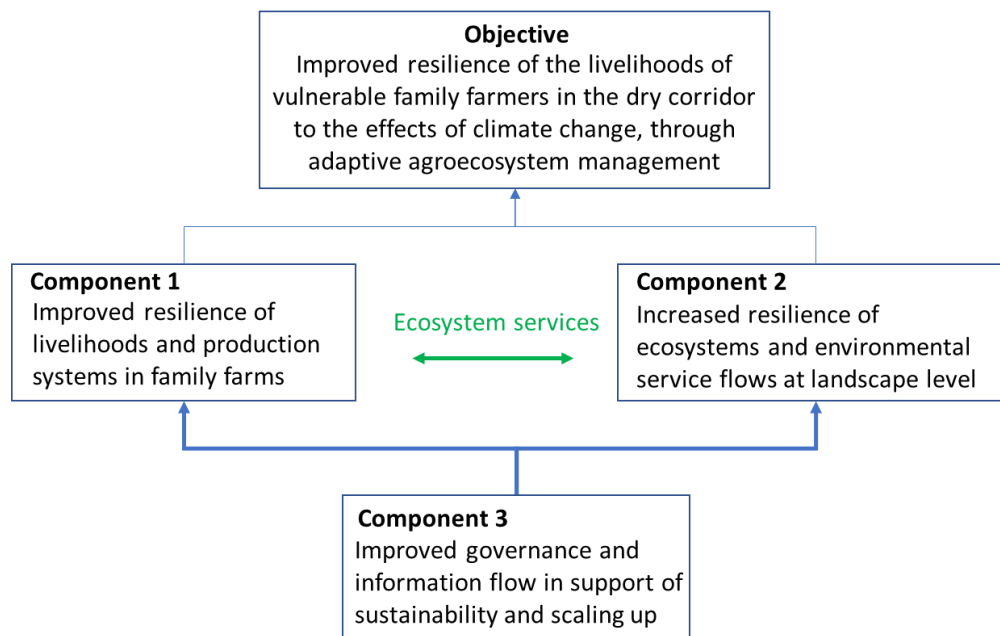


Figure 10. Logical links among project Components



Component 1: Improved resilience of livelihoods and production systems in family farms

78. Under this Component, the project will increase the resilience to climate change of farmers' access to food and water, which are the two most important factors on which the sustainability of their livelihoods depends.

Activity 1.1 Promotion of climate-resilient family farming over 56,600 ha

GCF: USD 14,244,309

MAG: USD 67,649,161

79. In the target family farms, GCF resources will be focused principally on promoting the resilience of staple grain production (which constitutes the fundamental basis of food security of the target population), and of vegetable and livestock production when these exist. This will be achieved through the promotion of an integrated adaptive agroecosystem approach. The project's actions will build upon lessons learned through GEF project 4616 "Climate Change Adaptation to Reduce Land Degradation in Fragile Micro-Watersheds Located in the Municipalities of Texistepeque and Candelaria de la Frontera", scaling the adaptation measures applied in the limited areas covered by that project up to whole landscape level covering the highest priority areas across the dry corridor as a whole.

80. GCF investment will respond directly to the additional stresses placed on these production systems by climate change. While most of the practices to be supported (see Table 8 below) would in theory be justified even without climate change, due to their potential to yield sustainable land management (SLM) benefits, for most farmers these benefits would not be sufficient to motivate them to apply them: GCF support will enable farmers to take a longer term perspective in anticipation of the significant financial, economic and livelihood benefits achievable through the application of adaptation measures, relative to the declines in production and income that are anticipated to result from the effects of climate change (see Economic and Financial Analysis in Section F.1). GCF support responds to the greatly added urgency which climate change projections give to the application of these practices, and recognizes that for them to function effectively as adaptation measures, they must be applied as part of integrated farm-level adaptation packages, in accordance with participatory farm adaptation plans, and be targeted and adjusted as necessary to reflect farm-specific and landscape level adaptation needs and priorities. The farm-level adaptation packages bringing together these different adaptation measures will focus in particular on addressing the key determinants of agricultural production in the dry corridor under conditions of climate change, namely increasing resilience to projected fluctuations in levels and timing of rainfall. As a result of the application of these adaptation measures, combined with agricultural input support from MAG, it is expected that maize and bean yields will increase by around 10% by 20 years after project start, whereas without project intervention these would have declined by at least 10% and 12% respectively (a conservative estimate interpolating from longer term IPCC projections to 2065).

Table 7. Estimated differences between with- and without-project scenarios

Variable	Without project, 2038	With project, 2038	Without project, 2065
Changes in maize yields	-10%	+10%	-20%
Changes in bean yields	-12%	+10%	-50%

81. GCF investments under this component will be accompanied by significant co-financing from MAG, in the form of technical assistance and agricultural inputs, including the provision of climate-resilient varieties of maize and beans. This will be an essential complement to the GCF investments: the provision of resilient varieties will contribute directly to farmer resilience, and the practices promoted by MA will also help to reduce the pressures of degradation which have undermined the CC resilience of the landscape to date.

82. The effectiveness of the proposed adaptation measures will be assessed through the comparative monitoring of crop yields in fields/farms on which the measures are applied, and controls. This will serve to validate the measures, to supply the farmer field schools with objective and reliable information, and to support the processes of awareness raising and policy mainstreaming proposed under Component 3, leading to scaling up and a national paradigm shift in approaches to adaptation.

83. Specific adaptation strategies in this context will include:

- The use of practices for the conservation and recharge of soil moisture, such as cover crops (e.g. cowpea) to reduce evaporative loss, and ditches to capture and permit the infiltration of runoff water, as well as traditional agroecosystem management practices such as the use of felled fallow vegetation as mulch – rather, and the maintenance of dispersed naturally regenerated trees in fields to improve microclimate conditions (also generating valued tree products which provide an added motivation to avoid burning fields prior to sowing); these practices will also contribute to levels of soil organic matter (of importance for moisture retention, as well as nutrition) and soil carbon. These measures will incorporate principles of agro-ecology, focusing in particular on the maintenance of the contributions of biological processes and nutrient cycles to the natural resilience of the agroecosystem and the production systems in sustains.
- The use of CC resilient varieties of staple crops (especially maize and beans) and vegetables (for farmers who currently produce them), capable in particular of withstanding the predicted reductions in rainfall levels during the crucial May-June period (when recently-sown maize plants needs to be growing sufficiently for the crop to be ready for harvest during mid-season break in the rains or *canícula*), and of avoiding crop damage in the case of unseasonal rains during the end of season harvest period. Farmers will be supported in taking advantage both of improved varieties bred for such resilience, and, through seed fairs and farmer-to-farmer exchanges, of resilient traditional *criollo* varieties developed and maintained by farmers throughout the zone.

84. The specific adaptation measures to be promoted by the project are presented below; farmers will be encouraged and helped to select from and adapt these as necessary in depending on their farm-specific needs and conditions. Discussions will also be facilitated among the target farmers regarding the potential off-farm benefits of the adaptation options under consideration, such as the potential for agroforestry systems to contribute to aquifer recharge at landscape level. Although specifically selected for their adaptation functions, most of these measures will also contribute to CC mitigation by reducing GHG emissions and/or promoting sequestration. The measures have also been identified taking into account the labour constraints that face many family farmers in the target area. Additional detail on the practical aspects and feasibility of each measure is provided in the Feasibility Study.

Table 8. Adaptation and mitigation results expected from proposed adaptation measures

Management measures	Adaptation results	Mitigation results
1. Conservation tillage and maintenance of soil cover to promote soil moisture retention, focusing on minimizing soil disturbance when tilling or ploughing the soil (minimum tillage), and maintaining crop cover or residue from previous harvests over the soil, supplemented with plant coverage (legumes).	<ul style="list-style-type: none"> - Maintenance of soil cover protects against temperature increases, and resulting loss of soil moisture due to evaporation and decomposition of soil organic matter - Reduction of soil disturbance and maintenance of cover reduces runoff and erosive losses during increasingly intense extreme rainfall events 	<ul style="list-style-type: none"> - Reduction in emissions from the accelerated decomposition of organic matter due to tillage and increased soil temperatures - Increases in the level of organic material and carbon stocks in the soil.
2. Terracing and runoff capture ditches to promote runoff infiltration and soil moisture	<ul style="list-style-type: none"> - Promotion of runoff infiltration contributes to recharge of soil water resources, reducing the 	

recharge , involving the construction of terraces reinforced by physical or plant barriers perpendicular to the direction of slope on hillsides	risk of moisture deficit affecting crop development, and reducing erosive losses	
3. Resilient fodder banks for animal feed during unseasonal droughts.	<ul style="list-style-type: none"> - Maintenance of livestock feed resources during drought periods when pasture is scarce - Reduction of the use of crop residues for crop feed, allowing them to be incorporated into the soil to increase levels of soil organic matter and soil moisture retention 	- Increased soil carbon due to the incorporation of crop residues which would otherwise be used as animal feed
4. Integrated management of crops and soil fertility for soil moisture retention , including the production and incorporation of compost (bokashi), improved timing of sowing, improved timing and placement of fertilizers and reductions in plant populations	<ul style="list-style-type: none"> - Increases in soil moisture reserves during unseasonal drought periods, associated with increased organic matter content - Reduced evaporative demand from crops 	<ul style="list-style-type: none"> - Increase in soil carbon storage in soil organic matter - Reductions in emissions from the inappropriate or inefficient use of inorganic fertilizers
5. Agroforestry systems to reduce drought stress on crops and promote runoff infiltration , through tree planting or the promotion of natural regeneration, as dispersed trees in fields or in fencelines, pruned and/or pollarded in order to manage light competition with crops.	<ul style="list-style-type: none"> - Maintenance of microclimate conditions, resulting in reduced losses of soil moisture associated with temperature-related increases in rates of evaporation and decomposition of soil organic matter - Improved infiltration of runoff, recharging soil moisture reserves and contributing to aquifer recharge and stream flow stabilization at landscape level. - Input of soil organic matter, resulting in increases soil moisture retention. 	<ul style="list-style-type: none"> - Increase in soil carbon storage in soil organic matter, resulting from leaf litter inputs - Reduction in temperature-related volatilization of soil carbon, due to shade
6. Silvopastoral systems to reduce temperature stress on livestock and promote runoff infiltration , as dispersed trees in pastures or in fencelines.	<ul style="list-style-type: none"> - Maintenance of microclimate conditions, resulting in reduced losses of livestock productivity due to temperature stress - Improved infiltration of runoff, contributing to aquifer recharge and stream flow stabilization at landscape level. - Input of soil organic matter, resulting in increases soil moisture retention. 	<ul style="list-style-type: none"> - Increase in soil carbon storage in soil organic matter, resulting from leaf litter inputs - Reduction in temperature-related volatilization of soil carbon, due to shade
7. Use of climate change resilient varieties of staple grains and vegetables , increasing the range of options from those currently promoted in accordance with situation-specific adaptation needs identified by farmers and including traditional varieties	<ul style="list-style-type: none"> - Reduced crop failure in the event of rainfall failure during critical growth periods - Reduced harvest failure in the event of excessive rainfall during harvest 	
8. Water-efficient drip irrigation to replace spray irrigation used for the production of vegetable cash crops (e.g. tomatoes and sweet peppers)	<ul style="list-style-type: none"> - Reduced demand on scarce water resources (including competition with domestic water demand) 	

Table 9. On-farm adaptation measures to be supported, by farmer category and funding source

	Financing	I. Hill farmers (no livestock or irrigation)	II. Hill farmers with livestock	III. Flat land farmers with irrigation	IV Flat land farmers with livestock	Totals by measure
1. Conservation tillage and maintenance of soil cover	GCF	32,500	6,000	3,500	8,000	50,000
4. Integrated management of soil fertility for soil moisture retention	GCF					50,000
5. Agroforestry systems	GCF					50,000
2. Terracing and runoff capture ditches	GCF					38,500
8. Water-efficient drip irrigation of vegetables	GCF			700 ^a		700
7. Use of climate resilient varieties of staple grains and vegetables	GCF ^b					700
	MAG ^c	32,500	6,000	3,500	8,000	50,000

3. Resilient fodder banks	GCF		900		2,400	3,300
6. Silvopastoral systems	GCF		900		2,400	3,300
Total areas		32,500	7,800	3,500	12,800	56,600

^aIrrigated vegetable production is carried out in the same area as the staple grains (vegetables are grown in the dry season in areas used for grain production in the wet season)

^bVegetables

^cStaple grains

85. GCF investments in support of this activity will consist of the following **inputs**:

- **1.1.1 Facilitation of participatory situation analysis and adaptation technology validation:** working through **1,415** Farmer Field Schools (see activity 1.3) 83 project technicians and 1,328 community promoters will facilitate participatory process of situation and needs analysis in the target communities, exchange of experiences, as well as the design, establishment and management of participatory on-farm trials of adaptation measures which will run in parallel with the promotion of measures among the target farms as a whole.
- **1.1.2 Provision of technical assistance for the application of agricultural resilience measures:** technical assistance will be provided to 50,000 farmers on the application of agricultural resilience measures. This will be provided by CENTA technicians (40 existing staff and a further 43 to be contracted specifically for the project) and community promoters, all of whom will receive prior training on climate change issues and adaptation measures, as well as on approaches and methodologies for facilitating participatory processes of needs analysis and technology validation (project investments in strengthening in-house human resources for technology transfer on adaptation are described in more detail under Activity 1.2).
- **1.1.3 Facilitation of the formulation of farm adaptation plans:** on the basis of the initial situation analyses and training, farmers will be oriented and accompanied in the preparation of farm plans, which will make provision for the spatial configuration of land uses and production systems across the farm unit in such a way as to maximize CC resilience, and for the sequencing of activities and investments in the medium term, incorporating CC adaptation measures.
- **1.1.4 Provision of materials and equipment for the application of CC adaptation measures:** support will be provided to participating farmers in the form of the additional materials and equipment needed for the application of CC adaptation measures, in addition to the productive inputs they currently receive through the *Paquetes Agrícolas*. Based on farm-specific analyses of needs, this support will include seed of resilient crop varieties, fodder species and native or common naturalized trees, equipment such as hoes for the construction of terraces and spades or forks for bokashi production, and didactic materials such as flip charts for participatory analysis and planning exercises. The crop seed to be provided will include local varieties (through local seed exchanges) as well as externally supplied improved varieties, from crop breeding programmes: all externally supplied seed will be subject to quality certification in accordance with the norms of CENTA.

Activity 1.2 Improvement of water collection and management in 3,930 households

GCF: USD 3,311,865

MAG: USD 1,551,174

86. Families' access to drinking water will be ensured through the construction of rainwater collection systems, whereby rainfall will be collected from the roofs of houses and/or outbuildings through gutters and channeled into plastic storage tanks (ferrocement tanks are not appropriate due to the seismic risk of the area), with appropriate technology filters to ensure drinking water quality. This measure will follow the broadly tested methodology *Sistema de Coleccion de Agua Lluvia* (SCALL) developed by the Research Institute of Ecosystems and Sustainability from the National Autonomous University of Mexico (UNAM)²⁰, and will be implemented at household level (benefiting 1,320 households) and community level (benefiting 2,610 households through 45 systems, each reaching 58 families).

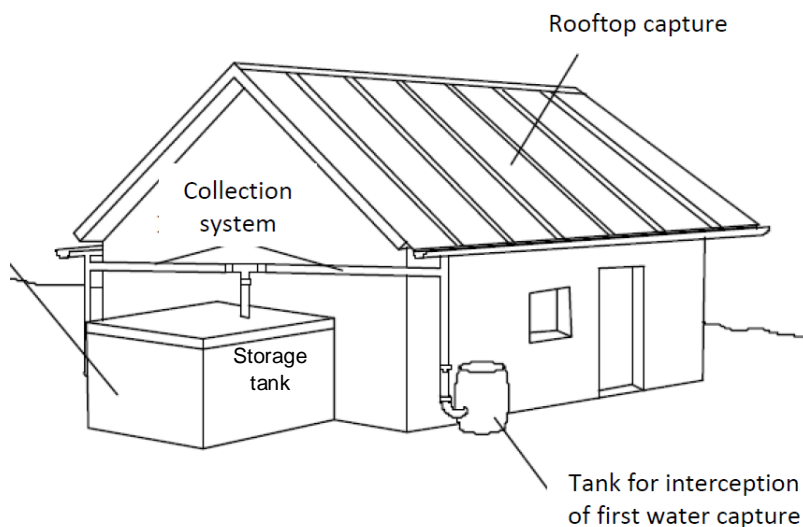
87. This activity will build on extensive experiences to date in the country with rainwater collection, which have demonstrated its feasibility and appropriateness under local social and practical conditions. Following the severe drought of 2015, FAO promoted similar rainwater collection and storage systems in the Dry Corridor of El Salvador and elsewhere in the region, among families without access to water through conventional distribution systems, or who rely on wells at a distance of more than 500 m.

88. Rainwater collection systems consist of the following elements (see Figure 11 and Figure 12 for detail of typical household- and community-level water collection systems: technical details and operational manuals are provided in the Feasibility Study²¹):

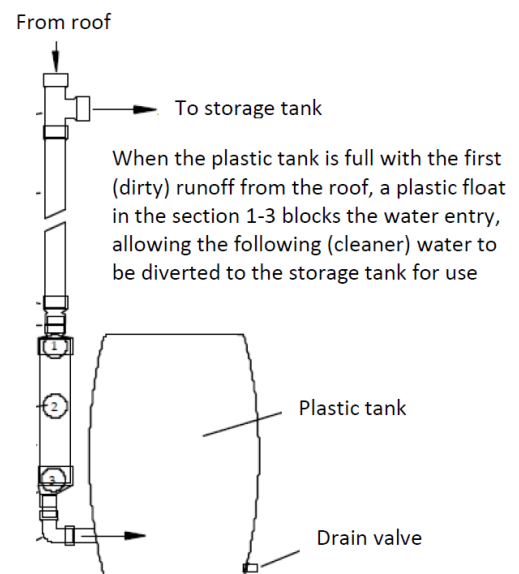
- 1) Rooftop capture area: the system has been proven to function well with a variety of roof types, including corrugated iron and clay tiles (the most common types in the project area)
- 2) Water conduction system: gutters and tubing, ideally of PVC which is light, durable and relatively cheap (other options include metal and bamboo, the former being durable but costly and the latter being cheap but not durable)
- 3) Tank for interception of the first runoff waters (only for household level systems): at the onset of a rain event, the first water to arrive is normally contaminated with accumulated material including leaves and bird droppings: the system shown below diverts this first water and only allows subsequent, cleaner water to enter the collection tank for use. This tank is large enough to receive 1m³ of water per m² of roof.
- 4) Reservoir: for the household level systems, high density polypropylene tanks will be used while for the community level systems underground reinforced concrete tanks are constructed (Figure 12).
- 5) Cabin for water purifying system (only for community level systems, see Figure 12b)). This includes a 1HP electric pump, a series of filters, a UV light and an ozone generator, electrical power for which is provided by 5KW rooftop solar panels (with accumulators). Water is obtained by users directly from the washing and filling area in the cabin: the collection systems are intended for beneficiaries located no more than 500m away.

Figure 11. Household level rooftop rainwater collection system

a) General view



b) Detail of tank for interception of first water capture

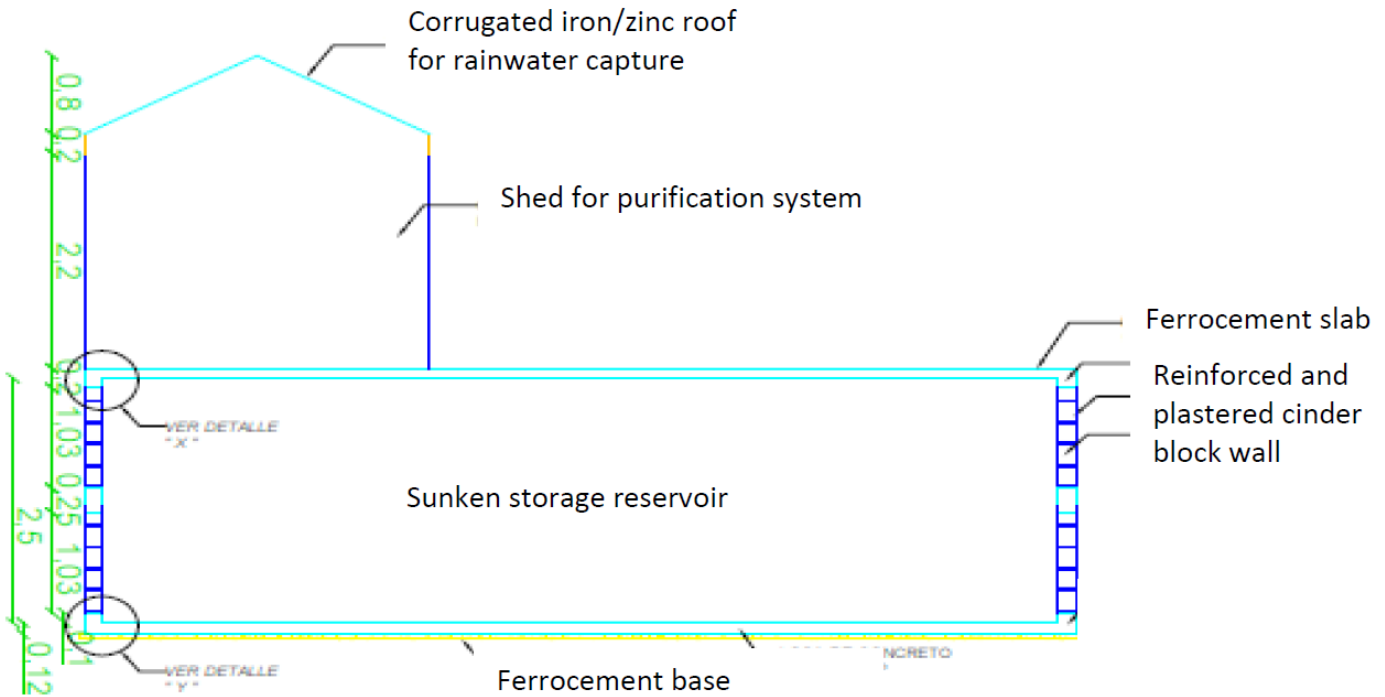


²⁰ <http://ecotec.unam.mx/Ecotec/ecoteca/colecta-de-agua-pluvial-como-medida-para-el-aprovechamiento-sustentable-de-la-energia>

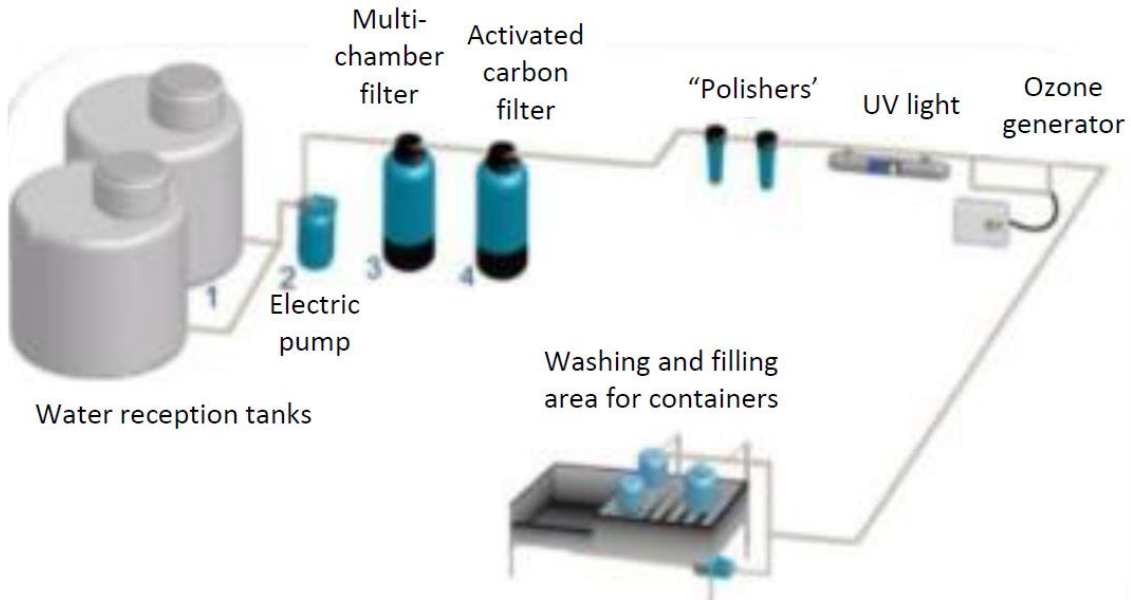
²¹ See also <http://ecotec.unam.mx/Ecotec/ecoteca/colecta-de-agua-pluvial-como-medida-para-el-aprovechamiento-sustentable-de-la-energia> for more design detail and experiences under similar conditions in Mexico

Figure 12. Community-level rainwater collection system

a) General cross section of collection, treatment and storage areas



b) Water treatment system



89. Table 10 shows that despite the 4-month dry season, the household rainfall capture systems will provide families with water reserves that never fall below 1,634 litres, once the storage tanks are initially filled in the rainy season.

Table 10. Estimated water balance of household rainwater collection systems²²

	J	F	M	A	M	J	J	A	S	O	N	D	Totals
Monthly rainfall (mm)	3	-	8	44	153	150	126	137	141	207	36	4	1,009
Monthly rainfall capture (litres)	45	-	120	660	2,295	2,250	1,890	2,055	2,115	3,105	540	60	15,135
Monthly water consumption (litres)	279	254	279	270	279	270	279	279	270	279	270	279	3,287
Monthly balance (litres)	- 234	- 254	- 159	390	2,016	1,980	1,611	1,776	1,845	2,826	270	- 219	11,848
Volume stored (litres)	2,047	1,793	1,634	2,024	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,281	

90. The community-level water collection systems described above are managed and maintained by community-level Community Development Associations, whose members provide labour as needed. An example of these associations, are the Water Boards, there are approximately 2,366 in El Salvador. Their activities and projects are related to the extraction, use, protection and conservation of superficial and underground water resources, in order to provide non-profit potable water service.

91. All of the materials normally required for construction and repair (such as replacement pipes and PVC glue) are widely available in village hardware stores, and can be transported to the target households without undue difficulty. Replacements for items such as solar panels, filters etc. used in the community-level systems can be obtained by the ADESCOs from the same national suppliers that provided them when the systems were first established.

92. This has proven effective in ensuring reliable water access, and in reducing the workload of women and children who are principally responsible for water carrying water to the house. The technology has further been validated in the country through SCCF/GEFTF project *Climate Change Adaptation to Reduce Land Degradation in Fragile Micro-Watersheds located in the municipalities of Texistepeque and Candelaria de la Frontera*: in that case two 5m³ polypropylene tanks were used per family, this option being logistically easier than transporting construction materials for ferrocement tanks, and less susceptible to seismic damage.

