Climate-Smart Agriculture in El Salvador

Climate-smart agriculture (CSA) considerations

(A)(P) Systems for **water capture, storage, and conservation**, as well as **efficient irrigation systems**, are essential responses to the increased frequency and intensity of drought and increasingly irregular rainfall patterns throughout the country.

(A)(P) El Salvador is developing a state-of-the-art climate information service, providing opportunities to develop **knowledge management and decision making capacity** among agricultural producers. Efficient communications, both through a **reinvigorated agricultural extension service** and via **electronic portals**, can play a key role in developing producers' capacities to respond to climate change challenges.

(A)(M) Adoption of **no-burn agricultural practices** by both small- and large-scale producers can make a key contribution to both adaptation and mitigation efforts.

(A)(M) The adoption of **semi-stabled cattle systems**, together with cut-and-carry pastures, is economically sensible and contributes to the resilience of upland agriculture to extreme weather events. The efficiency of these systems will help reduce methane emissions per unit of production.

(A)(M) **Agroforestry** is already well established in El Salvador's coffee sector and has the potential to expand into upland crop systems. Opportunities exist to enrich and improve shade coffee plantations and further develop the role of agroforestry systems in watershed protection, initiatives that would improve the likelihood of El Salvador's participation in **emissions trading schemes**.

(🏛) Existing **regional-scale landscape restoration** and disaster prevention initiatives under the National Ecosystem and Landscape Restoration Program (PREP) provide a promising institutional framework for scaling up CSA.

($) Increased spending on **agricultural research and development** by both the public and private sectors can generate significant benefits for farmers through development of drought- and pest-resistant crop varieties and new agricultural practices adapted to changing climate conditions.

(A) Adaptation　　**(M) Mitigation**　　**(P) Productivity**　　**(🏛) Institutions**　　**($) Finance**

The climate-smart agriculture (CSA) concept reflects an ambition to improve the integration of agriculture development and climate responsiveness. It aims to achieve food security and broader development goals under a changing climate and increasing food demand. CSA initiatives sustainably increase productivity, enhance resilience, and reduce/remove greenhouse gases (GHGs), and require planning to address tradeoffs and synergies between these three pillars: **productivity, adaptation,** and **mitigation** [1]. The priorities of different countries and stakeholders are reflected to achieve more efficient, effective, and equitable food systems that address challenges in environmental, social, and economic dimensions across productive landscapes. While the concept is new, and still evolving, many of the practices that make up CSA already exist worldwide and are used by farmers to cope with various production risks [2]. Mainstreaming CSA requires critical stocktaking of ongoing and promising practices for the future, and of institutional and financial enablers for CSA adoption. This country profile provides a snapshot of a developing baseline created to initiate discussion, both within countries and globally, about entry points for investing in CSA at scale.

WORLD BANK GROUP　　**CGIAR** RESEARCH PROGRAM ON Climate Change, Agriculture and Food Security　　**CCAFS**　　**CIAT**　　**CATIE** Solutions for environment and development / Soluciones para el ambiente y desarrollo

National context:
Key facts on agriculture and climate change

Economic relevance of agriculture

The status of agriculture in El Salvador is a reflection of the country's recent history. An agrarian reform program initiated in the late 1970s was never fully implemented, in part due to the disruption caused by the long civil war (1980–1992). Hence, the sector experienced two decades of relative neglect. Since 2009, however, the El Salvadoran government has given increased priority to agriculture and particularly to the subsistence family agriculture sector that accounts for more than 80% of farms in the country.

Agriculture currently accounts for 12% of the gross domestic product (GDP) and employs 21% of the economically active population [3]. The agricultural GDP in recent years (2009–2013) has remained relatively stable [3]. Agriculture contributes 9% and 8% to the total value of the country's exports and imports, respectively (2008–2012) [7]. A large proportion of agricultural production is of "basic grains" (maize, sorghum, and beans) for domestic consumption. Principal agricultural exports are coffee and sugarcane products [7, 8].[1]

El Salvador imports large quantities of fresh (mainly maize, meat, fish, milk, and dairy products) and processed foods, accounting for 17% of the total value of imports in the last five years [9].