93. This measure will be complemented by the protection and revegetation of water sources from which water is currently obtained, as described under Component 2.

94. GCF investments in support of this activity will consist of the following **inputs**:

- **1.2.1 Investment in the establishment of household and community rainwater collection, treatment and storage systems:** materials and equipment (plastic guttering, tubing, filters and storage tanks) will be donated to beneficiary families, who will locate and install them with the support of the community promoters. The systems will consist of materials and require tools that are easily available from local hardware stores in case of the need for maintenance and repair.
- **1.2.2 Advisory and training support for families receiving rainwater collection systems:** beneficiary families will receive advice and training from community promoters and technicians on the design and siting of the rainwater collection and storage systems, and their maintenance, including the repair of breaks to fittings and pipes, avoidance and clearance of blockages.

Activity 1.3 Strengthening of human and institutional capacities for sustainability and scaling up of adaptation strategies

GCF: USD 4,418,880

MAG: USD 1,230,648

95. Of key importance to the sustainability and replication potential of project impacts, and thereby to the achievement of a lasting paradigm shift in approaches to adaptation, will be the investments by the project in the development of human and institutional capacities. CENTA, the extension agency of MAG, will be the main target institution for capacity development: in addition to the 40 CENTA technicians who will be directly involved in project implementation through the delivery of technical assistance to beneficiaries in the 114 target municipalities (who will be complemented by 43 temporary extension agents contracted over the life of the project), the project will provide training to 130 CENTA staff members in 40 regional agencies on climate change and adaptation measures. This will target extension agents as well as higher level staff, in order to maximize lasting uptake and ownership of the knowledge transferred, and will be delivered through a combination of on-the-job training, field visits and exchanges of experiences, didactic guidance materials, and more conventional “classroom” type sessions. In addition, the project will develop and distribute practical guides on adaptation strategies, which will constitute a lasting reference resource for extension agents and for technical training institutions, both within and beyond the direct target areas of the project.

96. The project will also develop capacities at local level, among the target populations themselves, for analysis, experimentation and innovation. This will increase the probability of relevance, ownership and sustainable uptake of

adaptation measures, and will enable farmers to adjust them dynamically in response to evolving conditions, in contrast to the predominant current focus on the top-down transfer of static packages of technologies. To this end, the project will facilitate the establishment and functioning of Farmer Field Schools (FFS) among participating farmers, either directly or through NGOs and producer organizations operating in the target areas. This approach provides farmers with opportunities for participatory situation analyses, the participatory testing of alternative adaptation measures on farm under conditions that correspond to their realities, and the sharing and review of experiences. Project support will be in the form of the provision of materials and inputs for the testing and validation of adaptation measures, the provision of didactic material, and the facilitation of reflections and analyses by FFS participants. Support will also be provided where appropriate to the conversion of selected farms within the target communities into demonstration or model farms. The precise nature of the participatory models to be applied in any given case will be determined on the basis of farmer preferences and the existing baseline of organizational structures and activities by NGOs and Government agencies.

97. GCF investments in support of this activity will consist of the following **inputs**:

- **1.3.1. Development of capacities for innovation and adaptive management:** project technicians and community promoters will support the strengthening of existing Farmer Field Schools and the establishment of new FFS, in order to develop the roles of these as spaces for farmers to exchange experiences during and beyond the project, and to test out and as necessary adjust adaptation measures. Orientation will be provided to FFS members, and to the NGOs and producer organizations that work with them, on how to incorporate considerations of CC adaptation into the planning and operations of the FFS.
- **1.3.2. Capacity building for CENTA personnel on adaptation issues and strategies:** in addition to working with CENTA and NGO technicians for the provision of extension support during the life of the project, the project will invest in the training of in-house CENTA technicians in order to develop their capacities to promote adaptation strategies beyond the life of the project, thereby contributing to sustainability and scaling up of impacts.
- **1.3.3. Training of youth on climate resilient agricultural and land use practices:** the project will invest in developing awareness and capacities in relation to issues of climate change and adaptation among young people in the target areas: this will contribute to the paradigm shift sought by the project, as these young people will constitute the new generation of technicians, planners and producers.
- **1.3.4. Strengthening of institutional capacities for the supply of genetic material for farm and landscape level adaptation strategies:** the project will provide equipment support to the CENTA Germplasm Center and the DGOFCR-MAG Center for Forest Development, in order to strengthen their respective abilities to supply seed of resistant varieties of agricultural crops for on-farm agricultural resilience, and of native or naturalized tree species for use in on-farm agroforestry systems and off-farm restoration activities.

Component 2: Increased resilience of flows of environmental services at landscape level

Activity 2.1 Restoration of vegetation cover in critical locations to promote hydrological services and increase carbon stocks

GCF: USD 8,527,198

FIAES: USD 13,254,745

MARN: USD 1,854,317

98. In order to ensure that water yields are maintained from the springs from which most farm families currently obtain their domestic water supply, the project will invest in the restoration of the vegetation in areas around and upstream of the springs, of importance for reducing evaporation rates and for promoting the infiltration of rainfall and runoff, and in other areas identified as of importance for aquifer recharge. This will be achieved through a combination of artificial regeneration (tree planting) and assisted natural regeneration.

99. Tree planting will normally involve the establishment of community-based nurseries for the production of potted stock, focusing on native or naturalized tree species with canopy and rooting characteristics that optimize water infiltration and shade; with certain species (such as *Bursera* spp., *Gliricidia sepium* and *Erythrina* spp.), live stakes may be used given their low cost, ease of transport, rapid establishment and ease of maintenance. Where nursery-grown potted stock is used, seed will be collected locally where possible (under the guidance of technicians in order to ensure genetic quality and appropriate handling), supplemented where necessary by seed supply from the DGOFCR-MAG Center for Forest Development. Where feasible, tree planting will be complemented by the promotion of assisted natural regeneration, including the nurturing of coppice regrowth from live stumps. Restoration areas will be protected from grazing, burning

²²Assumes 30m² roof area, 9 litres/day water consumption per family and (pessimistically) 50% water capture efficiency

and tree felling through a combination of fencing and community-based norms and vigilance, which will be vital in order to ensure the survival of planted trees and the success of natural regeneration.

100. GCF investments in support of this activity will consist of the following **inputs**:

- **2.1.1. Facilitation of plans and agreements to implement restoration of ecosystems/areas of particular importance for resilience in the intervention landscapes:** project technicians will provide advisory and facilitation support to participatory community-based exercises, which will result in:
 - The identification of priority sites for restoration in order to optimize the resilience of ecosystem flows under conditions of climate change (critical areas for water protection and aquifer recharge);
 - Characterization of the selected localities in terms of the current status of the vegetation, needs for protection and restoration, and tenure status.
 - Norms and agreements, negotiated as appropriate with current owners, occupiers and users of the selected areas, regarding restoration options, permitted uses and activities, and responsibilities.
 - Definition of organizational arrangements and responsibilities for carrying out restoration, protection and maintenance work
- **2.1.2 Procurement and supply of planting and nursery materials and equipment:** tree seed for use in restoration areas will either be obtained from the DGOFCR-MAG Center for Forest Development, or through local collection (in which case local people will be paid to collect the seed, under supervision by project technicians in order to ensure the quality of the source trees). Where tree nurseries of sufficient scale already exist within easy reach of the target areas for revegetation, planting material may be purchased ready for use; otherwise, the seed will be used to raise stock in community nurseries to be established with project support (see below), or in some cases for direct sowing. Nursery materials will include polythene bags for the production of potted stock, watering cans or hoses, spades for mixing potting materials, and shade cloth together with supports.
- **2.1.3 Tree planting and assisted natural regeneration:** the project will cover the costs of labour for site preparation (fencing and weeding, as necessary) and planting, and the transport of planting stock and materials to the restoration sites. Restoration activities will be carried out where possible by local community-based organizations, with additional daily paid labourers as necessary. Further planting may be undertaken in subsequent years to replace losses due to mortality.
- **2.1.4 Maintenance of restored areas:** the project will cover the costs of labour for ongoing maintenance during the duration of the project, which will consist largely of manual weeding (no herbicides will be used due to the risk of contamination of water source), periodic clearance of firebreaks, and vigilance against fires, grazing, agricultural clearance or extraction. Restoration activities will be concentrated in the first years of the project, meaning that by the time project support for maintenance is withdrawn the trees will be sufficiently developed that their maintenance needs will be minimal.
- **2.1.5 Planning for ongoing management, protection and maintenance:** towards the end of the project period, the project will facilitate further meetings with local community members and organizations in order to plan the long-term management and protection of the restored areas, including the confirmation of norms on permitted activities and the corresponding assignment of responsibilities for protection and maintenance.

Component 3: Improved governance and information flow in support of sustainability and scaling up

Activity 3.1 Strengthen local planning, governance and coordination in support of adaptation and restoration

GCF: USD 1,733,809

MARN: USD 296,691

101. The coherence and success of the proposed adaptation and restoration activities, and effectiveness in relation to landscape-wide flows of ecosystem services (particularly the regulation of water yield) are dependent on their being planned and implemented in accordance with conditions of the landscape as a whole, in which they are located. The project will provide training and facilitation support to organizations in the target municipalities to enable them to participate effectively and collaboratively in planning and decision-making processes determining the management of the target landscapes in response to evolving conditions and pressures resulting from climate change. Subject to location-specific participatory scoping at project start, the organizations to be involved may include Community Development Associations (ADESCOs), cooperatives and other producer associations, entrepreneurship groups, Community Civil Protection Committees, and Municipal Civil Protection Committees. Particular attention will be paid to ensuring that the interests of women, young people and (where relevant) indigenous groups are represented in these processes.

102. The project will improve the comprehensive management of water resources in the project intervention territories through the strengthening of municipal environmental units, local development associations, and communities, to promote their active participation in water administration boards and contribute to water collection, management, and sustainable use. This strengthening of governance mechanisms will also extend to the development of norms, agreements and organizational capacities for the collaborative community-based protection of areas targeted for restoration, in order to improve and stabilize water flows, under Component 2.

103. In parallel with this capacity development, the project will fund facilitation support of multi-stakeholder review and analyses of the provisions of existing landscape planning instruments, through inter-institutional work spaces and regional roundtables, and for the mainstreaming into these instruments of climate change issues and adaptation strategies, including the prioritization of areas for restoration areas. The instruments in question will involve Territorial Planning Documents, Watershed Management Plans, Participatory Strategic Plans, Municipal Risk Management Plans, and Local Sustainable Development Plans.

104. GCF investments in support of this activity will consist of the following **inputs**:

- **3.1.1 Train local project beneficiary organizations to participate in local planning and decision-making processes:** project technicians and service providers will provide training to selected organizations (ADESCOs, producers' associations, entrepreneurship groups, Community Civil Protection Committees, Municipal Civil Protection Committees) on the mainstreaming of CC adaptation considerations into their operations, and into decision-making, planning and capacity development actions in which they are involved. Emphasis will be placed on promoting inclusion (women, youth, and indigenous groups) in decision-making, economic empowerment and local planning to implement climate change mitigation and adaptation actions.
- **3.1.2 Multi-stakeholder review and analysis of provisions of existing planning instruments as a framework for adaptive landscape management:** project technicians and service providers will support processes of mainstreaming CC provisions into landscape and development planning instruments, through inter-institutional work spaces and regional roundtables. Instruments to be reviewed and adjusted will include Territorial Planning Documents, Watershed Management Plans, Participatory Strategic Plans, Municipal Risk Management Plans, and Local Sustainable Development Plans. These analyses will take into account key factors that influence land use decisions, such as tenure conditions.
- **3.1.3 Promote local environmental governance structures for adaptation:** project technicians and service providers will provide training and facilitation support to municipal environmental units, local development associations, water administration boards and local communities, resulting in agreements and negotiated norms on the governance of natural resources at landscape level, including the protection of aquifer recharge areas and the avoidance and control of fires.

Activity 3.2 Adjustment of regulatory, policy, planning and incentive instruments in support of proposed adaptation and mitigation measures

GCF: USD 486,878

MARN: USD 741,727

105. At national and, where appropriate, regional levels, the project will facilitate and advise processes of multi-stakeholder review and adjustment of regulatory, policy and planning instruments in order to ensure that the provisions of these are supportive of the adaptation and mitigation measures proposed under this project. This will be achieved through a combination of expert-led desk reviews of the instruments and their implications and provisions in this regard, multi-stakeholder fora informed by the desk reviews and aimed at discussing and prioritizing needs for adjusting the instruments, and institution-specific analytical, advisory and orientation support. An inter-institutional operational plan will be developed, to adjust public policies and regulatory frameworks as necessary, and corresponding discussion spaces will be enabled at technical, institutional/ministerial and legislative levels, and at local/territorial levels.

106. Specific instruments potentially to be targeted for CC mainstreaming as a result of these analyses may include the following:

- Regulations for the formulation of territorial land use plans, in order to require these to consider the temporal and spatial dimensions and implications of climate change in the target landscapes, such as changes in the vulnerability and carrying potential of different land units, in the importance of areas of vegetation for ecosystem-based adaptation;
- Strategic plans and priorities of the Agrarian Tenure Institute ISTA, in order to ensure that the farmers with highest levels of vulnerability to climate change in the target landscapes have the levels of security of tenure, occupancy and use that they require to be able to invest in the proposed adaptation and mitigation measures; the task force

carries out a study on tenure to be carried out in the project area and results given to ISTA to carry out as part of their on-going land titling programme.

- Eligibility criteria for the lending portfolios of public and private financial institutions, such as the BFA, extending these to include measures specifically aimed at increasing resilience to CC, including those proposed under the project;
- Provisions of Government incentive programmes such as the *Paquete Agrícola*, in order to ensure that these include specific provisions for adaptation measures and avoid supporting “maladaptive” measures such as those that increase dependence on water resources in situations where these are project to become increasingly scarce as a result of climate change.

107. GCF investments in support of this activity will consist of the following **inputs**:

- **3.2.1 Facilitate inter-institutional analyses and discussions regarding needs and options for the modification of regulatory, policy and planning instruments.** Project support will include:
 - Development of institutional agreements to ensure that policy and legislative frameworks are supportive of the proposed adaptation and mitigation measures.
 - Development of an inventory of national plans with relevance to the proposed adaptation and mitigation measures.
 - Undertaking a review of the legal framework on land tenure and the implications of this for the adoption of the proposed adaptation and mitigation measures, in particular the differences between formal, informal and leasehold tenure.
 - Development of an inter-institutional operation plan to adjust public policies and regulatory frameworks to support the proposed adaptation and mitigation measures in local territories.
 - Enabling of discussion spaces at different levels for decision-making on legislative instruments of relevance to the proposed adaptation and mitigation measures.
- **3.2.2 Develop specific proposals for modifications to regulatory, policy and planning instruments:** on the basis of these analyses and discussions, project team members and/or contracted consultants will formulate specific proposals of modifications to the instruments, for further consideration and validation by the stakeholders and competent authorities in question. This will include the establishment of a task force on land tenure (including MARN, MAG, CENTA, ISTA, CNR and civil society organizations) to support ISTA in prioritizing actions to provide the levels of tenure security required to be able to apply adaptation measures (see above).
- **3.2.3 Develop guidelines and provide training to officials of MARN, MAG and local government to provisions in support of the proposed adaptation and mitigation measures into policies and plans, with a focus on agriculture and forestry sectors:** in order to allow the sustainability and adaptability of the proposed mainstreaming, in support of the intended paradigm shift, project specialists and/or contract consultants and service providers will provide specific training and guidelines to policy makers and planners in MARN, MAG and local governments on the mainstreaming of provisions for adaptation and mitigation climate change into policy and planning instruments in the future. The guidelines will include criteria and checklists of CC provisions to be included in the instruments, and proposals of CC-related indicators to be included in monitoring and evaluation frameworks.

Activity 3.3 Strengthening of capacities for information management in support of adaptation planning and scaling up

GCF: USD 1,425,984

MAG: USD 715,556

108. Project support will build on the advances made to date by MARN and MAG in collecting meteorological data and making them available to farmers in order to help them take short-term decisions on agricultural management (such as the timing of crop planting). The key value added of the project will be to introduce a medium-and long-term perspective to the channeling of information for decision support, enabling institutions to base their medium and long-term strategic and investment plans on the most reliable forecasts that are available of trends in key climatic conditions over coming years. The project will strengthen linkages to promote the effective flow of information, including medium and long-term forecasts, between institutions at regional and global levels (such as the IPCC and NOAA) and those in El Salvador, together with systems and capacities in national institutions for the interpretation of these data and their effective dissemination in support of planning and decision-making. MARN, through its National Institute for Terrestrial Studies (SNET) will play a central role as a clearing-house for these data and forecasts, and the project will invest in strengthening the capacities of SNET in this regard through the strengthening of existing information management systems, staff

training, and the development of outreach capacities (including web portals facilitating on-line access by decision-makers to data and forecasts, policy briefs, and outreach seminars for the provision of technical and strategic guidance to decision-maker).

109. Examples of the potential utility of this information include the following:

- Projections in trends over time in the spatial configuration of key climate stressors (such as dry season length) will enable Government (MAG/CENTA) and NGOs to focus their investments in extension support on the vulnerable areas that are projected to be most vulnerable, giving them time to develop the institutional, social and human resources at local level that are required for effective adaptation measures to be implemented;
- Ecosystem- and infrastructure-based adaptation measures, including the restoration of vegetation remnants (which require significant lead-in time to have effect), will be planned in anticipation of future levels of stress and need;
- Agricultural research centers such as CENTA will be able to plan the breeding and provision of crop varieties that correspond to the projected future conditions, which again requires significant lead-in time;
- Other Government agencies will be able to factor the social costs of climate change, including the provision of social safety nets, more precisely into their medium- and long-term strategic and financial planning.

110. The project will also support the establishment of regional and national platforms for coordination and the sharing of experiences on climate change adaptation. This will be particularly valuable given the range of different actors currently working on natural resource management and adaptation, including Government, NGOs, producer organizations, private sector and universities. The aim will be to bring together the typically more technology-driven approaches of Government agencies and the typically more experience-driven approaches of the NGO and producer sectors, so that they learn from and enrich each other, developing operational synergies and minimizing the risk of duplication or contradiction.

111. GCF investments in support of this activity will consist of the following **inputs**:

- **3.3.1. Strengthen systems for the management of climatic information in support of medium- and long-term planning for CC adaptation:** the project will provide technical advisory support and training strengthen linkages to promote the effective flow of information, including medium and long-term forecasts, between institutions at regional and global levels (such as the IPCC and NOAA) and those in El Salvador, together with systems and capacities in national institutions for the interpretation of these data and their effective dissemination in support of planning and decision-making. MARN, through its National Institute for Terrestrial Studies (SNET) will play a central role as a clearing-house for these data and forecasts, and the project will invest in strengthening the capacities of SNET in this regard through the strengthening of existing information management systems, staff training, and the development of outreach capacities (including web portals facilitating on-line access by decision-makers to data and forecasts, policy briefs, and outreach seminars for the provision of technical and strategic guidance to decision-makers).
- **3.3.2. Develop platform(s) for exchange of knowledge and lessons, and joint planning, among Government and CSO actors:** the project will also support the establishment of regional and national platforms for coordination and the sharing of experiences on climate change adaptation between Government, NGO and producer sectors.

C.4. Background Information on Project / Programme Sponsor (Executing Entity)

112. FAO is the Accredited Entity (AE) to the GCF and, at the request of the NDA (please see Annex A.4), will also act as Executing Entity for the GCF Proceeds, through FAO-El Salvador Country Office. MAG, MARN, and FIAES will be co-executing agencies and collaborate with the FAO in the execution of the project activities, in accordance with the provisions of Project Agreements to be signed with FAO: they will execute the co-financed funds but will not execute any GCF Proceeds. Section C.1 provides a description of their role in the project. FAO will maintain constant coordination and collaboration with these entities for the sound implementation and proper achievement of project results, through the established project governance structure. The institutional arrangements for project implementation are described in detail in Section C7.

113. As AE, FAO will have overall responsibility for quality assurance and oversight of the project. For this, FAO has a robust fiduciary and technical oversight and quality assurance system with specific functions carried out by a segregated quality assurance process, which includes: FAO- El Salvador Country Office, the sub-regional Office for Mesoamerica (SLM), the Regional Office for Latin America and the Caribbean (RLC) and Headquarters. This process ensures independent project oversight and monitoring.

114. Segregation of duties and internal controls are an inherent part of the work of FAO in order to have accountability for the organization's decisions and fund management, to donors, member countries, beneficiaries and stakeholders. To this end, there are detailed financial rules and procedures to ensure effective financial administration and effective custody of the physical assets of the Organization. FAO's Internal Control Framework links existing corporate policies and compliance monitoring tools to the roles, responsibilities and accountabilities of managers and staff. FAO continuously applies the concept and practice of Segregation of Duties in all of its processes, including projects and their procurement and financial practices.

115. The project assurance and oversight provided by FAO in the present project will be independent from the project management function, for which a Project Management Unit (PMU) will be established (see section C.7 below). FAO will not delegate any of its quality assurance and oversight responsibilities to the PMU. A separate line of reporting exists between the Project Management Unit and the FAO Staff who undertake the quality assurance and oversight process. Each country office process has a specific workflow for which the Office assigns specific roles and responsibilities for all the personnel, which is also reflected in the FAO's corporate Global Resources Management System (GRMS). Moreover, segregation of duties in Country Offices is also reviewed in the Country Finance Risk Report developed periodically by the Finance Unit in HQ. FAO El Salvador has a low risk rating in this regard, having provided evidence of good implementation of this segregation within the Office

116. FAO in its role of Executing Entity will manage the GCF funds, manage financial expenditures against budgets, execute payments, and provide technical and secretariat assistance to the project board and technical steering committee. FAO will be responsible for the financial execution of GCF funds, in accordance with the AMA. Accountability on the use of financial resources will be facilitated through the review of annual and bi-annual project reports, as well as through audit and monitoring reports. MAG, MARN, and FIAES will be co-executing agencies and execute the co-financed funds in accordance with the annual work plan of the project as approved by the Project Board.

117. FAO El Salvador is currently implementing the Country Programming Framework (2016-2020) that defines three priority areas: a) Policies and public institutional structure with focus on rights; b) Family farming, rural development, and poverty alleviation, and c) Natural resources, climate change, risk management, contingency planning, and emergency response. El Salvador is also a priority country for the implementation of three FAO regional initiatives: a) Support to the Latin America and the Caribbean Without Hunger Initiative; b) Family farming and inclusive food systems for sustainable rural development and disaster risk reduction; and c) Sustainable use of natural resources, climate change adaptation and disaster risk reduction. Furthermore, FAO assists the Salvadoran Government in the implementation of its Five-Year Development Plan 2014-2019 and the 2030 Agenda for Sustainable Development. It is also supporting MAG in the implementation of the Family Farming Plan, with a focus on the objective of improving the policy environment related to family farming and climate change.

FAO experience with co-executing entities

118. FAO has a long standing governance agreements with MARN and MAG to implement the following projects: "Climate Change Adaptation to Reduce Soil Degradation in Fragile watersheds in the Municipalities of Texistepeque and Candelaria de la Frontier", "CENTA-FAO Laderas", and "Central America Agro-Chains". The lessons learned from these previous FAO experiences in El Salvador, and elsewhere in FAO and the LAC region, suggest that these partner institutions have sufficient local presence and technical capacity, practical experience on climate issues, and experience with inter-institutional coordination.

119. Through the FAO projects, and many others with various IFIs and other multilateral organizations, the co-executing partners have gained experience and developed competencies in planning and organization based on a shared vision and common goals around climate change adaptation and mitigation. These prior experiences will support the implementation of the project, and have shown that incorporating an integrated landscape management approach, that includes soil and water conservation measures, community reforestation, and others, into traditional production systems will help producers and family farmers make more effective use of the resources at their disposal. The governance structures established during the implementation of these FAO-supported projects, especially those for climate change adaptation purposes and territorial planning, will be a strong foundation for this project. FAO projects implemented in El Salvador have always guaranteed the involvement of the decision-makers from partner institutions in order to ensure process sustainability.

120. More details relevant stakeholders are available in Annex B – Feasibility study

C.5. Market Overview (if applicable)

121. The market failures that the project is solving can be summarized as follows:

- a) The project will allow beneficiaries to access financing for adaptive practices. The investment cost of these technologies ranges US\$196 to US\$764 per hectare. The beneficiaries targeted in the project are in a climate-induced precarious situation with little ability to service loans.
- b) The project will serve to decrease information asymmetries, through the demonstration and dissemination of information to other farmers and institutions on the merits and effectiveness of adaptive practices as a viable alternative to existing practices. This is a key element of the project, as it is expected to be replicated in other areas of the country.
- c) The project invests in public goods, particularly in non-market ecosystem services through the restoration of degraded areas. It will create positive environmental externalities for services that do not yet have markets, such as erosion prevention.

C.6. Regulation, Taxation and Insurance (if applicable)

122. There are no applicable licenses or permits for the implementation of the project. Regulations promoting the protection of natural resources and biodiversity - such as the Environmental Law, Natural Protected Areas Law, and the Wildlife Protection Law – are relevant for the implementation of the proposed project activities in those cases where they occur in the vicinity of protected areas.

123. For activities relating to procurement of services through FAO, according to Project Agreement signed with the Government of El Salvador, taxes are not applicable. Section 7 of the Convention on the Privileges and Immunities of the United Nations provide, *inter alia* that the United Nations and its subsidiary organs are exempt from all direct taxes, except for utilities services, and is exempt from customs duties and charges of a similar nature in respect of items imported or exported for its official use.

124. Any tax liability that may be incurred by the co-financing entities will be covered through their own resources: no GCF proceeds will be used for the payment of taxes.

125. Insurance coverage for project equipment, when required under the United Nations Security Risk Management System, is included under project budget and provides coverage up to project completion.

126. The procurement of Goods and Services for Funded Activities, whether by the Accredited Entity itself, and Executing Entity or by a third party, shall be done in accordance with the rules, policies and procedures of the Accredited Entity to the extent and scope of its Accreditation.

C.7. Institutional / Implementation Arrangements

127. The project governance and institutional arrangements reflected in this section are the result of an ongoing inter-ministerial dialogue facilitated by FAO, with relevant national authorities, including the National Designated Authority (NDA- Ministry of Foreign Affairs), Ministry of Agriculture (MAG) and Ministry of Environment (MARN) as well as local – level consultations with stakeholders.

128. For the financing of the Project, the Fund and FAO will enter into an FAA, under which FAO shall administer the relevant GCF Proceeds to be used for the financing of the Project, in accordance with the FAA and AMA. As Executing Agency, FAO shall carry out the GCF Proceeds in the project directly.

129. The project will have two Project Agreements:

- The Accredited Entity shall sign a Project Agreement with the Government of El Salvador (“GOES”), represented by the Minister of Foreign Affairs (GCF NDA), and co-signed by the governmental co-financiers and co-executing entities (MAG and MARN).
- The Accredited Entity shall separately sign a further Project Agreement with FIAES, a non-governmental organization co-financing the project.

130. The above Project Agreements will govern the implementation of the Project, which will be legally binding and detail the roles and responsibilities of FAO, MAG, MARN, and FIAES, and contain the relevant provisions for the compliance by FAO with the requirements from the AMA and FAA. The Project Agreements will also contain provisions on the applicability of the Convention on the Privileges and Immunities of the Specialized Agencies (the “the Specialized Agencies Convention”) to FAO, including to the GCF Proceeds held by FAO.

131. The Project Agreements shall reflect the following implementation arrangements:

- (a) The Project will be governed by a Project Board that guides the overall implementation and ensures inter-institutional coordination; an Executive Steering Committee that reviews and approves the annual workplans and monitors implementation; and the Territorial Steering Committee that serves as the channel of communication between the Project Management Unit “PMU” and local stakeholders and support the implementation of stakeholder participation and engagement plan.
- (b) FAO, as Executing Entity of the GCF Proceeds, will contract the PMU in accordance with its policies and procedures, which will be responsible for the day to day management and operation of the Project.

132. FAO, as the Executing Entity of the GCF Proceeds, will be responsible for:

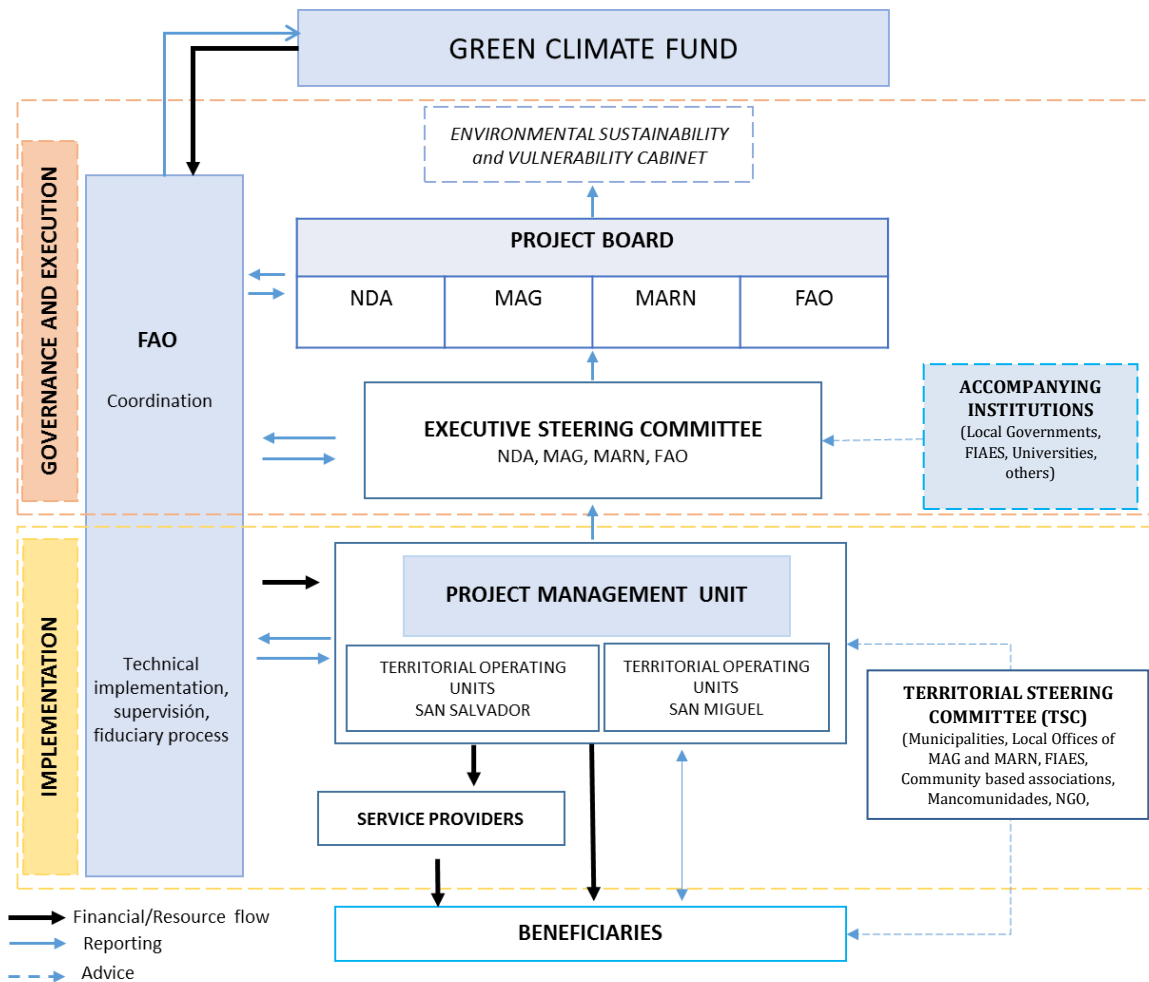
- (a) The reporting, monitoring, implementation, and fiduciary management of activities funded by the GCF Proceeds;
- (b) For reporting on the status implementation and financing of the co-financed activities; and
- (c) For supervising the performance of the PMU and the timely delivery of management services provided by the PMU.

133. Pursuant to the paragraph above, co-financing of the Project will be implemented directly by the relevant co-financiers of the Project, as described in the Funding Proposal and the chart below.

134. The activities to be carried out for the implementation of the specific components of the Project, and the entity/entities responsible for and contributing to the activities required, are described below:

Component	Activities	Executing Entity	Co-Executing Entity
1: Improved resilience of livelihoods and production systems in family farms	1.1 Promotion of climate resilient agriculture	FAO	MAG
	1.2 Improvement of water collection and management	FAO	MAG
	1.3 Strengthen human and institutional capacities for sustainability and scaling up adaptation strategies	FAO	MAG
2: Increased resilience of flows of environmental services at landscape level	2.1 Restoration of vegetation cover in critical locations to promote hydrological services and increase carbon stocks	FAO	FIAES/ MARN
3: Improved governance and information flow in support of sustainability and scaling up	3.1 Strengthened local planning and governance structures in support of adaptation	FAO	MARN
	3.2 Adjustment of regulatory, policy, planning and incentive instruments in support of proposed adaptation and mitigation measures	FAO	MARN
	3.3 Improved access to reliable and relevant information to guide the formulation and medium-term planning of adaptation measures	FAO	MAG

135. The governance and implementation structure of the project is shown below.



Project Governance

136. The project highest governance level is the Project Board (PB), which is comprised by the Ministry of Foreign Affairs (MRREE-represented by the National Designated Authority), and the co-executing agencies: Ministry of Agriculture and Livestock (MAG- Represented by the Minister), and Ministry of Environment and Natural Resources (MARN- Represented by the Minister). The NDA will chair the Project Board and FAO will act as the Secretariat. The PB aims at providing political and strategic orientation to the implementation of the project as well as ensuring sound inter-institutional coordination. The board will also ensure planned co-financing from government agencies is delivered in a timely manner.

137. The project governance also includes an Executive Steering Committee (ESC) comprised by Technical staff from MARN AND MAG and chaired by technical staff from the NDA. FAO in its Executing Entity role will act as the technical secretariat and provide support to the ESC, whose more specific functions are described below.

138. At the local level, a Territorial Steering Committee (TSC) will also be established including representatives of municipalities and associations of municipalities (mancomunidades), local staff from MAG and MARN, FIAES, Civil Society Organizations, Non-Governmental Organizations and producer associations, and representatives of project beneficiaries. This TSC will serve as a key channel of communication between PMU and key local stakeholders and will assist in the implementation of the stakeholder participation and engagements plan.

Execution and Implementation

139. In order to implement the project, a Project Management Unit (PMU) will be established, which will coordinate and support project implementation and day-to-day activities during the project life-cycle, in close consultation with the Governing Structures of the project. The PMU will provide support to:

- Prepare the annual work plan and budget for review by ESC;

- Manage the procurement, contracting, administrative and accounting processes needed under the direct and permanent control, monitoring and supervision of FAO;
- Manage the national and international (if appropriate) bidding, evaluation, and selection processes to hire technical personnel and service providers with the participations of FAO and the national co-executing entities;
- Collect data and ensure reporting to the ESC in accordance with the reporting to be provided to GCF.

140. The PMU will establish two Territorial Operating Units (San Salvador and San Miguel) to ensure sound implementation at the local level.

141. FAO, as AE, will support the ESC and its members with managerial and technical support and legal advice in:

A. *Preparing the Project Inception Package* that will have to be approved by the project Board and will include:

- Decision making norms and procedures for the PB and the ESC in accordance with existing legal framework and competences of each member institution.
- Terms of Reference of the ESC in accordance with roles and technical competences of each member institution
- Terms of Reference for the Project Management Unit.
- Define communication flow and decision-making mechanisms amongst the three aforementioned bodies

B. *Ensuring Project Results Monitoring and Evaluation*: The logical framework contains performance indicators by component and sub-component, which will be jointly monitored by the ESC and the FAO during program implementation via two six-monthly supervision missions and via the regular monitoring and evaluation procedure established for the project²³.

C. *Establishing Technical Standards and exercise control*: The ESC member institutions, as public entities with a responsibility to exercise sectoral authority, will set the technical standards and guidelines, which the Project Management Unit (PMU) and the individual service providers will have to adopt when supporting the implementation of the project activities in accordance with FAO standards and regulations. Procurement and Financial Management Standards will follow FAO covenants, standards and regulations as mentioned. Financial control will also be undertaken by FAO procedures and internal control systems.

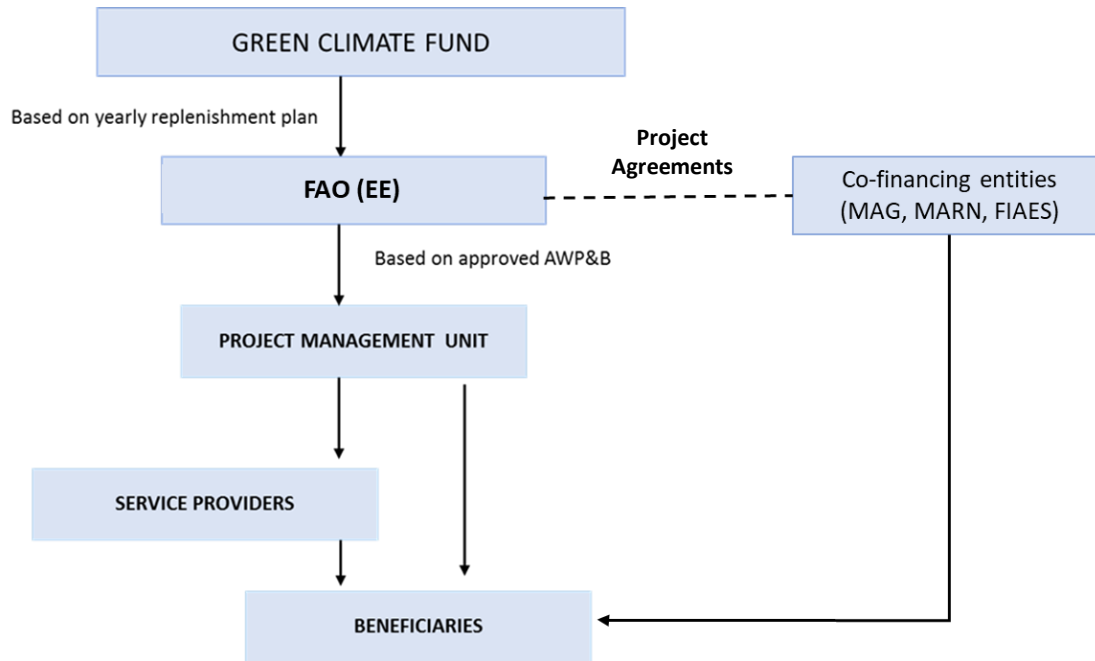
Level	Project Unit	Role	Responsible Entities/Description
Governance	Project Board (PB)	<ul style="list-style-type: none"> - Provides highest-level political decision-makers and sector actors information on project progress, results and impacts. - Provides political and strategic orientation to the implementation of the project. - Ensure sound inter-institutional coordination. - Ensure co-financing from government is delivered. - Inform the Environmental Sustainability and Vulnerability Cabinet (CONASAV) of the Government of El Salvador and receive policy guidance relevant for project implementation 	<p><i>Chair</i>: Ministry of Foreign Affairs as NDA will chair and convene Board meetings.</p> <p><i>Political Level</i>: Ministers of MAG and MARN</p> <p><i>Secretariat</i>: FAO</p>
	Executive Steering Committee (ESC)	<ul style="list-style-type: none"> - Reviews and approves the Annual Working Plan and Budget (AWP&B). - Monitors implementation, and safeguard compliance. - Requests and receives the co-financers reports (financial and implementation). - Invites, where relevant, representatives of accompanying institutions - mobilize timely technical expertise from the participating institutions, as per agreed Annual work plan 	<p><i>Chair</i>: Ministry of Foreign Affairs as NDA will chair and convene Board meetings.</p> <p><i>Technical Level</i>: Technical permanent staff from MAG, MARN</p> <p><i>Secretariat</i>: FAO</p>
	Territorial Steering Committee (TSC)	<ul style="list-style-type: none"> - Serve as a key channel of communication between PMU and key local stakeholders. - Assist in the implementation of the stakeholder participation and engagements plan - Assist in communication strategy of the project at 	<p>TSC will include representatives of municipalities and municipalities associations (<i>mancomunidades</i>), local staff from of MAG and MARN, FIAES Civil Society Organizations,</p>

²³ A detailed Monitoring Plan will be developed during Project inception phase

		the local level.	Non-Governmental Organizations and producer associations, and other representatives of project beneficiaries.
Execution and implementation	Project Management Unit (PMU)	<ul style="list-style-type: none"> - Prepares AWP&B for the review and approval by the TSC and FAO approval. - Reports to FAO on execution (physical and financial). - Establish and supervise two Territorial Operating Units for project implementation at the local level - Ensure recommendations of the Territorial Steering Committee are discussed and addressed ensuring project adaptive management. 	The PMU will be established by FAO together with the Government of El Salvador providing support for project management and implementation.

Flow of funds

142. Every year the PMU will prepare the annual work plan and budget (AWP&B) including a rolling procurement plan. The ESC will approve the plan and FAO will spend funds according to its covenants, rules and standards. A yearly report will be submitted to the GCF including the annual expenditure report as well as the yearly replenishment plan approved by the Project Board. The flow of GCF Proceeds will be as shown below. Funds from the co-financiers will be managed by MAG, MARN, and FIAES, respectively.



C.8. Timetable of Project/Programme Implementation

Activities	Year 1		Year 2				Year 3				Year 4				Year 5				Year 6			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Component 1: Improved resilience of livelihoods and production systems in family farms	[Timeline bar]																					
1.1 Climate-resilient family farming promoted	[Timeline bar]																					
1.1.1 Facilitation of participatory situation analysis and technology validation	[Timeline bar]																					
1.1.2 Provision of technical assistance for the application of agricultural resilience measures	[Timeline bar]																					
1.1.3 Facilitation of the formulation of farm plans	[Timeline bar]																					
1.1.4 Provision of materials and equipment for the application of CC adaptation measures	[Timeline bar]																					
1.2 Water collection and management improved	[Timeline bar]																					
1.2.1 Investment in the establishment of household rainwater collection, treatment and storage systems Implement household systems	[Timeline bar]																					
1.2.2 Advisory and training support for families receiving rainwater collection systems	[Timeline bar]																					
1.3 Human and institutional capacities for sustainability and scaling up of adaptation strategies enhanced	[Timeline bar]																					
1.3.1. Development of capacities for innovation and adaptive management	[Timeline bar]																					
1.3.2. Capacity building for CENTA personnel on adaptation issues and strategies.	[Timeline bar]																					
1.3.3 Training of youth on climate resilient agricultural and land use practices	[Timeline bar]																					
1.3.4 Strengthen institutional capacities for the supply of genetic material for farm and landscape level adaptation strategies	[Timeline bar]																					
Component 2: Increased resilience of flows of environmental services at landscape level	[Timeline bar]																					
2.1 Vegetation cover in critical locations restored to promote hydrological services and increase carbon stocks	[Timeline bar]																					
2.1.1. Facilitation of plans and agreements to implement restoration of ecosystems/areas of particular importance for resilience in the intervention landscapes.	[Timeline bar]																					
2.1.2 Procurement and supply of planting and nursery materials and equipment	[Timeline bar]																					
2.1.3 Tree planting and assisted natural regeneration	[Timeline bar]																					
2.1.4 Maintenance of restored areas	[Timeline bar]																					
2.1.5 Planning for ongoing management, protection and maintenance	[Timeline bar]																					
Component 3: Improved governance and information flow in support of sustainability and scaling up	[Timeline bar]																					
3.1 Local planning and governance structures in support of adaptation enhanced	[Timeline bar]																					
3.1.1 Train local project beneficiary organizations to participate in local planning and decision-making processes	[Timeline bar]																					
3.1.2 Multi-stakeholder review and analysis of provisions of existing planning instruments as a framework for adaptive landscape management	[Timeline bar]																					
3.1.3 Promote local environmental governance structures for adaptation.	[Timeline bar]																					
3.2 Adjustment of regulatory, policy, planning and incentive instruments in support of proposed adaptation and mitigation measures	[Timeline bar]																					
3.2.1 Facilitate inter-institutional analyses and discussions regarding needs and options for the modification of regulatory, policy and planning instruments	[Timeline bar]																					
3.2.2 Develop specific proposals for modifications to regulatory, policy and planning instruments	[Timeline bar]																					
3.2.3 Train and guidelines for officials of MARN, MAG and local government to mainstream climate change in their policies and plans, with a focus on agriculture and forestry sectors.	[Timeline bar]																					
3.3 Capacities for information management in support of adaptation planning and scaling up enhanced	[Timeline bar]																					
3.3.1. Strengthen systems for the management of climatic information in support of medium- and long-term planning for CC adaptation	[Timeline bar]																					
3.3.2. Develop platform(s) for exchange of knowledge and lessons, and joint planning, among Government and CSO actors.	[Timeline bar]																					
Monitoring and evaluation	[Timeline bar]																					
Annual performance reports (Included progress report submission) (due to GCF 60 days after end of calendar year)	[Timeline bar with diamonds]																					
Interim evaluation report (within three years from the start of the project implementation)	[Timeline bar with diamonds]																					
Final independent evaluation report (due within 6 month from the end of project implementation)	[Timeline bar with diamonds]																					
Monitoring and evaluation milestone*	[Timeline bar]																					
* At the inception of the project an Annual Monitoring Plan will be drawn up with specific milestones	[Timeline bar]																					

D.1. Value Added for GCF Involvement

143. The GCF project will contribute to strengthening the resilience of family farmers to the impacts of climate change through the development of capacities for the application of climate resilient agricultural, water management and restoration practices, resulting in improved food and water security and more sustainable and resilient livelihoods.

144. Without GCF involvement to complement ongoing efforts and address gaps, the Government of El Salvador could not take adequate steps to help vulnerable family farmers adapt to climate-related risks. GCF support provides the additional investment needed to scale up efforts for transformative reach into 114 municipalities. GCF involvement is critical to:

145. **Overcome institutional and technical barriers, as well as socioeconomic constraints.** The Second Communication on Climate Change of El Salvador²⁴, notes that some of Government and civil society initiatives have had limited effectiveness because of:

- Difficulty in mainstreaming policies and regulatory frameworks on climate change mitigation and adaptation in sectoral ministries and territorial governments.
- Government programmes that are often sub-optimal, disconnected, under-financed and geographically scattered.
- Limited institutional and organizational capacities in the territories because of a lack of investment in solutions to common problems, mainly the management of natural resources and the use of land.
- Weak governance to manage and implement adaptation and mitigation actions in the territories.

146. **Reach the most vulnerable.** GCF funding will reach and support a vulnerable group of people: family farmers. These farmers have limited market access, limited access to financial markets and agricultural and climate technological advice, and suffer from poor basic infrastructure. Vulnerable groups such as women, youth, and indigenous peoples are particularly hard hit. The GCF support will support the transformation of farming techniques, leading to agricultural practices that are climate resilient and support carbon sequestration.

147. **Support transformation in agricultural practices and ecosystem health at scale.** Through the investments at the farm level, the project aims to promote behavioral change from non-resilient practices that do not consider and manage for climate risks, to climate resilient and adaptive measures. The project will build on the lessons generated through the SCCF/GEF project, scaling these up to landscape level. Having the interventions at landscape scale supports a wider overall ecosystem health that enhances sustainability over time. The investments of the project under Component 3, in information management, capacity building, awareness development and the mainstreaming of adaptation into policy, regulatory and planning instruments, will further support the scaling up of the project's approach to adaptation to national level.

148. The droughts linked to El Nino events in 2014-2015, and previous events have done considerable damage to the agriculture sector as farmers have limited access to knowledge, inputs, and support services to manage climate risks. Emergency assistance provided by the international community was considerable. However, by moving towards climate resilient management at the farm level, providing climate information to support municipal decision-making, and by enhancing institutional support at the national level, the project will contribute to move from emergency response to climate resilient management and adaptation strategies.

149. **Crowd-in public financing and mobilize farm-level investments.** GCF support will catalyze investment from government and other sources in climate resilient agricultural measures and landscape management by mobilizing institutional and financial support in the form of co-financing of inputs for farmers, staff and operations and maintenance support. The Government is willing to co-invest in climate-resilient agriculture and landscape management, with GCF critical at the front-end of the project (which will continue post-project for five additional years with government support) to demonstrate to the government and civil society the resilience benefits of such investments, and also their social, economic and environmental co-benefits (see Section E3.1 below). The GCF support will also mobilize investments at the small farmer level, who will co-invest in needed agricultural inputs.

150. **Strengthen institutional and technical capacity and governance to address climate change.** GCF funds will support the technical operations of MARN and MAG, and improve coordination processes and encourage joint programs between the two Ministries. GCF support will improve strategic and operational planning to orient investments toward programs that mainstream climate change in existing and future government programs such as the *paquetes agricolas*, regular extension work of CENTA, and the Family Farm Program, with a focus on climate resilient agricultural measures and landscape management, and improved extension services at the local level. GCF support will be used to build the capacities and knowledge of community extension workers, knowledge that will remain with communities after the project ends. The introduction of climate resilient agricultural measures and improved management of land and natural resources, will generate resilience to climate change for the most

vulnerable populations, and position them to better cope with extreme weather events, such as droughts and floods.

151. **Demonstrate a potentially scalable program.** GCF support will enable learning and demonstration of a program that could potentially be scaled up and implemented in the Central American counties that make up the Meso-American Dry Corridor. The project and its governance model are innovations that could inform and strengthen the Central American Regional Strategy on Climate Change.

152. Without GCF support, the Government of El Salvador would not be able to invest in all the actions required to achieve the resilience of family farmers to prepare for increasing climate risks. GCF support is essential to introduce climate resilient agricultural measures and agro-ecological landscape management, increase knowledge and institutional governance capacities and policies, and improve climate information services.

D.2. Exit Strategy

153. The proposed project has been designed from the beginning in close consultation with and involvement of relevant government agencies and technical line departments, and beneficiaries and their organizations to ensure ownership of the project. These consultations provide the project with a sound approach and a suite of interventions that are implemented with community participation and engagement of government officials from various institutions. Building on this foundation and the planned engagement of the government over the long term, the investment and the results of the GCF-funded project will be sustained beyond the project period.

154. All technical interventions in the four farm categories generate financial benefits to rural families that are higher than investment costs in long term. This means that families will have incremental income, equivalent to US\$30-\$74 per hectare per year because of the adoption of the adaptive practices. These practices also result in the provision of ecosystem services (see Annex C2). In order to obtain this financial benefit, family farmers will receive continual support during project implementation, in the form of capacity development and technical assistance. It is expected that with this capacity building, family farmers will be able to maintain the investments beyond the project period.

155. . In the post-project period, the Government of El Salvador is committing to continue to support the main activities from the project. MAG and CENTA will continue to provide technical assistance, research and technology transfer in the project area, FIAES will continue to support restoration of ecosystem services and MARN will contribute technical assistance activities for the institutional strengthening of technical teams from MAG, local governments and ADESCOS. This post-project support is a key element since it will help family farmers to keep applying climate smart agricultural techniques, in order to obtain positive incremental financial benefits in medium and long term. The after project contribution of these organizations can allow scaling-up and replicating the adaptation measures to other family farmers in the project area.

156. The exit strategy, which starts from day 1 of the project, includes a set of progressive actions over the life of the project to ensure that MAG, MARN and other implementing partners are positioned to continue the project. These actions are:

- **Financial viability of adaptation measures:** as shown in the financial analysis presented in the Feasibility Study (and summarized in Section F.1 below), all of the proposed adaptation measures are financially viable in a 20-year horizon. Also, adaptation measures offer economic benefits (for example improved food security, reduced need for investment in measures to remedy health and livelihood impacts from climate change, carbon sequestration, among others), in comparison to the without-project scenario. The adaptation of climate smart agricultural techniques needs to be implemented with urgency, since family farmers are currently facing a stress scenario due to more severe climate conditions. In the short term it is necessary to provide limited “pump-priming” investment support to resource and asset-poor family farmers (for example in the form of additional agricultural inputs and equipment beyond those currently provided through the Paquete Agrícola), to overcome barriers to uptake including their unfamiliarity with some of the adaptation measures and with the nature, magnitude and significance of the adaptation and benefits they have the potential to deliver. Besides, given the nature of the project, the effects of the proposed practices will gradually take place over time.
- **Focus on participation and ownership, as well as productive viability:** the community-based promoters (“paratechnicians”), who will complement the CENTA technicians), will help to communicate the proposed adaptation measures to the target farmers in terms that are familiar to them. The use of farmer field schools, in particular, will provide the target farmers with the opportunity to test and validate the proposed measures, selecting the suites of measures that best fit their needs and conditions and

²⁴ MARN (2013).

helping to provide them with the skills of analysis and innovation necessary to adjust them in the future to evolving conditions. This combined approach will help to ensure that the measures continue to be relevant and viable beyond the life of the project, allowing project support to be withdrawn without jeopardizing levels of application of the measures.