Economic Relevance of Agriculture [4]

12%
of total GDP
from agriculture [4]

Total agricultural
imports [4]
US$1,427 million
11% Maize
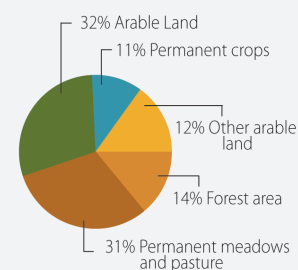**5%** Wheat
5% Oil palm
4% Beef
3% Rice

Total agricultural
exports [4]
US$838 million
32% Coffee (green)
16% Sugar (raw, refined, and confectionery)
4% Maize (flour)
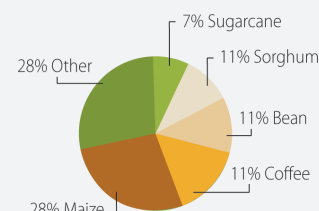**1%** Bean
1% Chicken (meat)

People and Agriculture

5.7 million
people are living in
El Salvador [3]

37% of the population
is living in rural areas [3]

Shared Prosperity [4]

2.6 million (45%)
live on less than US$4/day

52% are in rural
areas

Jobs [3]

0.35 million people actively
employed in primary
production agriculture

Scale [5, 6]
94%
Small-scale
farmers <3.5 ha

6%
Medium- and large-scale
farmers >3.5 ha

21%

90% 10% [3]

Nutrition [4]
The prevalence of people
undernourished is **12%**

Land Use [4, 7]
% of total land area

32% Arable Land
11% Permanent crops
12% Other arable land
14% Forest area
31% Permanent meadows and pasture

Main Crops [7]
% of total harvested area

7% Sugarcane
11% Sorghum
11% Bean
11% Coffee
28% Maize
28% Other

Land use

El Salvador is one of the most deforested countries in Latin America: only 5% of its original forest cover remains [10]. Shade coffee plantations substitute for natural forest cover as providers of ecological services (such as watershed protection) in many upland areas. The country is dominated by cultivated land (33%) – much of it on land unsuitable for agriculture – and pastures (31%). Forest cover accounts for 14% of total land area, with permanent crops, mainly coffee, accounting for a further 11% [7]. As for agricultural land, 85% of farms are less than 2 ha in size and are utilized for subsistence production of basic grains [11].[2]

Agricultural production systems

Coastal zones are mainly dedicated to production of sugarcane, sorghum, and maize. Upland areas are characterized by extensive coffee plantations or used

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1 See Annex II.

2 See Annex III.

for livestock and basic grain production on small family farms [11]. Co-operatives established in the agrarian reform process are also located in upland areas.
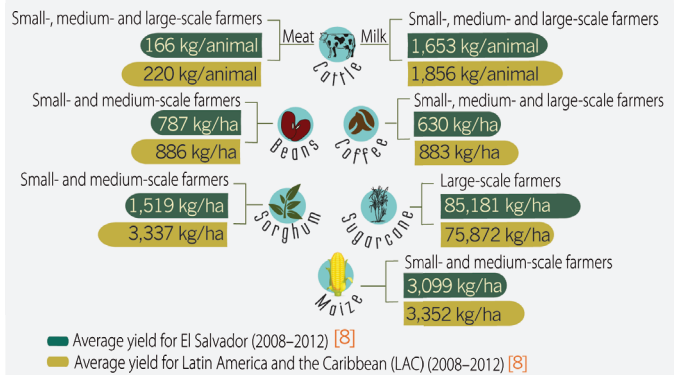
At the end of 2012, El Salvador's Ministry of Agriculture and Livestock (MAG) reported the worst outbreak of coffee rust (a fungal disease linked to climate change among other factors) in the last 50 years, generating a 21% decrease in production for this period [12]. The coffee sector remains in a state of crisis, with at least 40% of coffee crops infected [13].