- **Facilitation of access to credit:** under Activity 3.2, the project will make recommendations to the BFA on the expansion of its lending portfolio to cover adaptation measures, given their financial viability and their potential to reduce the exposure of the existing agricultural loan portfolio to climate-related risks. This will constitute an exit strategy for those transition farmers, family farmers who are willing and able to move up from the typically break-even adaptation measures proposed and supported by the project during its lifetime, to other measures which may require higher levels of initial financial investment.
- **Mainstreaming of adaptation measures into producer support and incentive programmes including the Paquete Agricola program:** through staff training, the formulation of technical guidance materials, demonstrations of measures and the exchange of experiences, as well as direct involvement in the delivery of project impacts, the project will contribute to the introduction of a lasting paradigm shift in approaches to adaptation in Government and NGO entities, with nationwide scope. These entities and their initiatives will thereby give continuity to the project approach to adaptation following the withdrawal of direct support by the project itself.
- **Effective dissemination of information on benefits:** under Component 3, the project will systematize and disseminate the results of economic analyses of the broader kinds of returns achievable from investments in the resilience of family farmers, such as reductions in the need for spending on remedial and emergency actions in response to the impacts that climate change would have on health and food security under the without-project scenario. This information will be targeted and decision-makers and policy formulators will the aim of stimulating Government commitments to assuming the costs of ongoing support to farmer resilience following the withdrawal of project funding.

E.1. Impact Potential

Potential of the project/programme to contribute to the achievement of the Fund's objectives and result areas

E.1.1. Mitigation / adaptation impact potential

157. The project is framed to deliver on the adaptation and mitigation goals set out in El Salvador's National Climate Change Strategy and NDC. The project will promote best practices to enable a transformative impact for family farmers through an innovative agro-ecosystem landscape management approach.

158. The project directly contributes to four (three adaptations and one mitigation) of the GCF strategic level impacts through:

- GCF results area 1 – Adaptation: The project increases the resilience of the livelihoods of 225,000 vulnerable members of family farms in the dry corridor. It is estimated that at least 52% of these people will be women.
- GCF results area 2 – Adaptation: The project at least maintains the numbers of food secure households in the project area. Actions to increase access to safe water supply will ensure that 3,930 families will be water secure.
- GCF results area 4 – Adaptation: The project will improve the resilience of ecosystems on 73,933ha, including 56,600 ha for the implementation of sustainable agriculture measures, and 17,333ha for ecosystem restoration measures (increasing hydrological catchment areas and protecting and increasing forest coverage).

159. GCF results area 4 – Mitigation: The project sequesters 4,216,835 tCO₂eq (cumulative). This is the first project in El Salvador to invest directly in actions promoting carbon capture in soil and biomass.

160. The project will also contribute to the following GCF outcomes:

- GCF Outcome 5.0 – strengthened institutional and regulatory systems for climate-responsive planning and development – through enhancing the capacity of territorial governance structures, including at the governmental and community levels, improving institutional coordination, and harmonizing policies and regulations to promote climate change mainstreaming.

E.1.2. Key impact potential indicator

Provide specific numerical values for the indicators below.

GCF core indicators	Expected tonnes of carbon dioxide equivalent (t CO ₂ eq) to be reduced or avoided (Mitigation only)	Annual	210,842 tCO ₂ eq per year during implementation (5 years) and capitalization phase (14 years)
		Lifetime	4,216,835 tCO ₂ eq (cumulative) captured.
	Expected total number of direct and indirect beneficiaries, disaggregated by gender (reduced vulnerability or increased resilience); Number of beneficiaries relative to total population, disaggregated by gender (adaptation only)	Total ²⁵	Direct beneficiaries 225,000 people <ul style="list-style-type: none"> • 117,000 women • 108,000 men 20,500 of direct beneficiaries are indigenous peoples
		Percentage (%)	The project will target 33% (Total Beneficiaries) of the population vulnerable to climate change in the project area
Other relevant indicators	<ul style="list-style-type: none"> • 50,000 family farmers enhance their capacity to react to drought events (19,000 are women). • 114 municipalities improve their capacity to respond to extreme climate events. • 83 technicians improve their capacity to implement actions to respond to drought. • 1,328 community extension agents (35% women, 5% indigenous) improve their capacity to implement actions to respond to drought. 		

²⁵ Please refer below for the methodology.

PMF- A Core 1 Expected total number of direct beneficiaries

161. Direct beneficiaries will be those who will implement the adaptation measures in their farms and households, resulting in improved food, water and livelihood security under conditions of climate change. The estimated total number of direct beneficiaries is 50,000 farm families, with a total of 225,000 beneficiary family members (based on an average family size of 4.5 people as reported by the Multi-Purpose Household Survey, DIGESTYC, 2015). This rounded estimate equates to approximately 40% of the total population of farm families in the 114 target municipalities; this proportion corresponds approximately to the proportion of the area of the target municipalities that is classified as being of “high” social and environmental vulnerability to the effects of climate change, as explained in Section C2. The percentage of women beneficiaries (52.38% of the total population) was calculated using the population data in the Multi-Purpose Household Survey. The number of beneficiaries from indigenous peoples was estimated based on the information available from the Multi-Purpose Household Survey and the 2007 Population Census, considering that the exact number of this population is still uncertain. Productive units (farms) therefore will benefit from increased yields, improved incomes from surplus selling amongst others.

162. Indirect beneficiaries are comprised of the remaining population within the target municipalities (796,706), who will also benefit from the landscape-wide adaptation benefits that the project will generate from improved management of farms and restoration of ecosystem remnants within the agroecosystem as a whole, particularly in the form of improved reliability of water yield during dry periods and reduced risks of downstream flooding during extreme rainfall events. Capacity development and information management at municipal level is also expected to result in adoption of some on-farm resilience measures by other farmers in the landscape, despite them not being directly targeted by technical assistance.

PMF-A 2.0 Increased resilience of health and well-being, and food and water security

163. The project will increase resilience through improved food security relative to the without project scenario. This will be of particular importance for those people and areas with the highest levels of chronic malnutrition, who account for approximately 35,919 people out of the total target population of 225,000, in 33 of the 114 target municipalities. The project will support household and community rainwater collection systems, benefiting an estimated 3,930 families.

PMF-A 4.0 Improved resilience of ecosystems and ecosystem services

164. The land area to be benefited from improved resilience will be 73,933 ha, comprised of 56,600 ha for the implementation of agricultural adaptation measures, and 17,333ha for ecosystem restoration measures.

PMF-A 6.0 Expected increase in generation and use of climate information in decision-making

165. As noted in C.3, the adaptation outcomes of decision-making and investment planning will be improved through improved flows of information on the nature, magnitude and spatial configurations of climate change processes, as well as the development of systems and capacities for the interpretation and application of this information.

PMF-M 9.0 Expected improvement in the management of land or forest areas contributing to emission reductions

166. The project carbon balance provided below was analyzed with EX-ACT tool to provide a detailed GHG results distribution between all activities affected by the project. It provides results expressed in tons of carbon dioxide equivalents (CO₂-e) for the whole 20 years duration of a usual project GHG appraisal, the share per GHG of the balance, and the results per year. Thus, the estimation of the climate change mitigation effect is based on the agricultural practices, land use changes and resources use covered by adaptation measures with carbon implications, standardized values of greenhouse gas emissions as recommended by IPCC, and the response of carbon sinks.

167. The EX-ACT analysis takes into account specific environmental features (soil and climate types) of each case study. Soil and climate information are needed to determine the coefficients used in the analysis. Average climates considered are Tropical, the moisture regime was classified as Dry and the dominant soil type was classified as Low Activity Clay. The implementation phase of the project was specified as 5 years followed by an estimated capitalization phase of 15 years.

168. The carbon balance (C Balance) of the project, which consists on the difference of tCO₂-eq emitted or sequestered between a with-project and without-project business-as-usual (BAU or baseline) scenario demonstrate the benefits of implementing the project and its different components in terms of mitigation potential. As for RECLIMA project, which covers 73,933 ha, the net carbon balance is -4,216,835 tons of CO₂-eq or -2.9 tons of CO₂-eq per hectare per year compared to the Business-as-usual scenario.

169. The highest carbon sinks will result from the forest management and degradation activities (-1,889,491 tCO₂-eq) and the introduction of agroforestry systems (perennial) in moderately degraded cropland for basic grains production and highly degraded land used for annual crops associated with perennials (- 1,532,096 tCO₂-eq) (see Annex B-Feasibility Study).

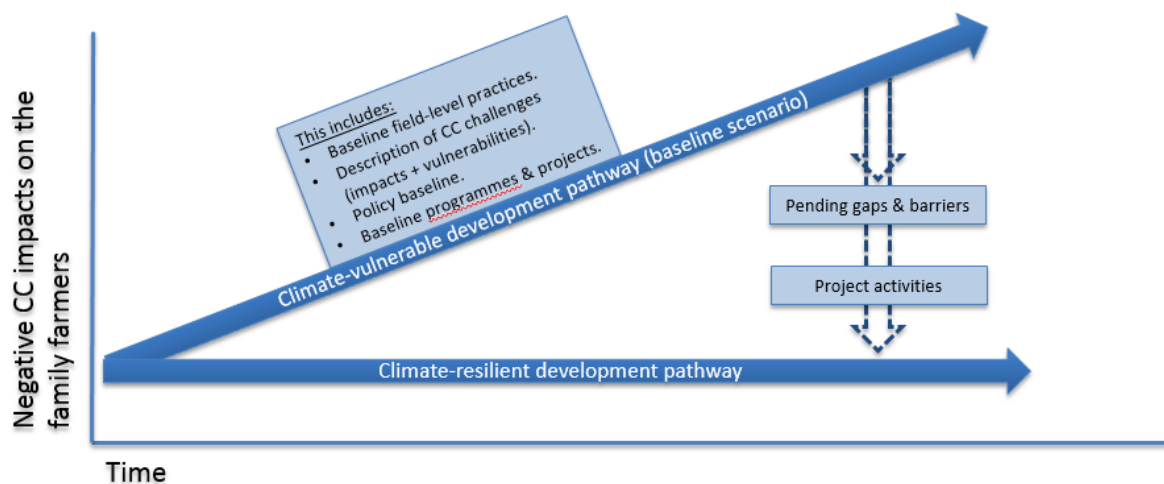
E.2. Paradigm Shift Potential

Degree to which the proposed activity can catalyze impact beyond a one-off project/programme investment

E.2.1. Potential for scaling up and replication (Provide a numerical multiple and supporting rationale)

170. The paradigm shift potential of this project includes allowing a shift from the existing rural development approach (climate vulnerable pathway or baseline scenario), which narrowly focuses on increasing productivity fertility and erosion control, the promotion of non-resilient productive options, and the top-down transfer of static technological packages, to a climate-resilient pathway featuring the promotion of agroecosystem-based adaptation, productive, livelihood and structural diversification, farmer-led technology development and knowledge management, community-based landscape governance and adaptive information-led approaches, and which thereby enables farmers to adapt effectively to the effects of climate change (see figure below). The transformational aspect of this approach lies in its integrated nature: as shown in Figure 10, the strategies proposed at landscape and farm level are mutually dependent, as the sustainability and resilience of farm livelihoods (especially the aspects of agricultural production and water supply) depend on the appropriate management and restoration of surrounding landscapes, while the management of the farms themselves contributes to the ecological and hydrological functioning of the landscape as a whole. This represents a new model for climate-resilient rural development in El Salvador that combines structural measures focused on livelihoods and agroecosystem-based adaptation. The project will also enable a paradigm shift from sector-based actions to a cohesive and comprehensive inter-sectoral approach.

171. Furthermore, under the baseline (without project scenario), family farmers (whose livelihoods are stressed due to a combination of climatic variability and the historical degradation of the ecological and productive functions see paragraph 14), will be pushed by climate change into conditions of livelihood collapse and extreme food insecurity. Under the adaptation (with project) scenario family farmers by the adoption of management adaptive farming measures, will for their context represent adoption of innovative technologies and practices, will be able to shift from possible livelihood collapse to a resilient sustainable livelihood pathway.



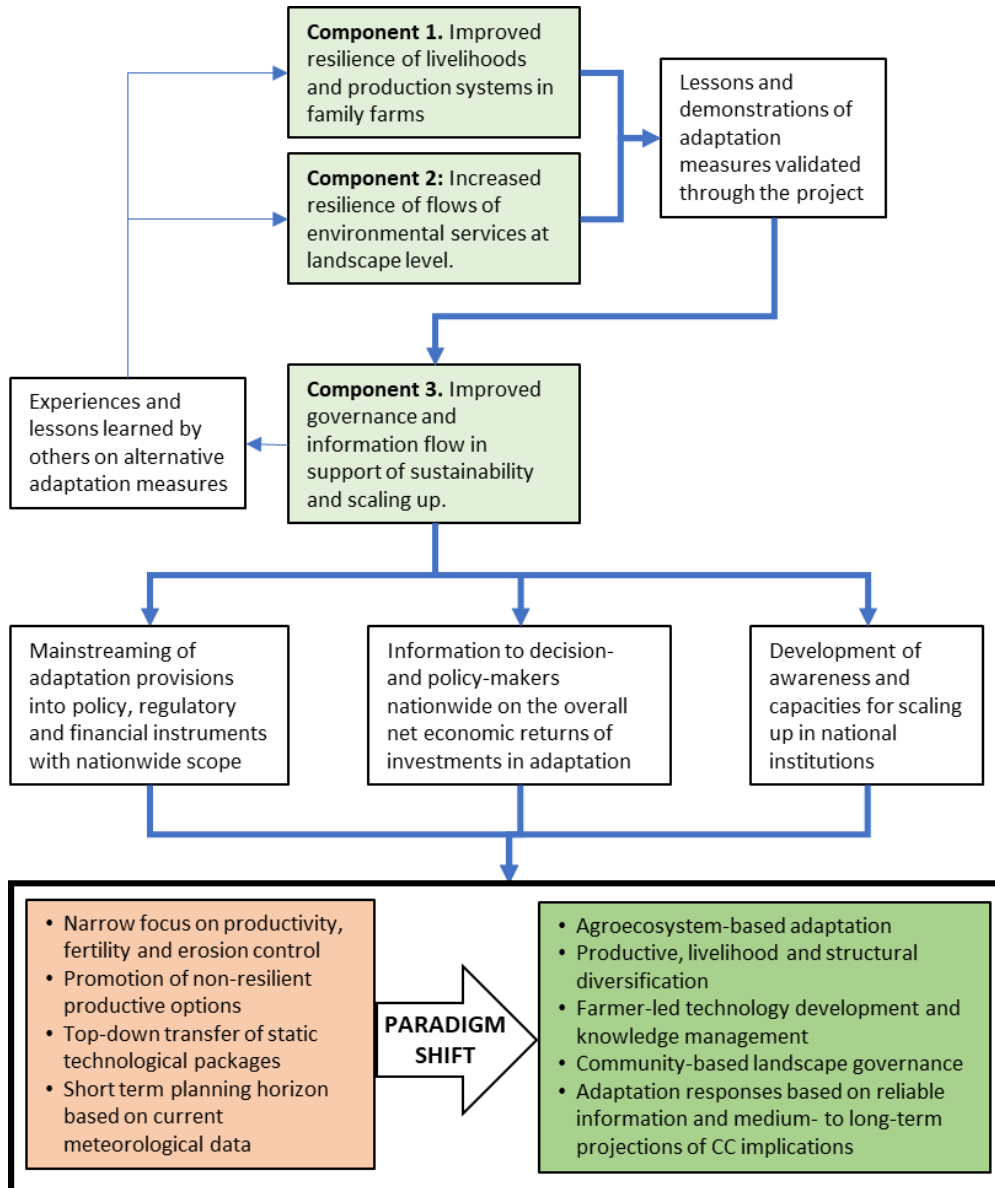
172. Activities under components 1 and 2 will be easily replicable in other regions because they have already shown transformative and positive impacts in other regions of the world. GCF will enable the replication of existing climate-resilient family farming activities in this region of the Dry Corridor, such as conservation tillage, agroforestry systems and drip irrigation, that represent a transformational shift for the crop sectors, water management, and land and forest management in this targeted region to more resilient and mitigated pathways. The restoration of the ecosystems, based on tree planting and maintenance of restored vegetation areas, also represents a strong potential for replication and upscaling due to planning for ongoing management via a participatory approach and bottom-up considerations in institutions. Through all the investments at the farm level, the project aims to promote behavioral and mindsets changes of farmers but also to reduce loss of water and by extension loss of incomes from non-resilient practices to sustainable water collection systems. More efficient water management linked to the restoration of vegetation cover will produce great synergies for carbon sequestration, crop yields and landscape organization that will already show positive impacts in the short run during the project implementation, and will produce even higher benefits and positive impacts for natural resources management and livelihoods over time.

173. Activities under Component 3, including information management and dissemination, capacity development and policy mainstreaming, will focus specifically on creating conditions required for the scaling up of project impacts to national level, resulting in the paradigm shift described above occurring nationwide. This will provide the foundation for catalyzing the model and its impacts beyond the project itself to other zones of the country with similar needs, such as the Central and

Para-central zones, as well as the other countries in the Meso-American Dry Corridor. Lessons generated through the project will in addition be shared with other Latin American and African countries. Application of the learning on climate resilient agriculture uptake and ecosystem restoration, as well as the learning from an inter-institutional perspective, will improve implementation in new areas. This replication potential will be further increased through the application of comparative monitoring at farm level, which will generate reliable and objective information on the effectiveness of the measures applied in increasing the resilience of crop yields and family incomes (see paragraph 82). The technical capacities developed through the project in regard to carbon sequestration can provide expertise to similar initiatives in the country and in the Central American region.

174. The theory of change for the paradigm shift to be delivered through the project is illustrated in Figure 13.

Figure 13. Theory of change for the paradigm shift to be delivered through the project



E.2.2. Potential for knowledge and learning

175. The potential for learning and knowledge to enhance the replication is high due to the project incentives to collect and to share experiences, good practices and lessons learned from the project implementation in other municipalities of the dry corridor of El Salvador. The participation of farmers in the different trainings and meetings will stimulate the behavioral change towards considerations and acceptance of more-resilient practices to tackle climate change. Training selected organizations will boost the sharing and spread of information on good practices and inform on more-resilient practices set up by the project. The strengthened institutional capacities, analysis of the existing adaptation planning in the targeted area, support to municipal bodies will ensure the absorption of the new practices and represent a high potential for sharing experiences with other municipalities and local bodies.

176. At field level, knowledge and learning will be promoted through the participatory approach to be adopted to the generation and transfer of adaptation measures, including the use of Farmer Field Schools which will provide spaces for farmers to share experiences, test and validate alternatives, and innovate in order to develop suites of measures that are suited to their individual conditions. The use of community-level promoters will also facilitate the communication and discussion of knowledge between farmers in ways that are relevant and appropriate to their needs and conditions.

177. Component 3 of the project includes actions focused specifically on the systematization of knowledge. As shown in Figure 13, the project will support the flow of knowledge in two directions: into the project, ensuring that it builds where possible on past experiences and lessons learned, and out of the project, ensuring that experiences at field level under Components 1 and 2 and at institutional level under Component 3 are disseminated to and discussed with other actors and initiatives, thereby maximizing the upscaling and paradigm shift effect of the project. The participative M&E system to be applied by the project (Section H.2) will enable the generation of objective and reliable information on the nature and magnitude of the impacts of the adaptation measures to be supported, which will be used to substantiate the messages on lessons learned to be disseminated by the project. The project will promote sharing of lessons learned and best practices through FAO (which has a reach across and beyond the region), which will be facilitated by monitoring and evaluation of the project.

E.2.3. Contribution to the creation of an enabling environment

178. The project will create an enabling environment for the sustainability of its different outputs beyond its implementation period, through the leverage of public funds and improved coordination among ministries. Government institutions will continue to invest in the different initiatives catalyzed by the project: adaptation measures will be mainstreamed in different plans and programmes; access will be facilitated to credit that ensures domestic investments to catalyze adaptation and mitigation impacts, and to reduce their exposure of loans related to climate risks; and there will be effective dissemination of positive impacts of the measures adopted to be replicated.

179. El Salvador's National Strategy and National Climate Change Plan prioritize the creation of an enabling environment for society and national institutions to implement processes and action to address climate change. The national program framework established a line of work to create national conditions to address climate change; one of these conditions being the strengthening of capacity for a national response to climate change. Other considerations include citizen participation, improving national attitudes for a cultural transformation, and the passage and implementation of policy and regulatory frameworks for climate change.

180. The project will make significant contributions to enacting these conditions. It will build the capacities of national teams at public institutions to generate knowledge on climate risks to facilitate decision-making processes, particularly for the agriculture sector; and will develop climate scenarios based on the particular characteristics of the dry corridor. The project will also create the conditions for the country to advance in developing a Monitoring, Reporting, and Verification system (MRV) on results and impacts from adaptation, mitigation, and reduction of harm associated to climate change. In the project intervention areas, the inter-institutional coordination structures such as the Technical Steering Committee and Territorial Steering Committee will monitor the impacts generated by the project on emissions reduction and carbon capture, co-benefits, safeguards in restoration processes and reversion of forest degradation, promotion and expansion of agroforestry and silvopastoral systems, and adaptation impacts such as building the climate resilience of social and natural ecosystems. Overall, the monitoring and evaluation of impacts will provide lessons that will help to orient government and private sector investments toward climate resilient agriculture and landscape restoration.

181. The project invests in improved technical capacity and knowledge of government agencies (including through community extension workers and technicians) and farmer organizations on adaptive agro-ecosystem management approaches. The paradigm shift of the project hinges on a coordinated approach, and the project promotes an enabling environment for coordination among stakeholders, between government departments at the national level, and between the national government and the territorial governments. The project builds capacities to support integration of environmental, agricultural, water and climate information in a holistic manner that addresses the needs of family farmers.

182. The project encourages citizen participation, opening spaces for dialogue, coordination, and definition of agreements and commitments to identify and implement the best practices for adaptation, mitigation, and risk reduction. The project also fosters citizen awareness and commitment on these issues, including the engagement of the private sector and media. Different approaches to improve local governance and institutional arrangements will also be developed, in order to strengthen citizen participation with a gender, generational, and ethnic lens and rights-based approach. This will include the use of social accountability processes for monitoring and evaluation.

183. The development of institutional agreements to establish political and legislative frameworks will help create a favorable environment for mitigation and climate adaptation. Activities to engage the Legislative Assembly, Ministries, and local and territorial organizations will be essential to facilitate discussion and decision-making on laws related to climate change adaptation and mitigation. Specifically, these processes create an enabling environment conducive for the enactment and implementation of a General Water Law, and for the creation and submission of a Special Law on Climate Change. The project will support this process.

184. The project is also transformative in its empowerment of women and youth. Project activities to build climate resilience include specific strategies to target female-headed family farms. The project empowers women through enhanced access and control over farm activities, and increased income generating opportunities related to agricultural production. Water collection systems will enable women and youth to have more time to dedicate to more constructive activities, including attending trainings and improving their knowledge of the different innovative adaptation options. Particular attention will be paid to women, young people and indigenous people in the different local inclusive planning and coordination activities that are proposed, enabling them to have their voices represented and to influence decision-making on mitigation and adaptation actions.

185. The project will enable farmers to take a longer-term perspective in anticipation of the significant financial, economic and livelihood benefits achievable through the application of viable adaptation measures. The project will help to create conditions that will enable family farmers to cover the financial investment costs associated with some adaptation measures, lowering the risk profile of their livelihood activities and advising BFA on the incorporation of adaptation measures into its lending portfolio.

E.2.4. Contribution to regulatory framework and policies

186. El Salvador has national and regulatory frameworks that guide strategies and actions to respond to climate change.

187. The project is aligned to and will contribute to the strengthening of the Climate Change Policy, the Climate Change National Plan and the Law on Territorial Ordering and Development, contributing to move the country towards a low-carbon and climate resilient development pathway, through the implementation of the adaptation and restoration models (Components 1 and 2), improved orientation of investments on the basis of climate change projections, and enhanced governance conditions and the harmonization of public policies and institutional actions for adaptive agroecosystem management (Component 3).

188. Through its integrated agroecosystem and landscape approach implemented in farmlands and vegetation remnants, the project will contribute to i) promote a resilient agriculture sector hence contributing to the objectives of the Food and Nutrition Security Policy and the Agro-Climate Risks Management plans for the Agriculture, Forestry, Fishing, and Aquaculture sectors, ii) restore ecosystems and the provision of strategic ecosystem services, therefore contributing to strengthen the Environment National Policy, the National Policy on Water Resources and the Forestry Law iii) enhance governance and policy coordination by strengthening government institutions through capacity building for technical personnel; definition of institutional roles; development of citizen complaint mechanisms; development and implementation of institutional operative plans; and updating strategic planning and public policies on the subjects of climate change

189. The project will contribute to accomplish international commitments signed by the Salvadorian Government including those related to the Paris Agreement, especially the Nationally Determined Contribution focused on managing one million hectares through a “sustainable landscape resilient to climate change” approach. The project will contribute in meeting the first 10% of this target. In this international context, it will also support the country achievement of the Sustainable Development Goals SDGs (particularly 1, 2, 6, 13, 14, 15), the Bonn Challenge and the Aichi targets (5, 7, 11, 15).

190. Component 3 activities will support the integration of national institutions and policy coherence in approaching landscape management and measures for agricultural resilience.

E.3. Sustainable Development Potential

Wider benefits and priorities

E.3.1. Environmental, social and economic co-benefits, including gender-sensitive development impact

191. The project will contribute to the achievement of sustainable development goals in El Salvador. The project directly contributes toward SDG 1 to end poverty; SDG Goal 2 to end hunger, achieve food security and improve nutrition and promote sustainable agriculture; SDG6 to ensure availability and sustainable management of water and sanitation; and SDG Goal 13 on taking urgent action to combat climate change and its impacts.

Environment co-benefits

- ✓ Improved habitat value and biological connectivity in catchment areas, river banks and buffer zones, and improvements in ecosystem services (e.g. protection of water sources, and pollination) as a result of the restoration of 17,333ha of degraded vegetation.
- ✓ Improved habitat value and biological connectivity in 56,600 ha through increases in the numbers of native trees on farms.
- ✓ Improved habitat quality in aquatic ecosystems due to reduction in sediment loads, resulting from reduced soil erosion rates due to the application of measures aimed primarily at protecting soil moisture content (e.g. increased soil cover and the use of ditches to trap runoff)
- ✓ Improved sustainability of land management, including improvements in soil fertility and organic matter content, as a result of CC adaptation measures including increases in the numbers of trees on farm and reductions in the use of burning.

Economic co-benefits

192. There will be indirect economic benefits at the farm level for 50,000 family farmers, representing 33% of all family farmers in the intervention area. These are related to increased food production, leading to savings on food expenditure and increased incomes through the sale of surplus production.

193. Provision of safe drinking water to 3,930 families will reduce the potential costs of water-related illness for both the household and the country's health system.

Social co-benefits

194. In addition to the adaptation benefits described above, the project will generate significant social co-benefits including the following:

- ✓ Improvements to the quality of water used for domestic purposes, through the installation of CC-resilient rainwater collection systems which will provide water of higher quality than the springs and wells on which many households and communities currently depend
- ✓ Improvements in the nutritional quality of the diets of participating families, as an indirect benefit resulting from increases in crop diversity aimed at reducing exposure to the risks of CC-related crop failure
- ✓ Improvements in social cohesion as a result of support to community-based governance mechanisms for adaptation.

Gender-sensitive development impact

195. The project includes several activities focused on women's decision-making, and the leadership role of women in land management and agriculture will be promoted. Women's participation in reforestation, ecosystem restoration and agro-pastoral activities will be enhanced as described in various parts of this document.

E.4. Needs of the Recipient

Vulnerability and financing needs of the beneficiary country and population

E.4.1. Vulnerability of country and beneficiary groups (Adaptation only)

196. The Climate Change Vulnerability Index classifies El Salvador as a country at extreme risk to climate change. El Salvador's high dependence on the agriculture sector as a source of income and employment is reflected in this risk classification in terms of its adaptive capacity. Agricultural activities are highly vulnerable to the adverse effects of climate change. Recurrent drought has resulted in heavy losses for small producers and subsistence farmers. The 2001 and 2012 droughts resulted in losses of US\$ 31.4 million and US\$ 38 million, respectively, in agricultural production. The 2014 drought negatively impacted about 103,000 producers located in 105 municipalities, who suffered losses of US\$ 70.1 million. MAG estimated that 85,858 hectares of maize (corn) were lost due to insufficient rain.²⁶ These vulnerabilities underscore the importance for adaptation in El Salvador.

197. Future projections show that climate variability and extreme weather events will continue to negatively impact Salvadoran families. ECLAC projections for Central America estimate reductions in water availability of between 35% and 63%; El Salvador will be the country most affected. The Intergovernmental Panel on Climate Change predicts that rising temperatures will reduce the country's yields of main crops by 30% by 2050, mainly through recurrent drought. Crop simulation models predict that sorghum and maize yields could decrease by up to 20% and dry beans yields could decrease by 50% by 2065,²⁷ with direct implications on food security, especially in the dry corridor of the country.²⁸

198. The extreme climate events to which El Salvador is exposed which presently affect the country with different intensities in the various territories, have a direct impact on national development, such as agricultural production and incomes, resulting in deterioration in the quality of life. Over the past six decades, average annual temperature in El Salvador has increased over 1.3 °C and climate scenarios point towards an additional increase of 2-3°C in the following six decades, depending on the results of global efforts to mitigate climate change. 2,440,827 persons are affected by drought in El Salvador, of whom 1,754,973 are in the project intervention area. 225,000 of these impacted people are expected to be direct beneficiaries of the project activities (118,000 women and 107,000 men).

199. As shown in Figure 5 above, the project area coincides with the areas of highest environmental and social vulnerability in the country.

200. 95% of the soils on slopes have lost their primary coverage, which combined with monoculture systems has caused severe biodiversity losses. Soils on slopes and hillsides have a high degree of erosion and high susceptibility to landslides. 36,096 families in the project intervention area do not have rainfall collection systems for safe water consumption, and 31,488 families (mainly the women in the family) dedicate time to collect water on foot. The project will facilitate access to safe water sources for 3,930 families, equivalent to 17,685 persons.

201. In summary, vulnerability to climate change is impacted by economic and social conditions, including: (1) the presence of diseases and deterioration of health as a result of poor nutrition and low family farm production because of inefficient farming methods and water stress; (2) high levels of poverty, around 32.7% in urban areas and 38.8% among the rural population in 2015; (3) limited income generation opportunities because of a lack of resources such as productive soil and

²⁶ MAG (2016).

²⁷ Vara Prasad (n.d.). Impact of Climate Change and Climate Variability on Productivity of Grain Crops. Accessed at: <http://www.centa.gob.sv/docs/guias/granos%20basicos/Prasad-PVV-Climate-Change-El-Salvador-Final.pdf>

²⁸ ECLAC, 2010b

water, limited technical assistance aimed at increasing production, and the impact of extreme events caused by climate change; d) Insufficient buying power of rural families, who do not have access to the basic food basket and encounter food insecurity; and e) limited access to safe water.

202. The beneficiary group is also highly vulnerable to climate change. In 2016, the World Risk Report ranked El Salvador as the world's 8th in highest in exposure and 1th most at risk. The 2008 census identified that at least 395,000 farmers struggle to feed their families and generate and sell surplus. The project will specifically target small-scale family farmers (defined as subsistence producers relying on family labour, and therefore with limited access to the human, physical and financial resources required for adaptation), and who are at greatest risk of being pushed into conditions of extreme food insecurity due to climate change (all of those in conditions of poverty or extreme poverty fall into this group).

203. Women are particularly vulnerable to the impacts of climate change because their work in the agriculture sector is largely invisible and unaccounted for (and may comprise a larger number of workers than suggested by the statistic of 4.5% of the female population working in the agricultural sector). Indigenous peoples are also vulnerable, although data on population size is unreliable and no data exists on the impacts of climate change on their livelihoods.

204. The project will build resilience through an innovative agro-ecosystem landscape management approach. An ecosystem focus will be used for land management that will promote carbon sequestration and water infiltration through the implementation of sustainable climate resilient agriculture productive models, and restoration and conservation measures for critical areas and ecosystems. The landscape management approach is expected to improve the lives of some of the most vulnerable population namely farming families through product diversification and employment generation, contributing to positive changes in their livelihoods. At the same time, the project will generate capacities among the rural population and public institutions to incorporate climate information into territorial planning to improve adaptive capacities, and will promote improved coordination between the national and territorial levels through climate-related policy and regulatory frameworks in order to enhance resilience in the face of climate shocks.

E.4.2. Financial, economic, social and institutional needs

Financial, economic and social needs

205. Although El Salvador is classified as a lower middle-income country by the World Bank, with a 2016 per capita income of USD3,920, it is one of the most unequal countries of the world (UNDP) and one third of the population lives in poverty. Farmers account for 14% of the economically active population: the majority of them are subsistence farmers producing maize and beans, and living on less than US\$200 per month. Many of the family farmers have limited market access, and are disadvantaged due to social and health issues. This situation severely limits their ability to invest in climate-proofing their livelihoods and production systems, and means that most of them have little or no financial buffer against falling into conditions of extreme poverty and food insecurity in the event of the climate-related failure of their crops or other elements of their livelihood support systems.

206. The ability of the rural population to adapt to the effects of climate change is also affected by social and demographic factors. Many young people are not willing to work in agricultural activities because of low profitability and the lure of emigration to urban areas and abroad; the Ministry of Foreign Affairs of El Salvador estimates that almost 3 million Salvadorans live abroad.²⁹ This out-migration limits the availability of rural labour for adaptation activities and favours the use of maladaptive practices with low labour requirements, such as the use of burning for land clearance prior to sowing; it also weakens community structures on which environmental governance, such as the protection of forest remnants and the control of burning, depends.

207. At national level, the current budgetary situation of the Government of El Salvador limits its ability to invest in building climate resilience in family farmers. The government has limited capacity to mobilize sustainable, local-level public financing for sustainable land management and lacks adequate financial resources and technical capacity to implement specific projects to promote climate resilient agriculture and restore ecosystems and degraded lands. The lack of resources also limits the ability of the government to collect, manage and disseminate agro-climatic information that is needed to guide government's and farmers' decisions. The MAG extension service, CENTA, is constrained by manpower and resource shortages.

208. The project will address the economic and social development of the country and the affected population by introducing climate resilient agricultural technologies and landscape management approaches to family farmers. This which will help them to stabilize their crop production, leading in turn to stabilized incomes and food and water security. The 114 target municipalities of the project are those affected by moderate and severe drought, relative and extreme poverty, and high levels

²⁹ UNDP (2009).

of malnutrition – meaning that the target beneficiaries are some of the poorest rural families in the country, with greatest needs for support in order to avoid them falling into more extreme conditions of poverty and food insecurity.

Need for strengthening institutions and implementation capacity

209. The absence of a strong coordinating mechanism is a constraint to sustainable management of land through ecosystem restoration and the implementation of agriculture adapted to climate variability. The sectoral nature of planning and implementation in El Salvador is complicated by a multitude of actors at the local level making it difficult for institutions to coordinate and work together. A lack of inter-institutional engagement and generally weak governance at the regional and local levels has limited the development of a common approach to adaptation and mitigation. There are weaknesses and overlaps in the role of government institutions, and the current institutional arrangement of the national and local governments requires strengthening to enable the adoption of a sustainable landscape management approach. Additionally, there is a shortage of agricultural extension workers, and they lack capacity and know-how about climate risks and solutions.

210. Harmonization of public policies and international and regional treaties on climate change mitigation and adaptation is needed, and institutional strengthening is needed to implement these policies and agreements at the institutional and local level. This project will support improved inter-institutional coordination, and the creation of mechanisms to improve public engagement. The project will establish processes that promote the development of common goals and shared visions, including national planning practices. Institutional capacity-building actions implemented through the project will strengthen national planning for climate change mainstreaming, and build capacities at the local level through improving the ability of community extension workers and technicians to work with family farmers to build resilience to climate change. The project will support the technical operations of MARN and MAG, and improve coordination processes and encourage joint programs between the two organizations. The project will improve strategic planning and operational planning to orient investments toward programs that mainstream climate change, with a focus on climate-resilient agricultural measures and landscape management, and improved extension services in the territories. Meeting these institutional and local needs will also assist El Salvador to meet agreements reached at various conventions, international treaties, and national policies and strategies on climate change mitigation and adaptation, detailed above.

E.5. Country Ownership

Beneficiary country(ies) ownership of, and capacity to implement, a funded project or programme

E.5.1. Existence of a national climate strategy and coherence with existing plans and policies, including NAMAs, NAPAs and NAPs

211. The proposed project is included both in the Country Programme Brief of El Salvador and the FAO's Entity Work Programme submitted to the GCF. The proposal has followed country processes for endorsement including approval by the Environmental Sustainability and Vulnerability Cabinet that brings together six Ministries on climate change, including the National Designated Authority to the GCF. The steering committee for the project preparation has involved technical staff from these ministries demonstrating full country ownership in design and prioritization.

212. The project is coherent with the **National Environmental Policy** of 2012, which seeks to address environmental degradation and reduce vulnerability to climate change. The three components of the project respond to the four priorities established in the National Policy: Inclusive ecosystem restoration and conservation, integral environmental sanitation, integrated water resource management, and climate change adaptation and risk reduction. These policy priorities shape the **National Environmental Strategy**, which sets two broad goals to address climate change to which the Components of the project will contribute: 1) Reducing climate risk in the short term by strengthening systematic climate observation and early warning systems, as well as promoting territorial environmental planning, and 2) Climate risk reduction in the medium and long term through environmental restoration in degraded rural areas. This strategy underlies the **National Strategy on Climate Change** that calls for the issues of climate change and variability to be strategically included in development planning and public and private investment, as well as in the principal public policy framework. The project will help to deliver on this goal of the strategy through Component 3 (see the figure below).

213. El Salvador's **Nationally Determined Contribution (NDC)** under the Paris Agreement of the UNFCCC includes the establishment of a legislative framework and institutional arrangements to orient economic and social development towards a low-emission climate resilient development pathway. The NDC includes quantitative targets for 2025 and 2030, which will be duly negotiated, quantified, and presented, in some cases, before COP 23. The country is committed and aspires, under this legal instrument, to limit the increase in mean global temperature to 1.5°, mainly through the following actions: a) strengthening of the institutional and legal framework for the sustained formulation and implementation of the Salvadoran NDCs; b) preparation, adoption, and enforcement of a climate change framework law before 2019; c) implementation of the Land Management and Development Programme before 2018, as an enabling instrument for the compliance of national actions and contributions in adaptation and mitigation, and for the control in the change of soil use; d) effective implementation of a normative framework for the comprehensive management of water resources before 2017; and finally, on agriculture,

livestock, and forestry, the current Policies and laws related to the regulation of the activity in these sectors will be reviewed and updated before 2019. The NDC specifically identifies “sustainable landscapes resilient to climate change approach” as a priority action, aiming to establish and manage one million hectares by 2030 through the rehabilitation of forest, agroforestry and low-carbon agricultural practices.

214. The Project will contribute to institutional strengthening and the financing of adaptation and mitigation actions, the inter-sectoral development of adaptation plans at the national and territorial levels; improve production and promote the sustainable use of natural resources in agriculture, with emphasis on resilience building.

215. Component 3 of the project will contribute directly to improved national conditions and capacities to plan for adaptation measures on the basis of reliable and objective information in the medium and long terms. This will, for example, serve to optimize the effectiveness of investment required under the **Law on Civil Protection and the Prevention and Mitigation of Disasters**, and the **National Plan of Civil Protection**.

216. Information generation and dissemination. The project will contribute to the specified actions in the document on Foreseen and Determined Contribution at the National Level in El Salvador, specified by the **Framework Law on Climate Change**, which specifies the inter-institutional coordination mechanisms required to disseminate information generated by the institutions. To this effect, it is necessary to improve the institutional framework and build capacities through the activities described in the National Plan on Climate Change.

217. Actions under Component 3 will support the incorporation of climate change and adaptation considerations into development plans and public policy, and modernize public institutions. Component 3 will strengthen national planning on climate change and land management in various ways: (1) ensuring a linkage with international commitments; (2) promoting citizens' participation; (3) generating an inter-ministerial working protocol (MARN & MAG) to improve the coordination and delivering of adaptation and mitigation; (4) creating a process to engage relevant actors (private sector, academia, civil society) in land management processes. This strengthened national planning will complement and deliver on recommendations for joint implementation put forward by the National Ecosystems and Landscapes Restoration Project (PREP). The set of activities of Component 3 will enable and articulate the national and local institutions, processes and plans to promote productive and resilient landscapes, leading to improved coordination.

218. Human resource capacities at the managerial and technical institutional levels, as well as the local level, will be strengthened to respond to climate change, in a manner consistent with the goals of the national climate change policy. Project actions will enhance inter-institutional and inter-sectoral coherence and coordination on climate change issues, improve information exchange and transparency among governmental and autonomous institutions, foster technology transfer, enable national dialog on climate change, and build human capacity. The project will promote regulatory frameworks to implement the Climate Change Framework Law that will be enacted before 2019.

E.5.2. Capacity of accredited entities and executing entities to deliver

The Food and Agriculture Organization of the United Nations (FAO)

219. The Food and Agriculture Organization of the United Nations (FAO) is a GCF accredited entity. It is an international organization whose main goals are the eradication of hunger, food insecurity and malnutrition; the elimination of poverty and the driving forward of economic and social progress for all; and the sustainable management and utilization of natural resources, including forest, land, water, air, climate and genetic resources for the benefit of present and future generations. FAO has 194 member states and one member organization (the European Union).

220. In line with the vision for sustainable food and agriculture developed in support of its strategic objective to “Make agriculture, forestry and fisheries more productive and more sustainable”, FAO promotes climate-smart agriculture (CSA) as a way to increase productivity, adapt and build the resilience of food systems and, wherever possible, reduce GHG emissions. The FAO project Climate Smart Agroforestry Systems for the Dry Corridor of Central America supports farmers in Guatemala and Honduras to increase the uptake of climate resilient agroforestry systems through the farmer field school approach. Many of these lessons learnt are applied to this project.

221. FAO has supported projects for climate adaptation and mitigation worldwide, and has led and managed numerous climate change related projects, which include: (a) US\$ 65 million for the “Strengthening national policy and knowledge framework in support of sustainable management of Brazil’s forest resources” project, under a total project cost of US\$ 65 million. The objective of this project is to facilitate informed and participatory strategic decision-making in forest and natural resources management, with an emphasis on minimizing unsustainable land-use changes that contribute to climate change and for which FAO is the lead GEF agency. (b) US\$ 177.9 million for the “Sustainable management of tuna fisheries and biodiversity conservation” project, which is one of the projects under a US\$ 268.1 million “Areas beyond national jurisdiction” programme. This project aims to support an increased uptake of ecosystem-based approaches that reconcile productivity and income growth with the need to protect and enhance marine biodiversity and resilience. FAO plays the role of lead GEF

agency of the project and coordinates the “Areas beyond national jurisdiction” programme; (c) US\$ 33.4 million for the “Delivering sustainable environmental, social and economic benefits in West Africa through good governance, correct incentives and innovation” project, under a total project cost of US\$ 51.9 million. This project falls under the US\$ 235 million “Coastal fisheries initiative” programme and aims to support countries to improve the resilience and adaptive capacity of their marine ecosystems as well as the resilience of coastal communities who earn their livelihood from such ecosystems. FAO plays a double role of lead GEF agency for the project and global coordinator of the “Coastal fisheries initiative” programme; and (c) FAO has a long-lasting cooperation on forest matters that more recently includes the United Nations Programme for Reducing Emissions from Deforestation and Forest Degradation (UN-REDD Programme). FAO is one of the three implementing UN agencies of the programme (FAO, UNDP and UNEP). This Programme currently supports 64 partner countries across Africa, Asia-Pacific and Latin America and the Caribbean (US\$ 280 million, about US\$ 100 million under FAO’s delivery). In Latin America and the Caribbean, the UN-REDD Programme has 17 partner countries, including El Salvador.

222. FAO El Salvador efforts have been directed toward the development of agriculture in the rural environment, climate change adaptation, and the strengthening of public policies to guarantee food and nutritional security. The Country Programming Framework (CPF) 2016-2020 identifies the support of national efforts to respond to climate change impacts as a priority. FAO El Salvador has implemented projects on: (1) production and post-harvest management; (2) processing and commercialization of agricultural and forestry products; (3) fisheries development; (4) use and conservation of natural resources; (5) sustainable rural development; (6) food and nutritional security; (7) poverty reduction, and (8) strengthening of the legal framework.

223. FAO El Salvador (FAOSV) is authorized to perform all financial, administrative, and managerial processes for the execution of projects funded by different donors. FAO has its sub-regional offices in Panama and the regional offices in Santiago, Chile, where there is a team of officials and specialist consultants in the areas of forestry, natural resources, risk management, and climate change. These specialists are available to assist with the implementation of the project, in coordination with FAO Headquarters personnel. In addition, The FAO El Salvador office has a professional full-time staff and specialized national consultants with a wide thematic experience to support the implementation of the project. FAOSV implements several projects, including the current projects of: "Climate Change Adaptation to Reduce Soil Degradation in Fragile Watersheds located in the Municipalities of Texistepeque and Candelaria de la Frontera." This US\$ 7.9 million project is delivered through a joint effort of MAG, MARN, and other national and international associated with the Global Environmental Fund (GEF). The project aims to revert soil degradation processes, reduce vulnerability to adverse impact from climate change and climate variability, and increase the adaptation capacity of small-scale rural producers linked to the Family Farming Plan in watersheds located in the Department of Santa Ana.

MAG/CENTA and MARN

224. MAG/CENTA and MARN have considerable experience working together with FAO to implement programs and projects in the national territory linked to soil use, such as the "Amanecer Rural Land Competitiveness Program" with US \$36.4 million; and the Program to Support Family Farming with US\$ 60 million. MARN has led the "National Program for Ecosystem and Landscape Restoration (PREP)". Both institutions have important comparative advantages linked to their technical human resources, infrastructure, presence in the territories, and implementation of policies linked to land management, water, forestry, agriculture, and climate change. They have personnel with wide experience and subject expertise, and territorial presence through 40 CENTA agencies and the presence in 200 municipalities of the country. Additionally, they have critical infrastructure needed for project delivery in the form of specialized laboratories and meteorological stations.

Deliverables

225. FAO as an Accredited Entity of GCF and Executing Entity for the project will deliver the expected results of the project with the support of its institutional and technical expertise. MAG will deliver in-kind technical expertise mainly in strategic areas such as research and transfer of agricultural technology, watershed management, and the delivery of agricultural supplies (seeds, fertilizers and pesticides). MAG will make available technical and administrative field staff and facilitate territorial processes through logistical and administrative support. MARN’s in-kind contributions will be in the form of support through specialized technical staff and administrative contributions (local transport, operating expenses, etc.).

226. Specific contributions of the co-Executing Entities will be as follows:

MAG/CENTA	MARN	FIAES
<ul style="list-style-type: none"> • 40 extension technicians for the transfer of adaptation technologies • Producer organization • Support to 1328 community extension agents in 114 municipalities 	<ul style="list-style-type: none"> • Specialists to support the formulation of intervention strategies • Design of local action plans for climate adaptation 	<ul style="list-style-type: none"> • Provision of specialists in the restoration of natural areas • Resources for nurseries of climate-adapted species • Support to participatory diagnoses and sustainable development plans

<ul style="list-style-type: none"> • Provision of the services of 19 extension agencies, with basic infrastructure, staff and equipment • Provision of packages of drought tolerant maize and beans, adapted to soil conditions • Technical staff of MAG will support project implementation • Replication of adaptation measures in other intervention areas 	<ul style="list-style-type: none"> • Strengthening of municipal entities, <i>mancomunidades</i> and local organizations to manage processes. 	<ul style="list-style-type: none"> • Strengthening of initiatives and exchanges of experiences • Teams of specialists in climate adaptation
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E.5.3. Engagement with NDAs, civil society organizations and other relevant stakeholders

227. This proposal was developed in consultation with stakeholders to ensure that the project design is appropriate and meets local needs, and to verify the feasibility of the activities included in the project components. The consultations were held through: workshops with potential beneficiaries; bilateral working meetings and discussions on the project with MAG/CENTA, MARN, and MRREE; technical visits to 78 of the 114 municipal governments, six Departmental Councils of Mayors, three Municipal Associations, and two Micro-Regions. Proposal preparation also included review of 92 documents related to issues of climate change and territorial development in El Salvador.

228. The following stakeholders were consulted: Mayors, Municipal Environmental Units, Municipal Gender Units, Social Outreach Units, Ministry of Education, Ministry of Health, Women's Development Centers, Municipal Associations, Producers' Associations, Community Development Associations, and other interested parties.

229. The consultation process focused on the direct project beneficiaries, civil society, NGOs, and government organizations. The consultations were held in the following places and dates: 04/04/2017 in the Governor's Office of in San Francisco Gotera, Department of Morazán, with 49 people; 05/04/2017 in the Governor's Office of Usulután, with 22 people; 20/04/2017 in the Governor's Office of the Department of La Unión with 37 people; and 21/04/2017 in the Governor's Office of the Department of San Miguel, with 44 people. Additional consultation workshops and working meetings were held with MAG and CENTA on four dates: 27/04/2017 in Region II, Department of La Libertad, with 35 people; 03/05/2017, in Region IV in San Miguel, with 24 people; 04/05/2017 in Region III in San Vicente, with 38 people; and 05/05/2017 in Region I, Department of Ahuachapán, with 36 participants.

230. The consultation process, which is presented in detail in Annex E- Environmental and Social Management Framework, was structured in five stages:

- Stage 1: Community characterization and consultation planning. During this stage municipalities were categorized based on priority criteria of: drought hazards, ecosystems of particular importance for resilience with need for restoration, productive potential, soil use/conflict, catchment, A2 scenario to year 2100 (projection of mean yearly temperature increase), poverty, malnutrition, and hunger. This information informed the development of the consultation plan, identifying primary and secondary information sources, places, representatives, and participant.
- Stage 2: Direct visits to municipal governments to verify and update information, gather documents for analysis, and confirm support for the proposal.
- Stage 3: Development of workshops with local actors, including those in the territories such as representatives of municipal associations (*mancomunidades*), governmental and non-governmental institutions, churches, community groups, water administration boards, Community Development Associations, cooperatives, producers' associations, and groups of women and youth.
- Stage 4: Workshops with CENTA to identify their institutional approach related to technology transfer with men and women producers, and to identify their needs for institutional strengthening.
- Stage 5: Dissemination of results and validation of the components. This was undertaken with designated officials from MAG/CENTA, MARN, and the Ministry of Foreign Affairs, all members of the Technical Steering Committee.
- Stage 6: Validation of proposal with the Environmental Sustainability and Vulnerability Cabinet that is tasked with coordinating efforts and complying with the Five-Year Development Plan for 2014-2019 on matters of vulnerability reduction and the environment. This whole process was supervised by the National Designated Authority, who signed the non-objection letter for this proposal, included in Annex A- No Objection Letter.

231. The stakeholders noted in these consultations that while there are important local actions underway as part of the national climate agenda, still more is needed which the project will further support the public and private efforts in the project

area. The stakeholders felt that the initiative would have an important role in leveraging actions, especially for sustainable land management, ecosystem and landscape restoration, and sustainable agriculture practices to build resilience for families living in the dry corridor.

232. The design process considered the interests of the stakeholders and established a plan for their involvement, laying out specific activities in which stakeholders will participate. This includes MAG/CENTA and MARN, who will join FAO as part of the Technical Steering Committee for the project. This committee will be supported by a Coordination Unit and Operative Technical Units, and will be responsible for reporting the impacts, achievements, and outcomes to beneficiaries, other public sector and private sector stakeholders, NGOs, and the general public. Additionally, there will be direct contact with stakeholders through Local Territorial Councils or Assemblies to report on the technical aspects of the projects, needs for and results of training/capacity building, and annual operations plans.

233. The stakeholder involvement plan will be published on the project website, shared at the Opening Workshop once the project is approved, and discussed at the meetings of the Technical Steering Committee or other events with the stakeholders. The plan will also be included in the project triptych, in meetings with participating government organizations, and in other communications projects designed and prepared during project implementation.

E.6. Efficiency and Effectiveness

Economic and, if appropriate, financial soundness of the project/programme

E.6.1. Cost-effectiveness and efficiency

234. The total Project costs are estimated to be of USD127.7 million, composed of USD91.8 national co-finance and a grant from the Green Climate Fund of USD35.8 million.

235. The estimation of economic gain per beneficiary is USD227 that includes the effect of increase in production in climate resilient agricultural systems and promotion of ecosystem services valued in monetary terms according to international literature on carbon sequestration, as a result of investments of adaptation to climate change. The project is sound from a financially as well as from an economic perspective (please refer to Section F.1. and Annex C – Integrated Financial Model)

E.6.2. Co-financing, leveraging and mobilized long-term investments (mitigation only)

236. With the USD35.8 million investment from GCF, a total of USD91.8 will be leveraged from different sources, including: Ministry of Agriculture and Livestock (USD74.2 million), Ministry of the Environment and Natural Resources (USD3.7 million), and the Initiative for the Americas Fund (USD13.8 million). The total expected co-financing is USD91.8 million, which corresponds to a 1:2.6 resource leverage ratio.

237. It is expected that the Government of El Salvador will continue the investment in the once the five-year implementation timeframe is completed. The expected continuation investment (year 6 to year 10) is USD98.0 million. If this is the case, total co-financing over years 1-10 will be in the amount of USD189.8 million. This corresponds to a 1:5.3 ratio in resource leverage.

E.6.3. Financial viability

238. The financial viability of proposed models is fully described in Annex B (Feasibility Study) as well as in Section F.1 which includes technical details of the measures, with financial indicators (Internal Rate of Return, Net Present Value, Equivalent Payment and Value Investment Ratio) for each. The financial analyses show that all of the proposed measures show positive Net Present Values.