Both sugar production and the small-scale farm sector currently give rise to severe negative environmental impacts, including destruction of critical habitats, such as riparian forest and mangroves and soil degradation, as a result of unsuitable cultivation practices, burning, and overuse of agrochemicals.
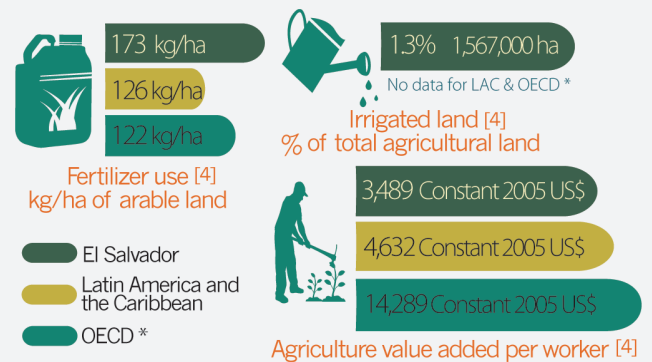
Agricultural greenhouse gas emissions

The main sectors contributing to GHG emissions in 2005 were energy (41%), land-use change (23%), and agriculture (22%). Methane emissions are derived mainly from livestock (10.4% of national GHG emissions, 48.4% of emissions from agriculture), while nitrous oxide emissions result from the use of nitrogen fertilizers (10% of national GHG emissions, 46.2% of emissions from agriculture). Minor sources of emissions from agriculture include burning of agricultural residues and savannas (2.7 and 0.4%, respectively), manure management (2.2%) and rice production (0.1%) [14].

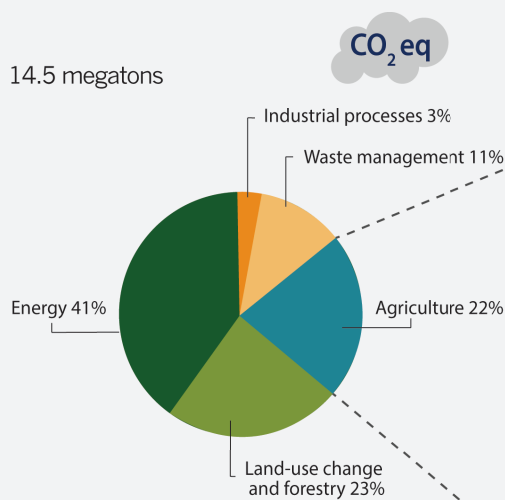### Important Agricultural Production Systems

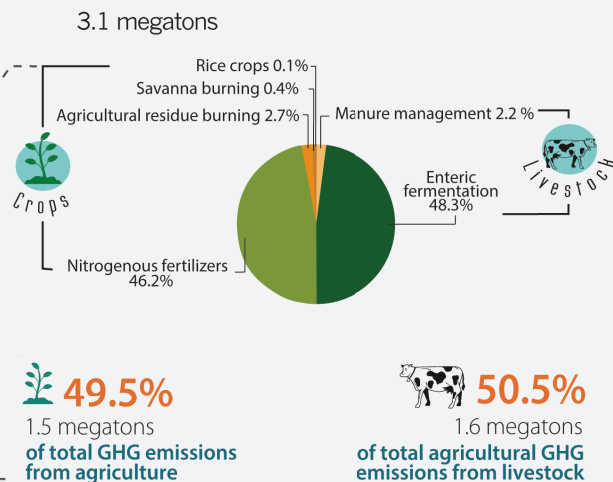Small-, medium- and large-scale farmers
Meat 166 kg/animal / 220 kg/animal
Milk 1,653 kg/animal / 1,856 kg/animal
Cattle

Small- and medium-scale farmers
Beans 787 kg/ha / 886 kg/ha

Small-, medium- and large-scale farmers
Coffee 630 kg/ha / 883 kg/ha

Small- and medium-scale farmers
Sorghum 1,519 kg/ha / 3,337 kg/ha

Large-scale farmers
Sugarcane 85,181 kg/ha / 75,872 kg/ha

Small- and medium-scale farmers
Maize 3,099 kg/ha / 3,352 kg/ha

Average yield for El Salvador (2008–2012) [8]
Average yield for Latin America and the Caribbean (LAC) (2008–2012) [8]

Productivity Indicators

Fertilizer use [4] kg/ha of arable land
173 kg/ha
126 kg/ha
122 kg/ha

Irrigated land [4] % of total agricultural land
1.3%   1,567,000 ha
No data for LAC & OECD *

Agriculture value added per worker [4]
3,489 Constant 2005 US$
4,632 Constant 2005 US$
14,289 Constant 2005 US$

El Salvador
Latin America and the Caribbean
OECD *

* Organization for Economic Co-operation and Development

GHG Emissions [14]

CO₂ eq

14.5 megatons

Industrial processes 3%
Waste management 11%
Energy 41%
Agriculture 22%
Land-use change and forestry 23%

Agriculture GHG Emissions [14]

3.1 megatons

Rice crops 0.1%
Savanna burning 0.4%
Agricultural residue burning 2.7%
Manure management 2.2 %
Enteric fermentation 48.3%
Nitrogenous fertilizers 46.2%

Crops

Livestock

49.5%
1.5 megatons
of total GHG emissions from agriculture

50.5%
1.6 megatons
of total agricultural GHG emissions from livestock

Challenges for the agricultural sector

El Salvador's most ecologically beneficial production system, shade coffee, is in a situation of profound crisis due to the spread of diseases. Two other principal production systems, sugar and basic grains, require major transitions towards sustainable production techniques to make them ecologically viable in the long term.

Family farms make a vital contribution to food security but are only economically viable with the support of donations of seeds and fertilizers every year under the scheme known as the "paquete agrícola," (agricultural package) administered by the MAG.

A major constraint on innovation in the agricultural sector is the lack of a dedicated state-funded research institute. For small farmers, this deficiency is compounded by resource and manpower shortages affecting the MAG extension service, the National Centre for Agricultural and Forestry Technology (CENTA).
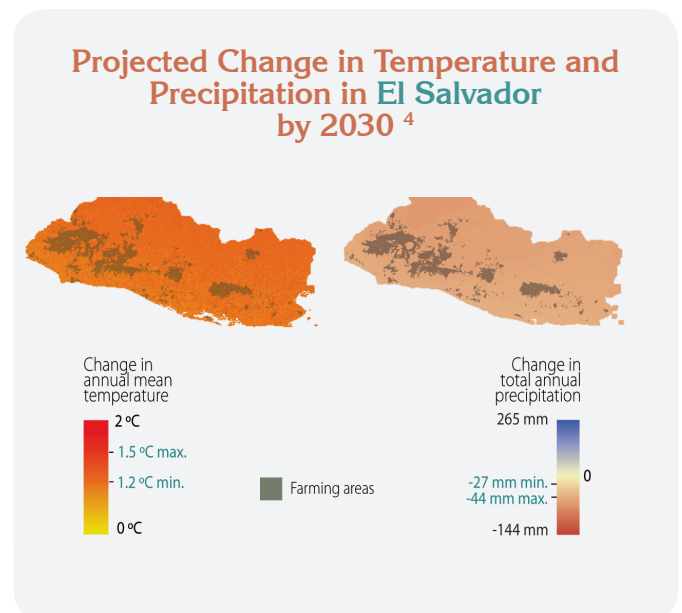
Agriculture and climate change

El Salvador lies within the Central America Dry Corridor, meaning rainfall is frequently scarce over large parts of the interior of the country. The risk of drought is higher during El Niño years. Rainfall, when it occurs, is often very intense, causing floods in coastal areas and landslides in mountainous areas.

In the past six decades, the average annual temperature in the country rose more than 1.3 °C [15]. This trend is likely one reason for markedly reduced river flows over much of the country in recent years compared to historical averages. Moreover, the country is located on the path of tropical cyclones originating in both the Atlantic and Pacific oceans. Cyclones have increased in both frequency and intensity over recent years, with new cyclones regularly breaking records for intensity and rainfall volume set by previous storms.

The effects of climate change are highly heterogeneous over the country, with some areas suffering from drought and others from excessive rainfall in the same year. These complex, multi-faceted threats are reflected in El Salvador's ranking as the world's most at-risk country from climate change in 2009 and fourth most vulnerable in 2011, according to the Climate Change Vulnerability Index (CCVI) [15]. Of particular concern for agriculture

are the increasingly erratic and unpredictable patterns of seasonal rainfall and increasing temperature [15].[3]

El Salvador faces a high and immediate risk from climate change affecting all upland areas, and the coffee sector in particular, as well as flood-prone coastal areas. Some current agricultural practices have severe negative environmental impacts, which have the potential to exacerbate climate change impacts on the non-agricultural sector. The widespread adoption of CSA practices by all sectors will be a key element in a successful response to these multi-faceted challenges.