E.6.4. Application of best practices

239. This project includes the uptake of agricultural management and ecosystem restoration measures to improve climate resilience of family farmers and carbon capture (see Section C3 and Appendix 1 – Feasibility Study – for details of the practices and the adaptation benefits of each). All of the measures have been extensively tested through other projects and research studies in comparable conditions in El Salvador and elsewhere in the region, including the Environment Project of El Salvador (MAG/PAES) and the Sustainable Agriculture in Slopes project (CENTA/FAO - Laderas) in El Salvador, Sustainable Climate-Adapted Agriculture (ASAC) in Guatemala and the Lempira Sur/FAO Project in Western Honduras. In particular, the project will build on the lessons learned and best practices developed through the GEF project 4616 “[Climate Change Adaptation to Reduce Land Degradation in Fragile Micro-Watersheds Located in the Municipalities of Texistepeque and Candelaria de la Frontera.](#)”

240. The project also includes the installation of rainwater collection systems which will following the broadly tested methodology Sistema de Coleccion de Agua Lluvia (SCALL) developed by the Research Institute of Ecosystems and sustainability from Universidad Nacional Autonoma de Mexico (UNAM)³⁰.

E.6.5. Key efficiency and effectiveness indicators

<i>GCF core indicators</i>	Estimated cost per t CO ₂ eq, defined as total investment cost / expected lifetime emission reductions (mitigation only)
	1. Estimated economic benefit per beneficiary, defined as total economic benefit / benefited population
	(a) Total to Finance by Project US\$ 127,687,739
	(b) Amount requested from GCF US\$ 35,849,612
	(c) Estimated economic benefits US\$ 51,062,106
	(d) Benefited Population (People) 225,000
	(e) Estimated economic benefit per person (e=c/d) US\$ 227
	<i>(Calculation methods available in Section F.1.)</i>
	2. Estimated economic benefit per hectare, defined as total economic benefit / benefited hectares
	(a) Total to Finance by Project US\$ 127,687,739
(b) Amount requested from GCF US\$ 35,849,612	
(c) Estimated economic benefits US\$ 51,062,106	
(d) Benefited Hectares 73,933 ha	
(e) Estimated economic benefit per hectare (e=c/d) US\$ 691	
<i>(Calculation methods available in Section F.1.)</i>	
3. Estimated cost per t CO ₂ eq, defined as investment cost / reduction of emissions expected during the life of the Project (mitigation only)	
(a) Total to Finance by Project US\$ 127,687,739	
(b) Amount requested from GCF US\$ 35,849,612	
(c) Expected emissions reduction -4,216,835 tCO ₂ eq	
(d) Estimated cost per tCO ₂ eq (d = a / c) US\$ 30.28/tCO ₂ eq	
(e) Estimated GCF cost per tCO ₂ eq captures (e = b / c) US\$ 8.50/tCO ₂ eq	
Base parameters with which EX-ACT was fed for the estimate were:	
Climate: Tropical Mountainous	
Humidity Regime: Dry	
Type of dominant soil: LAC Soil (low activity clays)	
Project duration: 20 years phase separated in 5 years of implementation and 15 years capitalization	

Expected volume of finance to be leveraged by the proposed project/programme and as a result of the Fund's financing, disaggregated by public and private sources (mitigation only)

241. During the first five years of implementation of the Project, the contribution of the Green Climate Fund will be complemented by a considerable amount of co-financing from the Government of El Salvador and non-governmental institutions, through contributions of specific technical assistance, agricultural packages composed of climate-resilient seeds and fertilizers, financial services, and a series of activities aimed at restoring the ecosystem. The following table sets out the contribution of each agent involved in the project.

Table 11. Funding Institutions

Capital Component	Value (US\$)	Proportion (%)
Green Climate Fund	35,849,612	28.1
Ministry of Agriculture and Livestock	74,294,983	58.2
Ministry of the Environment and Natural Resources	3,708,634	2.9
Initiative for the Americas Fund (FIAES)	13,834,509	10.8
Total	127,687,739	100.0

F.1. Economic and Financial Analysis

Financial Analysis

242. A cost benefit analysis was performed for the CC-resilient production models proposed, for each of the four farmer categories included in the project, based on technical information collected from official sources as well as by information generated by the formulation team. For each category a flow of cost and benefits was generated for the with and without project situation, the last considered as counterfactual. This means that both financial and economic analysis represent the incremental benefit that it is created by the implementation of RECLIMA, through the comparison of the current situation of family farmers versus their improved situation promoted by the project.

243. Both cost and benefits were estimated considering market prices of inputs and outputs as well as reference values for ecosystem goods and services obtained from peer reviewed sources. A 20-year horizon was considered given the type of investments, as it reflects full revenue stream. To evaluate financial and economic indicators in the medium term, a 10-year horizon was also projected. The expected yields for a without- and with-project situation were constructed based on the publication “Impactos Potenciales del Cambio Climático sobre los Granos Básicos en Centroamérica (caso El Salvador)” (CEPAL, CAC, SICA 2013), and information published by the Ministry of Agriculture and Livestock (General Directorate of Agricultural Economy) in 2012-2013. The analysis was completed using a financial discount rate of 12%, and the following assumption about milestones: 24% of the area is incorporated into the project in year 1, 53% in year 2 and 23% in year 3, meaning that full incorporation is completed in year 3. In order to compare financial indicators between models, the incremental net benefit was estimated on a per hectare basis. Considering a 20-year horizon, the models proposed proved to be financially feasible (see Table 12). The incremental net present value and internal rate of return ranged from US\$220 (IRR of 14.5%) to US\$555 (IRR of 26%). The Incremental Equivalent Annual Payment, which equals the incremental net present value for a year, ranges from US\$30 to US\$74. The results show that the models generate benefits to rural families that are higher than investment costs. The results for a 10-year horizon show that only Category II presents a positive incremental net present value in a mid-term analysis.

Table 12. Financial indicators per farmer category

Farmer Category	Without project		With project		Net effect		
	NPV (US\$/ha)	Equivalent Annual Payment (US\$/ha)	NPV (US\$/ha)	Equivalent Annual Payment (US\$/ha)	NPV (US\$/ha)	Internal Rate of Return	Incremental Equivalent Annual Payment (US\$/ha)
10 years horizon							
Category I	\$245	\$43	\$156	\$28	(\$89)	6.4%	(\$16)
Category II	\$64	\$11	\$141	\$25	\$76	16.5%	\$14
Category III	\$2,704	\$479	\$2,291	\$405	(\$413)	1.6%	(\$73)
Category IV	\$1,275	\$226	\$1,263	\$224	(\$12)	11.3%	(\$2)
20 Years horizon							
Category I	\$142.5	\$19.1	\$396.1	\$53.0	\$253	18.8%	\$33
Category II	(\$265.0)	(\$35.5)	\$290.1	\$38.8	\$555	26.0%	\$74
Category III	\$3,263	\$437	\$3,484	\$466	\$220	14.5%	\$30
Category IV	\$1,447	\$194	\$1,893	\$253	\$446	22.0%	\$60

244. Table 13 shows that all categories have net negative cash flows during first years: the first four years for Category I and Category III, three years for Category IV, and first two years for Category II, but from then on cash flows are in all cases significantly superior to the without-adaptation option.

Table 13. Cash flows per year US\$ (shaded cells highlight negative values)

Year	Category I			Category II			Category III			Category IV		
	Without project	With project	Net effect	Without project	With project	Net effect	Without project	With project	Net effect	Without project	With project	Net effect
1	90.0	-153.6	-243.6	200.4	-55.5	-255.9	552.9	-281.2	-834.1	544.3	269.1	-275.2
2	77.3	22.5	-54.7	186.0	134.5	-51.5	532.3	478.3	-54.1	529.9	435.0	-94.9
3	64.4	37.8	-26.6	-178.5	-148.6	29.9	511.7	505.2	-6.6	215.4	201.6	-13.8
4	51.5	3.1	-48.4	-193.1	-181.7	11.4	491.0	382.2	-108.8	-99.1	-81.7	17.4
5	38.4	68.4	30.0	142.2	185.3	43.1	470.3	559.5	89.2	-113.7	-15.0	98.7
6	25.2	83.9	58.6	127.4	202.4	75.0	449.4	586.9	137.5	471.6	501.8	30.2
7	11.9	99.3	87.4	-237.5	-80.5	157.0	428.5	614.6	186.1	156.9	268.7	111.8

8	-1.5	64.9	66.4	-252.5	-113.2	139.3	407.5	492.4	85.0	142.1	235.6	93.5
9	-15.1	130.5	145.6	82.4	254.1	171.7	386.3	670.5	284.1	-172.8	52.6	225.4
10	-28.7	146.2	174.9	67.1	271.4	204.3	365.1	698.7	333.6	112.2	319.7	207.4
11	-34.9	146.2	181.1	-290.6	-26.9	263.7	352.3	698.7	346.4	403.5	574.7	171.2
12	-41.0	96.2	137.2	-298.2	-75.1	223.1	339.6	548.7	209.1	94.8	279.7	184.9
13	-47.0	146.2	193.2	44.2	276.6	232.4	327.0	698.7	371.7	86.1	334.7	248.6
14	-53.1	146.2	199.3	36.6	278.3	241.7	314.4	698.7	384.3	-222.5	89.7	312.2
15	-59.0	146.2	205.2	-320.9	-19.9	301.0	301.9	698.7	396.8	69.0	344.8	275.9
16	-65.0	96.2	161.2	-328.4	-68.2	260.2	289.5	548.7	259.2	360.5	550.0	189.5
17	-70.9	146.2	217.1	14.2	283.6	269.4	277.2	698.7	421.5	52.0	355.1	303.1
18	-76.8	146.2	223.0	6.8	285.4	278.5	265.0	698.7	433.7	43.6	360.3	316.7
19	-82.6	146.2	228.8	-350.5	-12.8	337.7	252.8	698.7	445.9	-264.7	115.5	380.2
20	-88.4	96.2	184.6	-357.8	-61.0	296.7	240.7	548.7	308.0	27.0	320.8	293.8

245. Under the with-project scenario, monetary cashflows excluding family labour, which has an opportunity cost but not a direct monetary cost, are significantly positive under all farmer categories. See Annex C.1 for details.

246. A financial benefit was estimated for Activity 1.1 (Promotion of climate-resilient family farming) that considered an investment cost of US\$10.4 million contributed by the Green Climate Fund. Overall benefits were estimated by adjusting the net financial flux for each category over 20 years on the basis of total area included in each category, taking into account the gradual inclusion of participants in three stages. Total financial net present value for Subcomponent 1 is estimated in US\$14.14 million, with an internal rate of return of 20%. This means a financial net present value per benefited hectare of US\$250, a financial net present value per household of US\$283. For a 10-year horizon, total financial net present value is estimated at –US\$5.8 million, with an internal rate of return of 3.4%. The negative results considering a medium term horizon are due to the fact that the effects of the proposed practices gradually take place over time.

247. An uncertainty analysis was performed on the financial analysis of Activity 1.1 using a Monte Carlo Simulation. The results reveal that there is a 1% probability of obtaining a negative net present value for Activity 1.1 for a 20-year horizon. This probability is a proxy of the long term financial risk of the project.

248. To ensure the long-term robustness of financial behavior of RECLIMA, a sensitivity analysis was performed, to evaluate how indicators of the project change with variations in key variables:

- Reductions in expected fluxes of benefits from agriculture
- Delay in benefit generation due to delays in project implementation
- Increase in investment costs

249. Table 14 shows that the overall net present value of the project remains positive under all scenarios.

Table 14. Sensitivity analysis

Variable	Variation	Financial analysis	
		Total net present value US\$	Internal Rate of Return
Reduction in benefits	-10%	\$10.65	17.9%
	-20%	\$7.17	16.1%
	-30%	\$3.68	14.2%
	-40%	\$0.20	12.1%
Delay in benefit generation	1 year	\$11.36	19.2%
	2 years	\$8.88	18.7%
	3 years	\$6.80	18.1%
	4 years	\$5.05	17.4%
Increment in investment costs	10%	\$12.81	18.5%
	20%	\$11.40	17.6%
	30%	\$10.13	16.7%
	40%	\$8.80	16.0%

250. The support of the Green Climate Fund is a key element to reduce market failures that currently are affecting vulnerable farmers:

- The project will serve to decrease **information asymmetries**, by the demonstration and dissemination to other farmers and public institutions that the set of environmentally-friendly and climate smart agricultural practices

constitute a practical and viable alternative for adaptive capacity, strengthening food security and increasing production. This is a key element of the project, as it is expected to be replicated in other areas of the country.

- RECLIMA will provide access of smallholders to **public services**, such as extension, technical assistance, innovation and knowledge. Also, with the project it is expected that farmers will have access to quality inputs, such as quality seeds.
- The Project will give value to non-market **ecosystem services** through the restoration of degraded areas. RECLIMA will create positive environmental externalities for services that don't have markets, such as erosion prevention.

Economic Analysis

251. Economic analysis was performed to assess the incremental benefits of the project for society, through the comparison of the without- and with-project scenarios. The analysis considers two type of benefits i) marketable benefits that come from increases in production from climate-resilient agricultural systems, and ii) non-market benefits associated with the provision of ecosystem services as a result of landscape restoration activities, considering indicative monetary values for the provision of these services (per hectare/year). Since most of these services represent public goods they are not captured by markets and rarely considered as part of decision making processes. This analysis separated the benefits of carbon sequestration and storage from other local climate benefits.

Economic analysis of agricultural production

252. This economic analysis considers the same assumptions that were specified in the financial analysis of agriculture, but with the difference that the economic analysis included economic values. It was used an economic discount rate of 12%³¹, and conversion factor for prices of unqualified labor and inputs of 0.618 and 0.8684, respectively³².

253. All productive categories for climate resilient agriculture proved to be economically feasible 20-years horizon. Incremental Net Present Value and Internal Rate of Return ranged from US\$174 to US\$1503 and 16% to 41% respectively in a 20-year horizon. For a 10 years horizon only categories II and IV prove to be economically feasible, for the same reasons explained in financial analysis.

Table 15. Economic indicators per category

Farmer Category	Without project		With project		Net effect		
	NPV (US\$/ha)	Equivalent Annual Payment (US\$/ha)	NPV (US\$/ha)	Equivalent Annual Payment (US\$/ha)	NPV (US\$/ha)	Internal Rate of Return	Incremental Equivalent Annual Payment(US\$/ha)
10-year horizon							
Category I	\$1,500	\$265	\$1,483	\$263	(\$17)	10.9%	(\$3)
Category II	\$1,627	\$288	\$2,266	\$401	\$639	37.7%	\$113
Category III	\$4,806	\$850	\$4,361	\$772	(\$444)	0.9%	(\$79)
Category IV	\$2,551	\$451	\$2,748	\$486	\$197	23.6%	\$35
20-year horizon							
Category I	\$1,811	\$242	\$2,150	\$288	\$339	21.6%	\$45
Category II	\$1,640	\$220	\$3,143	\$421	\$1,503	41.6%	\$201
Category III	\$6,052	\$810	\$6,225	\$833	\$174	16.3%	\$23
Category IV	\$3,140	\$420	\$3,852	\$516	\$711	30.6%	\$95

254. Considering the economic incremental flux for each category during the 20 years of lifespan of the project, the benefits were estimated by the extrapolation to the expected amount of hectares that would be under each category, considering the gradual inclusion of participants in three stages. The 10-year horizon is also presented.

i) Economic benefit from ecological services

³¹ The economic discount rate considered (12%) follows the recommendation from the Interamerican Development Bank that defines that international institutions, such as the World Bank, the Interamerican Development Bank or the Asian Development Bank uses a constant rate that range of 10-12%. This rate includes different risks (macroeconomic and agricultural risks) and inflation. To add rigorosity it was considered the higher rate. As a reference, the International Fund for Agricultural Development used 12% as the economic discount rate for designing the Programa Nacional de Transformación Económica Rural para el Buen Vivir - Rural Adelante (2015). FAO does not have an official rate of economic discount.

³² In the case of El Salvador, project planning and development entities do not officially have a nominal value of conversion rates from private to economic values. However, as a reference the "Estudio de la estimación de los precios de cuenta de eficiencia para su aplicación en la evaluación económica" (University of San Carlos de Guatemala, 2011) is useful. Given that the macroeconomic conditions in El Salvador and Guatemala could be considered relatively similar, the above figures constitute an acceptable proxy for the purpose of the economic evaluation of RECLIMA.

255. The incremental economic benefits for the project are from the improvement and restoration of ecosystem services in the biomes that will be worked under the project (Woodlands). These ecosystem services represent public goods, which are not captured by markets or by the GDP and do not monetarily contribute to farmers despite the fact that much of the cost required to ensure their provision are private costs paid by farmers. For each biome ecosystem services were identified and valued according to de Groot et al, 2012 adjusted to local parity purchase power and inflation. It is considered that the project will benefit 17,333 hectares of woodlands. It is assumed that these ecosystems currently have a capacity to provide ecosystem services of 50% of their potential (baseline) due to their degradation. Therefore, project will seek to restore their full capacity to provide ecosystem services. Thus, a 50% of the values presented in Table below will be considered as benefit for biomes restoration. The same gradual inclusion of beneficiaries in four stages of hectares is considered.

Table 16. Monetary values for each service per biome (US\$/ha/year)

Ecosystem Service	Woodlands
Water provision	52
Erosion prevention	13
Total (US\$/ha/year)	65

iii) Carbon sequestration and storage

256. The incremental carbon benefits were modelled over a period of 20 years, although it is expected that the impact would last longer. A shadow price of US\$60/tCO₂ is the social value of carbon considered, with an annual incremental rate of 2.25% as proposed by the World Bank³³. The expected emissions reduction over the assessment period (20 years) is estimated as 4.2 million tCO₂eq.

Results

257. The two indicated sources of benefits (agriculture and climate) were aggregated to obtain the overall estimation of the economic value of RECLIMA, considering the total investment cost of US\$127.6 million, taxes excluded (US\$35.8 million from Green Climate Fund and US\$91.8 from National Matching Contribution). The economic benefit for the entire project is estimated as US\$51.06 million, with an internal rate of return of 20.6%. In other words, with an investment of US\$127.6 million, it is expected to create economic benefits in excess to the opportunity cost of capital (12%) and produce a bonus of US\$51 million. This means an economic net present value per benefited hectare of US\$691, and an economic net present value per household of US\$1021. For a 10-year horizon, the incremental economic net present value is –US\$1.6 million, with an internal rate of return of 11.4%. As discussed previously, the negative results considering a medium term horizon are due to the fact that the effects of the proposed practices gradually take place over time.

258. Of the total economic benefits of US\$51 million, 69% (US\$35 million) are global in nature, relating to the provision of ecosystem services in the form of carbon sequestration; the remaining 31% accrue to El Salvador, in the form of the increased resilience of agriculture in the project areas.

Table 17. Economic benefit of RECLIMA (US\$ million)

Source of economic benefit	Net Present Value	Proportion
Agriculture economic benefits	\$16.04	31%
Global climate benefits	\$35.01	69%
Total	\$51.06	100%

259. An uncertainty analysis was performed on the economic analysis of RECLIMA using a Monte Carlo Simulation. The results of uncertainty reveal that there is a 1% of probability of obtaining a negative net present value in the long term for the project.

260. To evaluate the robustness of the economic behavior of RECLIMA, a sensitivity analysis was also performed, to evaluate how the economic indicators of the project as a whole change with variations in key variables:

- Reductions in expected fluxes of benefits from agriculture, ecosystem services and carbon sequestration during its lifetime.
- Delay in benefit generation due to lags in project implementation
- Increment in investment costs.
- Variation in baseline of shadow price of ton of CO₂ sequestered.

³³ World Bank, 2017. Guidance note on shadow price of carbon in economic analysis

261. Table 18 shows that the overall net present value of the project is still positive in economic terms even in the case of a reduction of 20% of expected benefits, a delay in benefit generation of 2 years, significant cost overruns or a reduction in the social value of the carbon sequestered. This reveals the robustness of RECLIMA.

Table 18. Sensitivity analysis

Variable	Variation	Economic analysis	
		Total net present value US\$	Internal Rate of Return
Reduction in benefits	-10%	\$37.6	18.3%
	-20%	\$23.2	16.0%
	-30%	\$9.3	13.6%
	-40%	-\$4.5	11.2%
Delay in benefit generation	1 year	\$32.9	16.9%
	2 years	\$16.9	14.4%
	3 years	\$2.9	12.4%
	4 years	-\$9.5	10.7%
Increment in investment costs	10%	\$42.2	18.5%
	20%	\$33.4	16.7%
	30%	\$24.6	15.2%
	40%	\$15.8	14.0%
Base Shadow Price of Tco2 (US\$)	\$40	\$14.2	14.2%
	\$50	\$32.6	17.3%
	\$70	\$69.4	24.4%
	\$80	\$87.9	28.8%

262. The uncertainty and sensitivity analyses demonstrate that RECLIMA can be considered as a medium risk project in terms of expected economic benefits in long term.

263. The analysis shows that the RECLIMA is a robust project and creates economic value for society considering the productive, ecological and climate impacts. However, it was not possible to account for a number of other economic effects—including the 1) ecosystem services, genetic resource conservation, medicinal resources and recreation; 2) the important impact of food production on family health; 3) benefits of foregone time to fetch water. Thus, this analysis underestimated the real economic impact for society, and shall be considered as the lower limit of the economic benefits.

F.2. Technical Evaluation

264. The project has been designed building on experience acquired by FAO El Salvador, MAG and MARN in the areas of adaptation and ecosystem restoration. GCF support will help to expand the scope of work of the FAO-Laderas project (2002) and the Climate Change Adaptation to Reduce Land Degradation in Fragile Micro-Watersheds project (funded by GEF, in progress). Additionally, the project design is informed by experiences and learning acquired through MAG's El Salvador Environmental Program (PAES), and MARN's work in landscape restoration through the National Program for Ecosystem and Landscape Restoration (PREP).

265. The project focuses on building the resilience of family farmers through an innovative agroecosystem approach which combines the incorporation of climate resilience measures into agricultural production on-farm, climate-proofing of domestic water supply as an essential determinant of family living conditions, and ecosystem management and restoration in the broader landscape in order to maintain essential flows of ecosystem services threatened by degradation and climate change. The GCF support is focused on improving the resilience of family farms, which are the basis of livelihoods and food security in rural areas of El Salvador. Family farmers play a critical role in the conservation of natural resources, particularly land and water. Family farming is the foundation of the balance between nature, society, the economy, and political and social sustainability in rural areas.

266. The technologies and approaches required to promote the resilience of family farmers are detailed in the Annex B-Feasibility Study.

267. The focus of the project on agro-ecosystem management and family farms responds to the fact that 65% of the land under cultivation in El Salvador is used for family farming, with much taking place on the highly disturbed and dynamic agroecosystems that dominate the slopes and hillsides and are particularly prone to the effects of climate change. This approach but has been successfully applied in other countries of Latin America.

F.3. Environmental, Social Assessment, including Gender Considerations

268. During the formulation of this proposal, an environmental and social management framework has been developed as the initial phase of the due diligence (see Annex E- Environmental and Social Management Framework). An initial risk assessment was carried out against FAO's environmental and social safeguards and the project is considered to be medium risk. Potential environmental risks identified are not unprecedented, would not extend beyond the area of influence of the project and are neither irreversible nor cumulative.

269. Potential environmental impacts identified include: 1) loss of vegetation coverage due to possible agricultural expansion; 2) soil and water contamination because of an increased use of pesticides and increased manure from livestock activities; 3) harm to native genetic material and native biodiversity because of the excessive use of improved and certified seeds.

270. The project will proactively work to lessen environmental impacts in fragile areas: for example, the project will promote integrated pest management approach only to control pests and diseases in buffer zones and other areas. The agro-ecosystem approach uses a landscape planning approach that ensures tree planting and forest restoration activities are designed to avoid adverse impacts on native forests; protect native species; promote connectivity between ecosystems through biological corridors; and ensure the recovery/protection of riparian areas, gallery forests, water catchment areas and natural springs.

271. In addition, the project is expected to implement some activities in buffer zones around Natural Protected Areas. The following potential risks and impacts have been identified for these areas: (i) declines in aquatic fauna because of reduced water availability as a result of water demands for irrigation generated by the project; (ii) negative impacts on aquatic fauna because of inappropriate use of pesticides on hillside terrain that changes the physical and chemical composition of the soil leading to erosion by surface runoff into bodies of water; (iii) increased risk of fire with subsequent impacts on biodiversity, and; (iv) native forest species have increased susceptibility to pests and diseases because of the establishment of new tree plantations. However, the farms targeted under component 1 are no larger than one hectare each and are spread throughout the intervention area, making it unlikely that any adverse impacts would have a cumulative effect. A Biodiversity Management Framework is included in the Environmental and Social Management Framework.

272. In the areas outside the buffer zones, steps will be taken to prevent important loss of vegetation coverage due to expansion of farming activities. The risk of poor farming techniques (e.g., excessive pesticide use and improper manure management) can be lessened or avoided through training and technical assistance to promote agricultural techniques and best practices that can be applied by family farmers. Additionally, the risk of excessive use of improved and certified seeds can be managed through the promotion of the use of native seeds, an approach supported by the results of applied participatory research on traditional practices for agriculture production.

273. Potential social impacts identified in the assessment included: (i) unequal participation because of gender discrimination or discrimination against other vulnerable groups, including indigenous peoples; (ii) potential discrimination in the distribution of benefits for indigenous peoples, and; (iii) relegation of culturally appropriate practices. To address such risks, the project expects to include the following mitigation actions: (i) promoting alternative activities for women heads of households; (ii) prohibiting hiring without social security and other benefits required by law; (iii) establishing a project norm of hiring women, youth, and indigenous people; and (iv) ensuring the participation of local associations of seed producers, preferably made up of indigenous inhabitants, among others.

274. Access to land in rural areas is dominated by lease for 45% of farmers; followed by the status of free occupant for 27% of farmers and then by ownership for 21% of farmers. Unsecure tenure and short-term lease agreements encourages unsustainable agriculture practices leading to soil nutrients depletion. Tenure will be addressed in the context of the project by (a) assessing the type of access to land of beneficiaries to identify the tenure situation, (b) undertake a land tenure legal framework review to identify gaps to promote sustainable agricultural practices and adaptation to climate change and (c) set up a land tenure task force with relevant institutions to advise on the prioritization of actions to strengthen tenure security in support of the implementation of adaptation measures.

275. The ESMF identified the most relevant mitigation actions. During the inception phase of the project, sub-activities will be identified and FAO's screening procedures will be implemented accordingly. Environmental and Social Management Plans will be developed as necessary and mitigation actions will be monitored throughout the life of the project.