Projected Change in Temperature and Precipitation in El Salvador by 2030 [4]

Change in annual mean temperature

2 °C
1.5 °C max.
1.2 °C min.
0 °C

Farming areas

Change in total annual precipitation

265 mm
-27 mm min.
-44 mm max.
0
-144 mm

CSA technologies and practices

CSA technologies and practices present opportunities for addressing climate change challenges, as well as for economic growth and development of agriculture sectors. For this profile, practices are considered CSA if they maintain or achieve increases in productivity as well as at least one of the other objectives of CSA (adaptation and/or mitigation). Hundreds of technologies and approaches around the world fall under the heading of CSA [2].

In El Salvador, as in other parts of Central America, traditional farming systems incorporate a variety of techniques that are now recognized to be "climate smart". The National Biodiversity Strategy [19] highlights the most important of these practices: "milpa" farming in upland areas, which is based on associated planting of a wide range

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3 See Annex IV.
4 Projections based on RCP 4.5 emissions scenario [16] and downscaled using the Delta Method [17].

of crops; intercropping, which ensures efficient use of water resources, contributes to biological pest control, and protects soils against erosion; and integrated sugar production systems using plant residues for cattle feed. As noted above, traditional shade coffee systems continue to make an important contribution to watershed protection.

However, many of these traditional practices are no longer widespread. While traditional shade coffee systems have survived, diversified "milpa" farming has given rise to monoculture of basic grains. Burning is widely practiced to manage pastures and clear the land of plant residues, especially on the intensive sugar plantations that account for the majority of the country's production area.

In response to these trends, current government policy recognizes agriculture's dependence on biodiversity, in contrast with "green revolution" technologies that eventually reach thresholds of effectiveness and sustainability (National Biodiversity Strategy, p 4) [19].

As a result, government and non-government agencies are currently promoting a range of CSA practices for soil and water conservation, including no-burn agriculture and the reintroduction of intercropping, agroforestry, and semi-stabled cattle rearing. Specific adaptation measures include switching crop varieties, installing irrigation and water capture systems, and utilizing improved climate information systems (see Case Study inset). These are linked to landscape-scale initiatives under the PREP.

Case Study:

The Meteorological Observatory

The Meteorological Observatory, a Directorate of the Ministry of Environment and Natural Resources (MARN), is a natural hazards observation and information service that plays a key role in the strategic objectives of risk reduction and disaster preparedness. It is also expected to make an important contribution to knowledge-smart agriculture in the face of an increasingly uncertain climate.

In response to the increasing frequency and severity of extreme weather events, MARN has invested considerable resources in building climate monitoring capacity. The number of weather stations across the country was increased from 34 in 2009 to 102 in 2013. These stations are complemented by eight weather radar facilities providing real-time information on precipitation and a network of 600 local observers linked to 100 remote monitoring stations in provincial municipalities.

Information, including long- and medium-term forecasts and El Niño updates, is disseminated in bulletins, on the observatory's open access website (http://www.snet.gob.sv), by text messaging, and is also passed on to agricultural extension workers in the field.

The system is already demonstrating its potential to provide farmers with the information they need to plan their work and prepare for extreme weather events.

The planned inclusion of soil moisture measurements should further enhance this capacity. At the same time, analysis of past climatic trends is providing insights into the complex spatiotemporal trends of climate change over the national territory. Policy makers value these inputs for assessing the need for adaptation and prevention measures in areas at risk of drought and/or flood, for example. In the agricultural sector, detailed information on temperature and precipitation trends across the country can inform decisions on crop substitution and irrigation requirements.

San Salvador, November 29, 2011. The then Vice Minister of Environment, Lina Pohl, current Minister, during the workshop of Local Observers Network. © MARN

Selected Practices for each Production System with high Climate Smartness
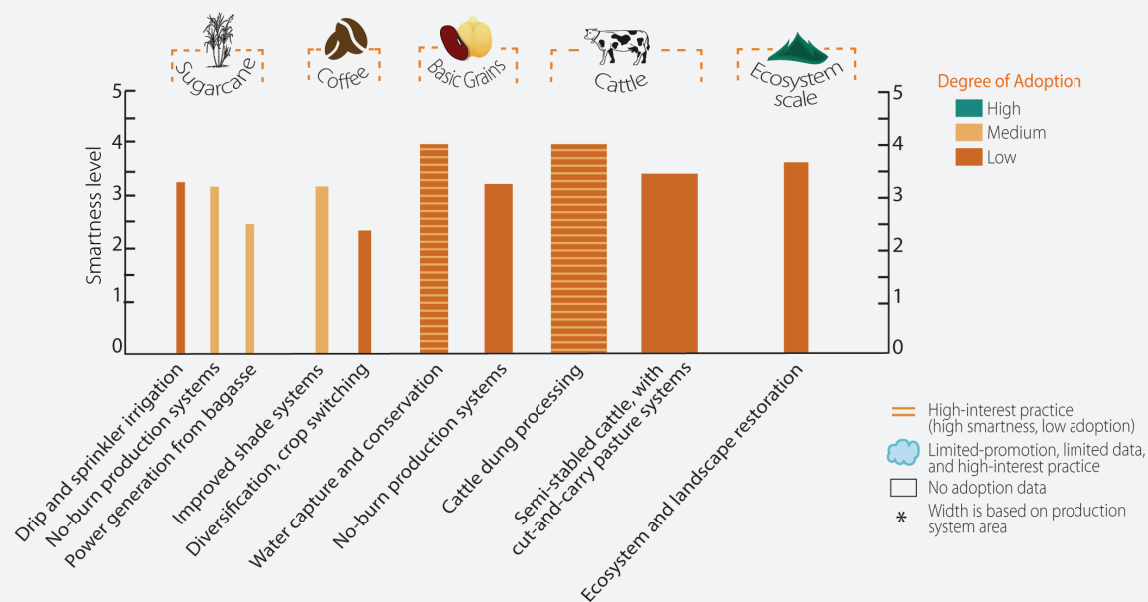
This graph displays the smartest CSA practices for each of the key production systems in El Salvador. Both ongoing and potentially applicable practices are displayed, and practices of high interest for further investigation or scaling out are visualized. Climate smartness is ranked from 1 (very low positive impact) to 5 (very high positive impact).

Table 1. Detailed smartness assessment for top ongoing CSA practices by production system as implemented in El Salvador.[5]

The assessment of a practice's climate smartness uses the average of the rankings for each of six smartness categories: weather; water; carbon; nitrogen; energy; and knowledge. Categories emphasize the integrated components related to achieving increased adaptation, mitigation, and productivity.

	CSA Practice	Climate Smartness	Adaptation	Mitigation	Productivity
Ecosystem scale At least 15% harvested area	Ecosystem and landscape restoration ■ Low adoption (<30%)	3,7	Resilience of socio-ecological systems to natural disasters.	Maintenance or increase of tree cover, soil carbon conservation.	Sustainable land use at a landscape level, reduced economic damage following extreme weather events.
Sugarcane 7% harvested area	Drip and sprinkler irrigation ■ Low adoption (<30%)	3,3	Resilience to drought, efficient use of irrigation water.	Indirect reduction in emissions by using water-efficient irrigation systems.	Increased production, but needs careful management to maintain quality.
	No-burn production systems ■ Medium adoption (30–60%)	3,2	Improved ecosystem and human health, resilience to climate extremes.	Reduced CO_2 emissions.	No direct economic benefits.
	Power generation from bagasse burning ■ Medium adoption (30–60%)	2,5	Reduced reliance on hydroelectricity at the national level.	Renewable energy source.	Sale of electricity.