276. A stakeholder engagement process was carried out to identify and engage with all stakeholders of the project, from national to local authorities, community level associations, academia, farmers, etc. The process was organized around 5 stages and resulted in proactive involvement in the initial phase of the proposal. A project level grievance mechanism will be established to ensure all stakeholders the possibility to file grievances if needed.

277. FAO consulted with the indigenous communities in the project area to ensure that the GCF supports concrete actions for the indigenous peoples in a way that protects their rights and respects their social and cultural identity, including customs, traditions, and institutions. A process of Free, Prior and Informed Consent was carried out with indigenous communities and

associations where the project was presented and discussed. A meaningful engagement process was carried out, where views were discussed, considered and incorporated to the proposal, as well as definition of activities during project implementation. Consent was given to the implementation of the project and active engagement is foreseen with indigenous communities for the successful achievement of objectives.

278. FAO undertook a gender evaluation in El Salvador "Study on the gender situation in the agricultural and rural sector of El Salvador, 2015". The study concluded that women have less access than men to both tangible productive resources (land, credit, housing, and basic services) and intangible resources (education, technical assistance, political participation). The project will promote gender equality by helping rural women to have access to and control of the productive resources needed for agricultural development in equality. The project will build leadership skills for women; foster women's participation in decision-making spaces and assist them to access land, credit and technology for production and commercialization, as set out in the Environmental and Social Management Framework.

279. In the context of the proposal, capacity building will be carried out to address environmental and social impacts of the project and raise awareness on stakeholder engagement related issues. Key areas requiring capacity building are listed below:

280. Environmental – Producer/farmer training on: (1) agriculture and forestry best practices; and (2) the use of appropriate pesticides, and monitoring of pesticide use and application on farms. Government technician/community extension worker training on: (1) implementing extension services and technology transfer, including agriculture and forestry best practices; (2) using climate behavior information to develop agricultural techniques; (3) environmental protection and management in agriculture and forestry projects; and (4) geo-referencing the dimensions of beneficiary farms in the project intervention area.

281. Social - focused farmer and community training to: (1) strengthen youth conservation clubs; (2) strengthen vulnerable groups' (women, youth, indigenous peoples) access to technologies and funds/loans; (3) build financial management skills; and (4) promote leadership skills in rural female farmers. Government technician/community extension worker training on: (1) social and gender issues (domestic violence, etc.), and (2) financial issues impacting rural communities and family farmers.

282. Gender considerations will be mainstreamed into all trainings associated with project implementation. Dissemination of climate information will apply gender considerations; and local governments will be trained to ensure that financial support can flow to activities that meet the needs of women.

F.4. Financial Management and Procurement

283. Financial control and procurement processes will be implemented as per FAO rules and regulations, which were certified as consistent with the AMA. FAO has an Administrative Manual organized across various Chapters covering Finance, Human Resources, Travel and Procurement. The FAO Intranet provides access to this Manual and to other procedures, information and guidance via the "FAO Handbook".

284. FAO has deployed an Oracle based ERP system the Global Resources Management System" (GRMS) to its world-wide offices, which provides all FAO employees, in all locations globally, with travel, human resource, procurement and finance functionalities. Using GRMS improves the flow of financial information, supports financial monitoring and reporting, increases transparency and visibility, and strengthens internal control. FAO maintains a chart of accounts which is used by the whole organization and that allows for a separation of income and expenditure by donor and project and support and provides a standardized coding structure that enables data to be recorded, classified and summarized to facilitate internal management and external reporting requirements.

285. Procurement and Letters of Agreement Services are managed under CSAP which provides policy and operational support to ensure the Organization procures goods, works and services based on "Best Value for Money" principles as embodied in the Manual Section 502 and for Letters of Agreement under Manual Section 507.

286. As mentioned in Section C.4. FAO as the Accredited Entity of the GCF will have overall responsibility for quality assurance and oversight of co-executing entities. In addition to this, FAO will be responsible for the financial execution of GCF funds, in accordance with the AMA.

287. During implementation, FAO will provide oversight and quality assurance in accordance with its policies and procedures. This may include monitoring missions, spot checks and participation at TSC meetings. The project will be subject to FAO's audit regime of FAO, including the external audit and internal audit functions.

288. FAO El Salvador's Country Representative or FAOR is responsible for financial monitoring, and is supported by a management team comprised of a Program Assistant, Management Assistant, and a Strategic Operations Officer. Such team will interact and support the work of the PMU.

G.1. Risk Assessment Summary

289. Risk factors associated with project implementation include mainly technical and operational, financial, institutional, political, and social and environmental aspects (refer to section F.3 for Environmental and Social assessment). The risks related to technical and operational capacities may impact the collection and dissemination of climate information; as well as the collection of local data necessary for monitoring and reporting. The limited availability of qualified staff could delay implementation of project activities; and the change of staff and key personnel in implementing agencies and government departments could impact the pace of project implementation. An institutional risk is limited coordination among agencies and stakeholders that can lead to inefficiencies in the implementation and impact of the project. Additionally, local governments may lack the capacity to understand and support the project, limiting the needed support to encourage family farmer participation. Risks related to limited interest or capacities of family farmer beneficiaries can impede adoption of technologies, practices and climate information advanced through the project. Financial risks include the limited capacity of beneficiaries to invest/co-finance needed climate resilient agriculture technologies. A political risk is a potential change in government at the national and local levels leading to a lack of support for project activities. Social and environmental risks include social violence in the project areas. Extreme weather events and climate shocks can negatively impact family farmers' investments and agricultural production.
290. The proposed GCF project includes several mitigation measures to address these risks. The mitigation strategies include training and capacity building, awareness raising of key stakeholders including government officials, clear agreements with and between the executing entities, the design of efficient data collection tools, the availability of low-interest loans for family farmers, violence prevention training, and farm plans and provision of climate information to help farmers prepare for climate shocks.

G.2. Risk Factors and Mitigation Measures

Selected Risk Factor 1

Description	Risk category	Level of impact	Probability of risk occurring
Limited availability of qualified human resources with the necessary experience to manage issues concerning risk, governance, landscape management approaches and others.	Technical and operational	Medium (5.1-20% of project value)	Low

Mitigation Measure(s)

The project will strive to hire qualified personnel with the required experience to deliver on the needs of the project and uphold FAO standards. The personnel selection process will be rigorous and will account for gender equity and social inclusion. This will ensure that the project has qualified professional teams to make up the Program Management Unit, Territorial Operating Units, and corps of field staff.

Trained technical staff in the PMU and TOU will lead the training of project personnel in the project areas (community extension workers) to facilitate the implementation of project activities and ensure the expected outcomes and impacts from the project. The technical staff will be supported by officials from MARN and MAG. Activity 3.3.6 of the logical framework will contribute to mitigating this risk.

Selected Risk Factor 2

Description	Risk category	Level of impact	Probability of risk occurring
Inefficient data collection processes limit effective monitoring and reporting	Technical and operational	Low (<5% of project value)	Low

Mitigation Measure(s)			
FAO will assist with the development of tools and methodologies for efficient data collection. The PMU will build the capacity of staff and targeted personnel, and the project will invest in technical capacity building for beneficiaries.			
Selected Risk Factor 3			
Description	Risk category	Level of impact	Probability of risk occurring
Turnover of key project personnel, implementing agencies and local governments.	Technical and operational	Low (<5% of project value)	Low
Mitigation Measure(s)			
While some turnover is likely to occur, the negative impacts on project implementation will be mitigated through: a) Project reports and institutional reports and processes that allow for knowledge transfer; b) on-going capacity-building processes; and c) development of territorial plans and inter-institutional arrangements in Component 3 that will guide the work of new staff.			
Selected Risk Factor 4			
Description	Risk category	Level of impact	Probability of risk occurring
Political stance of local governments that interfere with their committed involvement to the Project.	Technical and operational	Medium (5.1-20% of project value)	Low
Mitigation Measure(s)			
Activities in Component 3, and the implementation arrangements of the project, will mitigate this risk through: the creation of an institutional strategy to facilitate political processes to enable local government involvement; implementation of agreements, at the territorial level, to allow local government involvement; and the strengthening of territorial governance.			
Selected Risk Factor 5			
Description	Risk category	Level of impact	Probability of risk occurring
Poor coordination and competing mandates between government agencies disrupts project activities	Technical and operational	Medium (5.1-20% of project value)	Low
Mitigation Measure(s)			
Component 3 includes an activity to develop establish agreements to share information between MARN and MAG, which will improve the collection and dissemination of agro-climate information to farmers. Both agencies are full partners in the project, with roles and responsibilities to be clearly delineated in the Inception Report.			
Selected Risk Factor 6			
Description	Risk category	Level of impact	Probability of risk occurring
Reduced capacity for territorial coverage of project staff.	Technical and operational	Medium (5.1-20% of project value)	Low
Mitigation Measure(s)			
Clear institutional arrangements with MAG/CENTA and MARN will allow the project to use their institutional capacities and human resources across the 114 targeted municipalities to reach the identified target communities. Component 1 includes hiring of community extension workers for all targeted municipalities, and training of these workers to enable them to understand the breadth of their responsibilities.			

Selected Risk Factor 7			
Description	Risk category	Level of impact	Probability of risk occurring
Lack of interest among project beneficiaries	Technical and operational	Low (<5% of project value)	Low
Mitigation Measure(s)			
<p>Consultations in the territories noted the high interest of family farmers to find solutions to their social, economic, and environmental problems. Some family farmers may face challenges in meeting the producer responsibilities set out in the project. The low incomes, low education levels and poor living conditions of many family farmers could prevent their full participation in the project. The project will consider the basic needs of these farmers and work to help meet these needs (e.g., safe water and food security promoted in Component 1). The use of demonstration farms will help to build awareness and interest. Component 3 activities to improving participation and provide technical training for beneficiaries will also help to maintain interest. Moreover, the project also proposes to address tenure issues in particular as the underlying risk. A tenure specialist will be recruited in the project and a land tenure task force will be established to identify gaps to promote sustainable agricultural practices and adaptation to climate change.</p>			
Selected Risk Factor 8			
Description	Risk category	Level of impact	Probability of risk occurring
Social violence in the national territory.	Social and environmental	Medium (5.1-20% of project value)	Medium
Mitigation Measure(s)			
<p>. This will be mitigated through the following actions as part of Component 1: a) The project will provide employment opportunities hiring community extension workers from organized community groups, including local leaders from the intervention territories; d) Project activities will promote family cohesion and reduce vulnerability by directly involving vulnerable groups (women, youth, children, and older adults) in project activities.</p>			
Selected Risk Factor 9			
Description	Risk category	Level of impact	Probability of risk occurring
Extreme climate events negatively impact Project implementation.	Social and environmental	Medium (5.1-20% of project value)	Medium
Mitigation Measure(s)			
<p>This risk could decrease family farmer participation as adaptation benefits may not be obvious. The project will maintain constant communication with family farmers, and strive to implement tangible and visible activities that address priorities early in the project. The strengthening of climate information services and dissemination of localized ago-climate reports will assist in decision-making. Technical training sessions will help beneficiaries understand the impacts of climate change and the benefits of investing in climate resilient agriculture techniques.</p>			
Selected Risk Factor 10			
Description	Risk category	Level of impact	Probability of risk occurring
Changes of central and local governments.	Other	Low (<5% of project value)	High
Mitigation Measure(s)			

The probability of this political risk is high given the likelihood of elections and changes in government officials in the project period. The risk that new officials will not support the project will be mitigated through information sessions to update them on the project actions and benefits to their constituencies. Additionally, institutional arrangements, such as legal agreements between the central government, local governments and the project. Component 3 includes activities to increase the likelihood of project activities in the territories continuing uninterrupted.

Other Potential Risks in the Horizon

- a) Earthquakes, volcanic eruptions or high impact natural events - These are unpredictable events, but should they happen, the project would need to develop supportive measures for impacted family farmers.
- b) Obstacles to access large seed inventories for forestation processes, as well as other strategic materials required for Project activities, such as water harvest equipment, tools, etc.

Selected Risk Factor 11

Description	Risk category	Level of impact	Probability of risk occurring
Limited access to land by a sector of potential beneficiaries	Social and environmental	Medium (5.1-20% of project value)	Low

Mitigation Measure(s)

The project will implement actions focused on mitigating this risk by coordinating institutional actions that will facilitate access to land for those identified beneficiaries and will promote land owner participation in those areas of intervention.

H.1. LOGIC FRAMEWORK

H.1.1. Paradigm Shift Objectives and Impacts at the Fund level						
Paradigm shift objectives						
Increased climate-resilient sustainable development		<p>Improved resilience of the livelihoods of the vulnerable population of El Salvador's dry corridor to the effects of climate change, through adaptive agroecosystem management.</p> <p>Improved climate resilient development will be sustained through a) an exit strategy based on the selection and promotion of agroecosystem-based adaptation measures which are financially viable and offer economic benefits, which will require initial "pump-priming" support by the project; b) a focus on participation and ownership in the identification, generation and adoption of adaptation measures, including the participatory identification of areas for ecosystem restoration; c) the mainstreaming of adaptation measures into producer support and incentive programmes, primarily technical support to producers by MAG, input support (the Paquete Agrícola programme of CENTA), and support to local financial institutions in designing products that support adaptation; and d) the effective dissemination of information on benefits, targeted at decision-makers and policy formulators to encourage a favorable enabling environment for the sustainability and scaling up of the proposed adaptation and mitigation measures.</p>				
Expected Result	Indicator	Means of Verification (MoV)	Baseline (all values to be verified at inception)	Target		Assumptions
				Mid-term	Final	
Expected total number of direct and indirect beneficiaries		Data collection system to aggregate information from the household surveys undertaken within the target Municipalities to track households/ males and females that receive project services or benefit from the activities implemented by the project ³⁴		Total: 1,289,618 Direct 172,368	Total: 1,289,618 Direct 225,000	There is continued commitment and uptake of the information by the Territorial Steering Committee (TSC) and oversight by the Project Management Unit (PMU)
% of beneficiaries relative to total population		Government statistics on demography of the target Municipalities		13.4%	17.4%	
A1.0 Increased resilience and enhanced livelihoods of the most vulnerable people, communities, and regions.	A1.2 Number of males and females and percentage of population benefiting from the adoption of climate-resilient livelihood options	Project baseline, mid- term and end- term surveys. Gender-sensitive field surveys undertaken within the targeted municipalities.	0	172,368 people ³⁵ , in 38,304 farm families (of which 38% are female led) in the 114 target municipalities apply adaptation measures to increase the reliability of agricultural yields	225,000 people in 50,000 farm families (of which 38% are female led) in the 114 target municipalities apply adaptation measures ³⁶ to increase the reliability of agricultural yields	Farmers are convinced of the importance and effectiveness of the adaptation measures

³⁴ The data collection and aggregation system will be designed and applied in such a way as to avoid double counting of households receiving multiple benefits.

³⁵ 52% of the members of the target families are, female and 6.51% of the target population is indigenous.

³⁶ See list of adaptation measures in Table 3 of the Funding Proposal

Expected Result	Indicator	Means of Verification (MoV)	Baseline (all values to be verified at inception)	Target		Assumptions
				Mid-term	Final	
				and ecosystem service flows	and ecosystem service flows	
A2.0 Increased resilience of health and well-being, and food and water security.	A2.2 Number of food-secure households ³⁷ (in areas/periods at risk of climate change impacts).	Household surveys and field assessment of changes in farmers' risk of climate change impacts.	23,065	Number of food secure households remains at least at baseline levels	Number of food secure households remains at least at baseline levels ³⁸	Absence of extreme natural disasters and economic shocks affecting yields and household economies
	A2.3 Number of males and females with year-round access to reliable and safe water supply despite climate shocks and stresses.	Project reporting and public gender sensitive household surveys	783 people (approximately 52% female) in 174 farm families benefiting from 3 community-based rainwater collection systems ³⁹ .	7,830 people (approximately 52% female) in 1,740 farm families benefiting from 30 community-based rainwater collection systems	11,745 people (approximately 52% female) in 2,610 farm families benefiting from 45 community-based rainwater collection systems	
A4.0 Improved resilience of ecosystems	A4.1 Extent of ecosystems strengthened, restored and protected from climate variability and change.	Project reports tracking off-farm ecosystem recovery support/investment activities.	0ha of degraded areas outside of protected areas are subject to active conservation or restoration	7,800ha of degraded areas outside of protected areas are under conservation and restoration in the project area.	17,333ha of degraded areas outside of protected areas are under conservation and restoration in the project area.	Tenure and governance conditions in selected target sites are favourable for restoration and maintenance
		Progress reports Farm records. Qualitative assessment through questionnaires and surveys	Traditional agroforestry practices based on natural regeneration applied in some areas: no baseline figure available	38,304ha on farm with improved resilience due to the application of adaptation measures	56,600ha on farm with improved resilience due to the application of adaptation measures ⁴⁰	Farmers are convinced of the importance and effectiveness of the adaptation measures
4.0 Reduced emissions from land use, deforestation, forest degradation, and through SFM and conservation and enhancement of forest carbon stocks.	M4.1 Tonnes of carbon dioxide equivalent (t CO ₂ e) reduced or avoided and/or GHG removals by sinks	Progress reports and monitoring of carbon stock by comparison to baseline x C stock (see VCS Project Descriptions) using Exact Methodology	N/A (no reduction or avoidance until project start)	2,108,433 tCO ₂ -e captured by mid term	4,216,835 tCO ₂ e captured over the project period	Farmers are convinced of the importance and effectiveness of the adaptation measures

³⁷ In the context of the project, "food secure households" are understood as those in which all members of the household, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs for an active and healthy life. In addition to monitoring quantities of major food groups to which a sample of households has access, nutritional analyses will be carried out of any alternative CC resilient crop varieties that are promoted.

³⁸ Under the without project scenario, the number of food secure householders would have decreased by XX%

³⁹ No reliable quantitative data exist on the amount or reliability of water in other families.

⁴⁰ See list of adaptation measures in Table 3 of the Funding Proposal

H.1.2. Outcomes, Outputs, Activities and Inputs at Project/Programme level

Expected Result	Indicator	Means of Verification (MoV)	Baseline (all values to be verified at inception)	Target		Assumptions
				Mid-term	Final	
A5.0 / M5.0 Strengthened institutional and regulatory systems for climate-responsive and low-emission planning and development.	A5.1 Number of gender-friendly policies, institutions, coordination mechanisms and regulatory frameworks that improve incentives for climate resilience and low emissions and their effective implementation.	Strengthened, updated or new instruments presented for approval by government	3 CC instruments available - CC Policy for Fisheries and Food. -National CC Strategy (MARN 2013) - National Plan for CC and Management of Agroclimatic Risks in the Agricultural, Forestry, Fisheries and Aquaculture Sector	Strengthened 6 instruments and 6 updated	CCA provisions strengthened (9)in: - National Environment Policy - Forest Policy - CC Policy for Fisheries and Food - National Fisheries and Aquaculture Policy - National CC Strategy (MARN 2013); - National Water Resources Strategy (MARN 2013); - National Environmental and CC Mitigation Strategy for the Agricultural, Forestry, Fisheries and Aquaculture Sector (MAG, 2015) - Ecosystem and Landscape Restoration and Reforestation Plan - National Plan for CC and Management of Agroclimatic Risks in the Agricultural, Forestry, Fisheries and Aquaculture Sector CC provisions updated (6) in: - Food Security and Nutrition Policy - National Biodiversity Strategy (MARN 2013) - National Environmental Sanitation Strategy (MARN 2013) - National Forestry Strategy (MAG 2006) - National Plan for Territorial Planning and Development - National Water Resource Plan. New Policy (2) for Climate Resilient Sustainable Agriculture created.	Constructive relations for collaboration between Government agencies, municipalities and social organizations to refine policy, regulatory and planning frameworks.
A7.0 Strengthened adaptive capacity and reduced exposure to climate risks.	A7.1 Use by vulnerable households (including number of female beneficiaries), communities, businesses and public-sector services of Fund-supported/developed tools, instruments, strategies, and activities to respond to climate change and variability.	Farm surveys and questionnaires	Traditional agroforestry practices based on natural regeneration applied in some areas: no baseline figure available	38,304 farm families (of which 38% are female led) applying measures to increase the resilience of their agricultural production and/or access to water.	50,000 farm families (of which 38% are female led) applying measures to increase the resilience of their agricultural production and/or access to water.	Farmers are convinced of the importance and effectiveness of the adaptation measures
		Questionnaires of CENTA and municipality technicians	CENTA and municipality technicians are not applying guidelines on supporting CC adaptation measures	110 technicians applying guidelines developed by the project on supporting CC adaptation measures by farmers	244 technicians (130 from CENTA and 114 from municipalities) applying guidelines developed by the project on supporting CC adaptation measures by farmers	Receptivity of technicians to CC adaptation issues

Expected Result	Indicator	Means of Verification (MoV)	Baseline (all values to be verified at inception)	Target		Assumptions
				Mid-term	Final	
		Review of planning instruments	Planning instruments of MAG and MARN are mostly based on current climatic conditions or short term forecasts.	Methodologies under preparation for the incorporation of information on CC forecasts into budgets, strategies and geographical priorities.	Information on CC forecasts is taken into account in the budgets, strategies and geographical priorities of the medium and long term plans of MAG and MARN	Continued political prioritization of CC adaptation
M9.0 Improved management of land or forest areas contributing to emissions reductions ⁴¹ .	M9.1 Hectares of land or forests areas under sustainable management or improved protection and management leading to reduced GHG emissions and/or enhancement of carbon stocks.	Tracking of off-farm ecosystem recovery support/ investment activities. Field inspections of restoration areas.	0 ha of degraded areas outside of protected areas are subject to active conservation or restoration	7,800 ha of degraded areas outside of protected areas are under conservation and restoration in the project area.	17,333 ha of degraded areas outside of protected areas are under conservation and restoration in the project area.	Government agencies and municipalities are willing to support project activities. Beneficiaries are willing to apply adaptation and restoration measures.

Expected Result	Indicator	Means of Verification (MoV)	Baseline (all values to be verified at inception)	Target		Assumptions
				Mid-term	Final	
Project/ programme outputs	Outputs that contribute to outcomes					
1: Improved resilience of livelihoods and production systems in family farms	Activity 1.1: Promotion of climate-resilient family farming over 56,600 ha					
	1.1.a Area of farming systems with at least two resilience measures applied ⁴²	Farmer surveys and questionnaires Field inspections.	0	43,360ha (38,304 farm families, of which at least 38% are female led)	56,600 ha (50,000 farm families, of which at least 38% are female-led)	Farmers are convinced of the importance and effectiveness of the adaptation measures
	1.1.b Number of target households that are food secure ⁴³ .	Household surveys	23,065 ⁴⁴	Number of food secure households remains at least at baseline levels	Number of food secure households remains at least at baseline levels ⁴⁵	
	Activity 1.2: Improvement of water collection and management					
1.2.a Number of farm families with home rainwater collection systems installed and functioning, with a storage capacity of at least 1,100 litres	Field inspections	0	1,008 families (at least 38% with female head of household)	1,320 families (at least 38% with a female head of household)		

⁴¹ Same targets as Indicator M4.0

⁴² In addition to the use of resilient varieties currently provided by MAG

⁴³ Same as indicator A2.2.