5 See Annex V

	CSA Practice	Climate Smartness	Adaptation	Mitigation	Productivity
Coffee 15% harvested area	Improved shade systems ▪ Medium adoption (30–60%)	3,2	Selection and maintenance of shade species improves resilience to drought, climatic variability and disease.	Tree cover maintained or increased, incorporation of nitrogen fixing species.	Improved quality and quantity of yields(requirement for certification).
	Diversification, crop switching ▪ Low adoption (<30%)	2,3	Alternatives to coffee in areas affected by rising temperatures and spread of disease.	Maintained productive tree cover in areas no longer suitable for coffee.	New sources of income from production of cocoa and fruits.
Basic grains 40% harvested area	No-burn production systems ▪ Low adoption (<30%)	3,2	Protection of soils against climate extremes.	Conservation of soil carbon, reduced emissions from burning.	Sustainable land use.
	Water capture and conservation ▪ Low adoption (<30%)	4,0	Increased resilience to drought.	Water capture and conservation can reduce carbon footprint related to extraction, treatment and transport of water from external sources.	Increased production, continuity of production, potential for new crops.
Cattle 31% land-use area	Cattle dung processing ▪ Low adoption (<30%)	4,0	Improved hygiene contributes to control of pests and diseases.	Reduced methane emissions, reduced application of nitrogen-based fertilizers.	Compost and fuel byproducts.
	Semi-stabled cattle, with cut-and-carry pasture systems ▪ Low adoption (<30%)	3,5	Increased resilience to drought and rising cost of cattle feed.	Soil conservation (maintaining carbon stock) through reduced grazing on steep slopes and possible erosion processes.	Reduced expenditure on feed and food supplements.

Water smart   Energy smart
CO_2 Carbon smart   Weather smart
N_2O Nitrogen smart   Knowledge smart
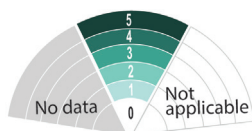
Calculations based on qualitative ranking, where positive change was noted as 5=very high; 4=high; 3=moderate; 2=low; 1=very low; 0=no change; N/A=not applicable, and N/D=no data. Additional analysis – where no change, not applicable, and no data are all treated at 0 – and an alternative list of high-interest practices are available in supplemental materials.

Institutions and policies for CSA

El Salvador has been formally engaged in international policies on climate change since the ratification of the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto protocol in 1995 and 1998 respectively. It has presented two UNFCCC national communications, in 2000 and 2013.

The dramatic increase in the frequency and severity of extreme weather events in El Salvador over the past decade provides the context for the country's response to climate change. Its overarching focus has become risk reduction (i.e., disaster prevention), as opposed to adaptation, to progressive climate change.

Specific adaptation measures in the country are almost always embedded in wider, multi-sectoral environmental conservation programs. Moreover, mitigation is envisaged as a corollary benefit of adaptation measures, i.e., the emphasis is on adaptation-based mitigation. The overarching National Environment Strategy (2014) consists of strategy documents for the following four thematic areas:

- Climate change
- Biodiversity
- Water resources
- Environmental health

The National Climate Change Strategy envisages a highly integrated approach encompassing three focal areas: risk management, mitigation, and adaptation (see figure). Agriculture is embedded in the adaptation focal area, alongside water resources, infrastructure, health, and ecosystem restoration.

Agriculture also has a central place in the National Biodiversity Strategy, which focuses on agrobiodiversity in recognition of the scarcity of natural ecosystems in the country.

Sectoral policy for agriculture is set out in two key documents published by the MAG. The Family Agriculture Plan (PAF) (2011) incorporates a series of measures to support production and marketing by small-scale producers. The Climate Change Adaptation and Mitigation Strategy for Agriculture, Forestry and Fisheries (2012) is intended to complement the PAF by ensuring the environmental sustainability of family agriculture, in the context of the country's vulnerability to climate change.

Key strategies related to CSA are: the National Environment Policy (2012) that establishes climate change as one of the pillars of the policy, the National Climate Change Strategy (2013), and the Environmental Strategy for Mitigation and Adaptation to Climate Change in the Agricultural, Forestry and Aquaculture sector (2012).

At the regional level, El Salvador, along with other Central American countries, is a signatory to a "Regional Agreement on Climate Change." This agreement has given rise to a number of policy documents, including the 2010 "Regional Climate Change Strategy."