⁴⁴ 46% of the total, based on the overall percentage of food secure households for the target Departments in 2016

⁴⁵ Under the without project scenario, the number of food secure householders would have decreased by an estimated 20%

Expected Result	Indicator	Means of Verification (MoV)	Baseline (all values to be verified at inception)	Target		Assumptions
				Mid-term	Final	
	1.2.b Number of farm families with access to 9 liters per household per day during dry period up to 180 days, meeting national quality standards, through community rainwater collection systems	Field inspections	174 families with 3 community-based rainwater collection systems	1,740 families (at least 38% with female head of household)	2,610 families (at least 38% with female head of household)	
Activity 1.3 Strengthening of human and institutional capacities for sustainability and scaling up of adaptation strategies						
	1.3.a Number of extension agents trained in adaptation issues and responses, and showing increases in Knowledge, Attitudes and Practice (KAP) scores	Training registers Follow-up KAP surveys	0	40 CENTA extension agents, from at least 19 CENTA regional agencies	130 CENTA extension agents, from at least 40 CENTA regional agencies	
	1.3.b Number of Farmer Field Schools (FFS) operating in target municipalities	Surveys and inspections of FFS	0	1,051 FFS operating in 67 municipalities	1,415 FFS operating in 114 municipalities	
	1.3.c Number of active participants in the FFS in target municipalities	Surveys and inspections of FFS	0	Active participation by 38,304 people in 67 municipalities	Active participation by 50,000 farmers (at least 38% female) in 114 municipalities	
	1.3.d Number of young people trained in climate resilient agricultural and land use practices	Training registers Follow-up KAP surveys	0	3,000 (at least 50% female)	5,000 (at least 50% female)	
	1.3.e Percentage of genetic resources requested by project technicians and extension agents, met by CENTA Germplasm Center and DGOFCR-MAG Center for Forest Development	Farmer surveys Review of records of supply of genetic material	0	50%	100%	
2: Increased resilience of flows of environmental services at landscape level	Activity 2.1 Restoration of vegetation cover in critical locations to promote hydrological services and increase carbon stocks					
	2.1.a Area of ecosystems off farm restored and/or effectively protected to favor resilience of ecosystem services of importance for target families	Tracking of restoration activities. Field inspections of restoration areas	0ha	7,800 ha	17,333 ha	Tenure and governance conditions in selected target sites are favorable for restoration and maintenance
	2.1.b Area of agricultural land made more resilient through new	Tracking of tree planting and assisted natural	0ha	5,660 ha	11,320 ha	Functioning of community-based organizations

Expected Result	Indicator	Means of Verification (MoV)	Baseline (all values to be verified at inception)	Target		Assumptions
				Mid-term	Final	
	agriculture measures (planting of trees and assisted natural regeneration).	regeneration activities				responsible for tree planting in the agricultural land. An average of 20% of the farmland under adaptation measures (56,600 ha) benefit from tree planting and assisted natural regeneration.
3: Improved governance and information flow in support of sustainability and scaling up	Activity 3.1 Strengthening of local planning, governance and coordination in support of adaptation and restoration					
	3.1.a Local organizations participating effectively in planning and governance in support of adaptation and restoration.	Surveys of organizations	0	- 69 ADESCOs - 69 producer associations - 207 Community Civil Protection Committees 69 Municipal Civil Protection Committees	- 114 ADESCOs - 114 producer associations - 342 Community Civil Protection Committees 114 Municipal Civil Protection Committees	Continued support and conviction about CC adaptation in local organizations
	3.1.b Number of municipal environmental units (UMAs), local development associations (ADESCOs) and community water administration boards developing or implementing norms on natural resource governance with provision for climate change adaptation, as a result of training through the project	Surveys of institutions and community organisations	0	-UMAs: 69 -ADESCOs: 207 -Water boards: 69	-UMAs: 114 -ADESCOs: 342 -Water boards: 114	
	3.1.c Number of planning instruments subject to multi-stakeholder review and adjustment as needed to make provision for CC adaptation.	Review of planning instruments	0	-3 Territorial Planning Documents -3 Watershed Management Plans -30 Participatory Strategic Plans -30 Municipal Risk Management Plans 30 Local Sustainable Development Plans	- 8 Territorial Planning Documents - 7 Watershed Management Plans - 69 Participatory Strategic Plans - 69 Municipal Risk Management Plans - 69 Local Sustainable Development Plans	
	Activity 3.2 Adjustment of regulatory, policy, planning and incentive instruments in support of proposed adaptation and mitigation measures					

Expected Result	Indicator	Means of Verification (MoV)	Baseline (all values to be verified at inception)	Target		Assumptions
				Mid-term	Final	
	3.2.a Number of regulatory, policy and planning instruments that are favorable for the adaptation and mitigation measures proposed ⁴⁶	Strengthened, updated or new instruments presented for approval by government	3 CC instruments available - CC Policy for Fisheries and Food. -National CC Strategy (MARN 2013) - National Plan for CC and Management of Agroclimatic Risks in the Agricultural, Forestry, Fisheries and Aquaculture Sector	Strengthened 6 instruments and 6 updated	CCA provisions strengthened (9) in: - National Environment Policy - Forest Policy - CC Policy for Fisheries and Food - National Fisheries and Aquaculture Policy - National CC Strategy (MARN 2013); - National Water Resources Strategy (MARN 2013); - National Environmental and CC Mitigation Strategy for the Agricultural, Forestry, Fisheries and Aquaculture Sector (MAG, 2015) - Ecosystem and Landscape Restoration and Reforestation Plan - National Plan for CC and Management of Agroclimatic Risks in the Agricultural, Forestry, Fisheries and Aquaculture Sector CC provisions updated (6) in: - Food Security and Nutrition Policy - National Biodiversity Strategy (MARN 2013) - National Environmental Sanitation Strategy (MARN 2013) - National Forestry Strategy (MAG 2006) - National Plan for Territorial Planning and Development - National Water Resource Plan. New Policy (2) for Climate Resilient Sustainable Agriculture created.	Constructive relations for collaboration between Government agencies, municipalities and social organizations to refine policy, regulatory and planning frameworks
	3.2b Numbers of officials of MARN, MAG and local government with guidelines and training on incorporating provisions in support of the proposed adaptation and mitigation measures into policies and plans".	Training records and surveys of officials	0	-MARN:21 -MAG: 59 -Local Governments: 570	-MARN:21 -MAG: 59 -Local Governments: 570	
Activity 3.3 Strengthening of capacities for information management in support of adaptation planning and scaling up						
	3.3.a Numbers of platforms meeting for the interchange of	Attendance at platform meetings	No platform exists	At least one platform exists and meets regularly	At least one platform exists and meets regularly	Continued policy

⁴⁶ Same as Indicator A5.1

Expected Result	Indicator	Means of Verification (MoV)	Baseline (all values to be verified at inception)	Target		Assumptions
				Mid-term	Final	
	experiences and lessons learned on adaptation measures, among Government, CSO and other actors					commitment to CC adaptation
	3.3.b Number of planning instruments of MAG, MARN, municipalities and CSOs that reflection of medium-term trends in climate change and their implications ⁴⁷	Review of planning instruments	Planning instruments of MAG and MARN are mostly based on current climatic conditions or short term forecasts.	0 (methodologies under preparation for the incorporation of information on CC forecasts into planning instruments).	Information on CC forecasts is taken into account in: - 6 national strategies - 11 national policies - 114 municipal development plans	

Activities	Description	Inputs	Description
Component 1: Improved resilience of livelihoods and production systems in family farms			
1.1 Promotion of climate-resilient family farming	In partnership with the "Agricultural Packages" programme of MAG, the project will promote flexible integrated packages of additional agricultural adaptation measures aimed at increasing the resilience of agricultural production to the effects of CC, focusing on addressing the issues of temperature increases, changes in monthly rainfall distribution and increases in the severity	1.1.1 Facilitation of participatory situation analysis and technology validation	Working through Farmer Field Schools (see activity 3.1) project technicians and community promoters will facilitate participatory process of situation and needs analysis in the target communities, exchange of experiences, as well as the design, establishment and management of participatory on-farm trials of adaptation measures which will run in parallel with the promotion of measures among the target farms as a whole.
		1.1.2 Provision of technical assistance for the application of agricultural resilience measures	Technical assistance will be provided to 50,000 farmers on the application of agricultural resilience measures. This will be provided by CENTA technicians (40 existing staff and a further 57 to be contracted specifically for the project) and community promoters, all of whom will receive prior training on climate change issues and adaptation measures, as well as on approaches and methodologies for facilitating participatory processes of needs analysis and technology validation (project investments in strengthening in-house human resources for technology transfer on adaptation are described in more detail under Activity 3.1).
		1.1.3 Facilitation of the formulation of farm plans	On the basis of the initial situation analyses and training, farmers will be oriented and accompanied in the preparation of farm plans, which will make provision for the spatial configuration of land uses and production systems across the farm unit in such a way as to maximize CC resilience, and for the sequencing of activities and investments in the medium term, incorporating CC adaptation measures.
		1.1.4 Provision of materials and equipment for the application of CC adaptation measures	Support will be provided to participating farmers in the form of the additional materials and equipment needed for the application of CC adaptation measures, in addition to the productive inputs they currently receive through the <i>Paquetes Agrícolas</i> . Based on farm-specific analyses of needs, this support will include seed of resilient crop varieties, fodder species and native or common naturalized trees, equipment such as hoes for the construction of terraces and spades or forks for bokashi production, and didactic materials such as flip charts for participatory analysis and planning exercises.
1.2 Improvement of water collection and management	The project will invest in the establishment of household rainwater collection and storage systems in order to ensure the availability of	1.2.1 Investment in the establishment of household rainwater collection, treatment and storage	Materials and equipment (plastic guttering, tubing, filters and storage tanks) will be donated to beneficiary families, who will locate and install them with the support of the community promoters. The systems will

⁴⁷ Same as Indicator A7.1

Activities	Description	Inputs	Description
	potable water despite the increasing intensity of drought periods and overall increases in temperature with corresponding effects on the water yield of springs,	systems Implement household systems	consist of materials and require tools that are easily available from local hardware stores in case of the need for maintenance and repair.
		1.2.2 Advisory and training support for families receiving rainwater collection systems	Beneficiary families will receive advice and training from community promoters and technicians on the design and siting of the rainwater collection and storage systems, and their maintenance, including the repair of breaks to fittings and pipes, avoidance and clearance of blockages.
1.3 Strengthen human and institutional capacities for sustainability and scaling up of adaptation strategies	The project will support the development and consolidation of lasting human and institutional capacities, in order support the continued and expanded application of adaptation measures beyond the project period and specific target area, with particular emphasis on capacities for adaptive management allowing producers and institutions to respond flexibly to evolving conditions and needs.	1.3.1. Development of capacities for innovation and adaptive management	Project technicians and community promoters will support the strengthening of existing Farmer Field Schools and the establishment of new FFS, in order to develop the roles of these as spaces for farmers to exchange experiences during and beyond the project, and to test out and as necessary adjust adaptation measures. Orientation will be provided to FFS members, and to the NGOs and producer organizations that work with them, on how to incorporate considerations of CC adaptation into the planning and operations of the FFS.
		1.3.2. Capacity building for CENTA personnel on adaptation issues and strategies.	In addition to working with CENTA technicians for the provision of extension support during the life of the project, the project will invest in the training of in-house CENTA technicians in order to develop their capacities to promote adaptation strategies beyond the life of the project, thereby contributing to sustainability and scaling up of impacts.
		1.3.3 Strengthen institutional capacities for the supply of genetic material for farm and landscape level adaptation strategies	The project will provide equipment support to the CENTA Germplasm Center and the DGOFCR-MAG Center for Forest Development, in order to strengthen their respective abilities to supply seed of resistant varieties of agricultural crops for on-farm agricultural resilience, and of native or naturalized tree species for use in on-farm agroforestry systems and off-farm restoration activities.
Component 2: Increased resilience of flows of environmental services at landscape level			
2.1 Restore vegetation cover in critical locations to promote hydrological services and increase carbon stocks	With the full participation of local community members and their organizations (such as municipalities, local water associations or <i>juntas de agua</i> , schools, environmental organizations, women's groups and NGOs), the project will support the restoration of degraded areas of vegetation in localities identified as being of critical importance for water protection and aquifer recharge.	2.1.1. Facilitation of plans and agreements to implement restoration of ecosystems/areas of particular importance for resilience in the intervention landscapes.	Project technicians will provide advisory and facilitation support to participatory community-based exercises, which will result in: <ul style="list-style-type: none"> - The identification of priority sites for restoration in order to optimize the resilience of ecosystem flows under conditions of climate change (critical areas for water protection and aquifer recharge); - Characterization of the selected localities in terms of the current status of the vegetation, needs for protection and restoration, and tenure status. - Norms and agreements, negotiated as appropriate with current owners, occupiers and users of the selected areas, regarding restoration options, permitted uses and activities, and responsibilities. - Definition of organizational arrangements and responsibilities for carrying out restoration, protection and maintenance work
		2.1.2 Procurement and supply of planting and nursery materials and equipment	Tree seed for use in restoration areas will either be obtained from the DGOFCR-MAG Center for Forest Development, or through local collection (in which case local people will be paid to collect the seed, under supervision by project technicians in order to ensure the quality of the source trees). Where tree nurseries of sufficient scale already exist within easy reach of the target areas for revegetation, planting material may be purchased ready for use; otherwise, the seed will be used to raise stock in community nurseries to be established with project support (see below), or in some cases for direct sowing. <p>Nursery materials will include polythene bags for the production of potted stock, watering cans or hoses, spades for mixing potting materials, and shade cloth together with supports.</p>
		2.1.3 Tree planting and assisted natural regeneration	The project will cover the costs of labor for site preparation (fencing and weeding, as necessary) and planting, and the transport of planting stock and materials to the restoration sites. Restoration activities will be carried out where possible by local community-based organizations, with

Activities	Description	Inputs	Description
			additional daily paid labourers as necessary. Further planting may be undertaken in subsequent years to replace losses due to mortality,
		2.1.4 Maintenance of restored areas	The project will cover the costs of labor for ongoing maintenance during the duration of the project, which will consist largely of manual weeding (no herbicides will be used due to the risk of contamination of water source), periodic clearance of firebreaks, and vigilance against fires, grazing, agricultural clearance or extraction. Restoration activities will be concentrated in the first years of the project, meaning that by the time project support for maintenance is withdrawn the trees will be sufficiently developed that their maintenance needs will be minimal.
		2.1.5 Planning for ongoing management, protection and maintenance	Towards the end of the project period, the project will facilitate further meetings with local community members and organizations in order to plan the long term management and protection of the restored areas, including the confirmation of norms on permitted activities and the corresponding assignment of responsibilities for protection and maintenance.
Component 3: Improved governance and information flow in support of sustainability and scaling up			
3.1 Strengthen local planning, governance and coordination in support of adaptation and restoration	Project support will be aimed at ensuring that adaptation measures with landscape-wide implications are harmonized with existing development priorities and spatial plans, and that these in turn make adequate provision for the implications of climate change; that multiple stakeholder interests are adequately provided for in adaptation proposals; and that adaptation measures are adequately supported by governance provisions at local level.	3.1.1 Train local project beneficiary organizations to participate in local planning and decision-making processes	Project technicians and service providers will provide training to selected organizations (ADESCOs, producers' associations, entrepreneurship groups, Community Civil Protection Committees, Municipal Civil Protection Committees) on the mainstreaming of CC adaptation considerations into their operations, and into decision-making, planning and capacity development actions in which they are involved. Emphasis will be placed on promoting inclusion (women, youth, and indigenous groups) in decision-making, economic empowerment and local planning to implement climate change mitigation and adaptation actions.
		3.1.2 Multi-stakeholder review and analysis of provisions of existing planning instruments as a framework for adaptive landscape management	Project technicians and service providers will support processes of mainstreaming CC provisions into landscape and development planning instruments, through inter-institutional work spaces and regional roundtables. Instruments to be reviewed and adjusted will include Territorial Planning Documents, Watershed Management Plans, Participatory Strategic Plans, Municipal Risk Management Plans, and Local Sustainable Development Plans.
		3.1.3 Promote local environmental governance structures for adaptation.	Project technicians and service providers will provide training and facilitation support to municipal environmental units, local development associations, water administration boards and local communities, resulting in agreements and negotiated norms on the governance of natural resources at landscape level, including the protection of aquifer recharge areas and the avoidance and control of fires.
3.2 Adjustment of regulatory, policy, planning and incentive instruments in support of proposed adaptation and mitigation measures	The mainstreaming of adaptation issues into regulatory, policy and planning frameworks at national level will be of key importance for achieving the intended national paradigm shift in relation to adaptation.	3.2.1 Facilitate inter-institutional analyses and discussions regarding needs and options for the modification of regulatory, policy and planning instruments	Project support will include: <ul style="list-style-type: none"> - Development of institutional agreements to establish political and legislative frameworks for CC mitigation and adaptation. - Development of an inventory of national plans that contribute to CC mitigation and adaptation. - Development of an inter-institutional operation plan to adjust public policies and regulatory frameworks to promote CC mitigation and adaptation for local territories. - Enabling of discussion spaces in the Legislative Assembly, at technical and institutional ministerial level and local/territorial levels for decision-making on laws related to CC adaptation.
		3.2.2 Develop specific proposals for modifications to regulatory, policy and planning instruments	On the basis of these analyses and discussions, project team members and/or contracted consultants will formulate specific proposals of modifications to the instruments, for further consideration and validation by the stakeholders and competent authorities in question. Subject to the results of the initial analyses and discussions, these are projected to include:

Activities	Description	Inputs	Description
			<ul style="list-style-type: none"> - Regulations for formulation of territorial land use plans, requiring these to consider the temporal and spatial dimensions and implications of CC,; - Strategic plans and priorities of the Agrarian Tenure Institute, to ensure that farmers with highest levels of CC vulnerability have the security of tenure, occupancy and use required for investment in adaptation measures; - Eligibility criteria for the lending portfolios of public and private financial institutions, to include measures specifically aimed at increasing CC resilience; - Provisions of Government incentive programmes such as the <i>Paquete Agrícola</i>, to ensure that these include specific provisions for adaptation measures and avoid supporting “maladaptive” measures.
		3.2.3 Develop guidelines and provide training for officials of MARN, MAG and local government to mainstream climate change in their policies and plans, with a focus on agriculture and forestry sectors.	In order to allow the sustainability and adaptability of the proposed mainstreaming, in support of the intended paradigm shift, project specialists and/or contract consultants and service providers will provide specific training and guidelines to policy makers and planners in MARN, MAG and local governments on how to mainstream climate change considerations into policy and planning instruments in the future. The guidelines will include criteria and checklists of CC provisions to be included in the instruments, and proposals of CC-related indicators to be included in monitoring and evaluation frameworks.
3.3 Strengthen capacities for information management in support of adaptation planning and scaling up	The strengthening of the flow and management of information on medium- and long-term projections of climate change, and on the range of alternative adaptation options that exist and their effectiveness, will result in improve targeting and cost-effectiveness of adaptation measures during and beyond the life of the project, improved sustainability of impacts, and increased national paradigm shift potential.	3.3.1. Strengthen systems for the management of climatic information in support of medium- and long-term planning for CC adaptation	The project will provide technical advisory support and training strengthen linkages to promote the effective flow of information, including medium and long-term forecasts, between institutions at regional and global levels (such as the IPCC and NOAA) and those in El Salvador, together with systems and capacities in national institutions for the interpretation of these data and their effective dissemination in support of planning and decision-making. MARN, through its National Institute for Terrestrial Studies (SNET) will play a central role as a clearing-house for these data and forecasts, and the project will invest in strengthening the capacities of SNET in this regard through the strengthening of existing information management systems, staff training, and the development of outreach capacities (including web portals facilitating on-line access by decision-makers to data and forecasts, policy briefs, and outreach seminars for the provision of technical and strategic guidance to decision-maker).
		3.3.2. Develop platform(s) for exchange of knowledge and lessons, and joint planning, among Government and CSO actors.	The project will also support the establishment of regional and national platforms for coordination and the sharing of experiences on climate change adaptation, bringing together the typically more technology-driven approaches of Government agencies and the typically more experience-driven approaches of the NGO and producer sectors, so that they learn from and enrich each other, developing operational synergies and minimizing the risk of duplication of contradiction.

H.2. Arrangements for Monitoring, Reporting and Evaluation

291. Project-level monitoring and evaluation will be undertaken in compliance with FAO policies. FAO will ensure the existence of a well-designed, operational and effective impact monitoring and measurement system to measure the causal and attributable change, the contribution and the overall causal results of the project. This will include an implementation of a monitoring system to understand efficacy, targeting and verifying the assumptions that the program is making as well as implementing a learning plan so elements emerging from the monitoring systems can feed back into the project implementation and planning components.

292. FAO will perform monitoring and reporting throughout the reporting period. FAO has a country presence and capacity to perform these tasks. FAO will implement tools and methods to facilitate monitoring of the project. The methods will support vertical monitoring, from the beneficiaries to management, and will facilitates comparative and standardized monitoring. The PMU will use the tools including workplans platform to monitor activities, and

develop reports to ESC that combining financial reporting and progress toward achieving results set out in the Performance Management Framework.

293. Within the monitoring system, the detailed articulation is contemplated between the Project workplan and the action plans for gender, indigenous people, biodiversity and the social and environmental framework to safeguard and ensure a comprehensive and holistic monitoring system.
294. The day-to-day project monitoring and implementation responsibility rests on a national recruited Coordinator that will lead the PMU. S/he will be supported by a monitoring and evaluation specialist, who will lead the PMU's Monitoring and Evaluation Unit. The M&E Specialist will coordinate the annual work plans to ensure the efficient implementation of the project. The Coordinator will inform the ESC and FAO Country Office of any delays or difficulties during implementation, including M&E plan, so that appropriate and corrective measures can be adopted. The National Coordinator will ensure that all project staff maintain a high level of transparency, responsibility and accountability in monitoring and reporting project results. FAO will support the National Coordinator as needed, including through annual monitoring missions. Additional M&E and implementation quality assurance and troubleshooting support will be provided by FAO as needed. The TSC, project beneficiaries and stakeholders will be involved as much as possible in project-level M&E.
295. A project inception workshop will be implemented in order to aid to: a) orient project stakeholders to the project strategy and discuss any change in the overall context that might influence implementation; b) discuss the roles and responsibilities of the project team and ESC, including reporting and communication lines; c) review the results framework and discussion, reporting, monitoring and evaluation roles and responsibilities, and to finalize the M&E plans; d) review financial reporting requirements; and e) planning and scheduling ESC meetings; and f) finalize the first year work plan. The final Inception Report will be approved by the ESC and FAO.
296. The National Coordinator and FAO will provide inputs to the Annual Report for each year of implementation. The National Coordinator and the M&E Specialist will ensure that the indicators in the results framework are monitored annually. The Annual Reports will be shared with the ESC and other stakeholders. The annual performance reports will be due to GCF 60 days after the end of calendar year. The final project annual report and the terminal evaluation report will serve as the final project report package.
297. Mid-term and final evaluations will be undertaken under the supervision of FAO Office of Evaluation (OED)⁴⁸. Specific evaluation designs will be conducted specifically for this project. The following consideration on M&E will be implemented: a) An interim evaluation report within three years from the start of the project implementation (first quarter of the fourth year), b) Project completion report within 3 months from the end of project implementation, and c) final independent evaluation report will be due within 6 months from the end of project implementation.
298. The following additional M&E actions will take place to ensure compliance with GCF evaluation requirements:

Methodologies for monitoring and reporting of the key outcomes of the project.

299. An overview of the methodologies for monitoring and reporting of the key outcomes of the project are briefly described below, and will be elaborated in a detailed Monitoring Plan that will be included as part of the Project Inception Report. The first activity will be to verify and update the baseline information included in this proposal (see Annex B Feasibility Study). Monitoring activities will be overseen by the PMU's M&E Specialist. Monitoring of impacts and results will be guided by the Logic Framework, which will be the basis for a Performance Management Framework. Monitoring of results will take place on a quarterly basis, with the TOUs providing input to the M&E Specialist.
300. Monitoring the progress toward expected outcomes will be supported through a series of studies to be undertaken in the third and fifth year of implementation, listed below:
- Outcome A5.0 / M5.0: Strengthened institutional and regulatory systems for climate-responsive and low-emission planning and development - institutional strengthening and territorial governance
 - Outcome A7.0: Strengthened adaptive capacity and reduced exposure to climate risks - improvement of livelihoods, water access, and food security and nutrition
 - Outcome M9.0: Improved management of land or forest areas contributing to emissions reductions - sustainable land use for carbon capture

⁴⁸ Please refer to FAO OED webpage for further details: <http://www.fao.org/about/who-we-are/departments/office-of-evaluation/en/>

301. Progress toward Outcome A5.0/M5.0 will be monitored by tracking the number of policies, plans and regulations to mainstream climate change that are developed and presented to national and territorial governments. The project has very little influence on the approval /passage of laws and regulations, which is a political process.
302. The farm plans will provide information for monitoring and reporting on Outcome A7.0. Monitoring of the implementation of farm plans of the beneficiary farmers (sex-disaggregated) will enable the tracking of uptake of climate resilient agricultural measures (and which measures). The farm plans will include clear and precise indicators for soil quality, water availability, production quality and quantity, number of trees planted, crop phenology, weather behavior, and the incidence of extreme climate events, such as droughts and floods, among others. TOU, CENTA and MARN technicians will gather this information once a month with the assistance of community extension agents. In-depth analysis in the third year of the project of the results of demonstration farms will enable tracking of food production, for the family's consumption and for market; increases or maintenance of crop yields during extreme weather events; improvements in land restoration and water catchments; uptake of rainwater harvesting activities, use of water purifying filters, improvements in water quality.
303. The methodologies to measure Outcome M9.0 will focus on measurement of the area of degraded land and the expected tCO₂-eq sequestered through activities of the project. GIS, such as aerial and satellite imagery, as well as specialized software programs to generate maps, will be used to measure forest areas and trees on farms. MARN's Environmental Observatory Unit will work with the MPU's Monitoring and Evaluation Unit, to show how the project has increased or decreased forest cover. FAO's EX-ACT tool will be used to determine the tCO₂-eq sequestered because of project activities. These measurements will be undertaken at the mid-point of the project (third year of implementation) and after Project is completed (sixth or seventh year after the start date of the project)
304. The independent Mid-Term Evaluation will be undertaken when delivery will reach 50% of the initial total budget or mid-point of CGF scheduled as mention before. The MTE will be instrumental for contributing through operational and strategic recommendations to improved implementation for the remaining period of the programme's life.
305. An independent final evaluation is recommended to be initiated within three months prior to the actual completion date (NTE date) of the GCF intervention to complain within 6 months from the end of project implementation delivery date. The evaluation will aim at identifying outcomes achieved, their sustainability and actual or potential impacts. It will also have the purpose of indicating future actions needed to assure continuity of the process developed through the project.
306. Also, the following considerations are to be considered as part of the M&E: a) On the first year of the project, during the implementation of the baseline study (during which the baseline values given in the results framework will be completed and validated), two groups will be defined: a) group of direct beneficiaries, and b) control group; to mark the initial situation of the direct beneficiaries. Subsequently, the monitoring system will be established to record the changes that will arise during the implementation of the project, b) the monitoring and evaluation will focus on the measurement of the results attributable to the project as a consequence of the implementation of measures and practices for adaptation to climate change. As well as, the impact on the harmonization of policies at territorial level, c) Based on farm plans and adaptation practices outside farms; the lines of action for monitoring and evaluation will be established to collect qualitative and quantitative information; and evaluate the effect of actions in the process of adaptation to climate change. In this process, the project will directly involve the beneficiary producers as key actors in the execution, monitoring and evaluation process, and d) The project will have monitoring and evaluation specialists who will be responsible for the preparation of the means of verification (surveys and analysis) and internal and external coordination (stakeholders). The project will be supported by the computer system developed and used by MAG that will complement FAO's tools and methods; for which, the project will support a process of updating and adapting through the creation of modules that will be necessary to respond to the dynamics of it. The results of the monitoring process will serve as a basis for the evaluation processes of the project and the decision making for the incidence in public policy.

I. Supporting Documents for Funding Proposal

- NDA Non-objection Letter
- Feasibility Study
- Integrated Financial Model that provides sensitivity analysis of critical elements
- Confirmation letter or letter of commitment for co-financing commitment
- Project/Programme Confirmation/Term Sheet (including cost/budget breakdown, disbursement schedule, etc.)
- Environmental and Social Impacts Assessment (ESIA) or Environmental and Social Management Plan
- Appraisal Report or Due Diligence Report with recommendations (If applicable)
- Evaluation Report of the baseline project (If applicable)
- Map indicating the location of the project/programme
- Timetable of project/programme implementation

List of Annexes can be found at the following link

https://unfao-my.sharepoint.com/:f/g/personal/sergio_hinojosaramos_fao_org/EiHOjr41WBJEnRBCC3XUzN4BTq8GiAYijHUPG5aw0M5j7Q?e=5%3AyeLWIB

Annex A	NDA No-objection letter	A.1 Previous No-Objection Letter (ES, EN) (30.07.17)
		A.2 Presentation FP from NDA Letter (ES) (08.02.18)
		A.3 No-Objection Letter (ES, EN) (07.02.18)
		A.4 Letter from the Government requesting FAO to act as EE (EN, ES) (08.02.18)
		A.5 Letter on cooperation with other entity
Annex B	Feasibility study	B.1 Feasibility study
		B.2 References used for the FS
Annex C	Integrated financial model	C.1 Economic and Financial Analysis
		C.2 Economic and Financial Analysis description
		C.3 Project Budget and Procurement
Annex D	Confirmation and commitment co-Financing Letters	D.1 Previous Confirmation and commitment co-Financing Letters
		D.2 FIAES Confirmation and commitment co-Financing Letter (ES, EN) (13.02.18)
		D.3 MAG Confirmation and commitment co-Financing Letter (ES, EN) (12.02.18)
		D.4 MARN Confirmation and commitment co-Financing Letter (ES, EN) (13.02.18)
		D.5 Detail of cofinancing FIAES_MARN_MAG
Annex E	Environmental and Social Management Framework	E.1 Environmental and Social Management Framework
		E.2 Gender Assessment and Action Plan
Annex F	Other Documents	F.1 RMT FAO GEF Report
		F.2 Document PREP
Annex G	Maps	G.1 Maps

* Please note that a funding proposal will be considered complete only upon receipt of all the applicable supporting documents.