Key national institutions for CSA are shown in the diagram, along with their principal areas of interest among the three CSA pillars: production, mitigation, and adaptation (the latter including risk reduction).

The key government agencies for CSA are the Ministries of Agriculture and Livestock (MAG) and the Environment and Natural Resources (MARN). Until recently, these agencies frequently held opposing views on agriculture, with MAG considering the MARN's

Primary Focus of Institutions Engaged in CSA
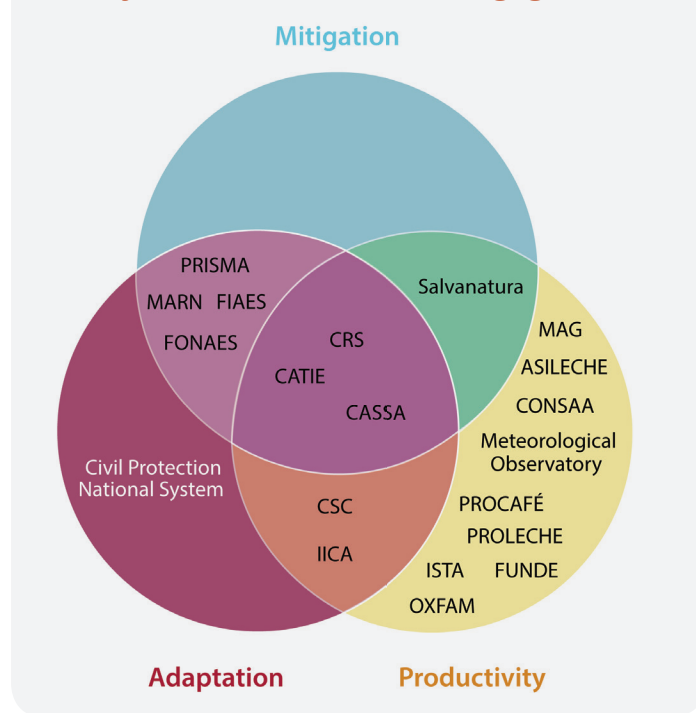
emphasis on environmental sustainability as a threat to the achievement of production goals and vice versa.

Although the work of these two agencies is now fully integrated at a policy level, in practice, some of these tensions persist among different agencies within MAG. Some are more closely aligned to the new integrated strategies, while others, such as the extension agency CENTA, continue to focus more exclusively on productivity objectives. In particular, the "paquete agrícola" (agricultural package) administered by CENTA that provides free seeds and fertilizers to family farms is criticized by environmental agencies as supporting environmentally unsustainable agricultural practices.

However, growing practical collaboration between the two agencies is evidenced by the role of MARN's Meteorological Observatory in supporting the agricultural sector, and in regional pilot projects underway as part of the ecosystem restoration program PREP.

At the local level, associations of local authorities known as "Socio-Economic Micro-Regions" (MES) play an important role in coordinating PREP and other multi-sectoral initiatives that respond to climate change.

Another key public agency for CSA is the El Salvador Environmental Fund (FONAES), a mechanism for financing adaptation and mitigation initiatives undertaken by NGOs, local governments, and the private sector.

A weakness within the public sector is the lack of a government agricultural research agency in El Salvador, which hampers efforts to develop drought- and pest-resistant crop varieties or new techniques adapted to changing climate conditions.

Producers associations include autonomous public agencies representing coffee (e.g., the Salvadoran Coffee Council [CSC]) and sugar producers (e.g., the Salvadoran Sugar Agro-Industry Council [CONSAA]) as well as private associations representing the livestock sector (Salvadoran Dairy and Cattle Industry Association [ASILECHE], Dairy Producers Association [PROLECHE]). These groups provide coordination and support for production, marketing, research, and adaptation actions. Improved environmental practices now being adopted by the sugar sector also contribute to mitigation objectives.

The NGO sector is active in El Salvador, and a number of local and international NGOs with offices in El Salvador provide support for CSA. These include Catholic Relief Services (CRS), Salvanatura, and the Foundation for Socio-economic Development and Environmental Restoration (FUNDESYRAM). Projects support production by family farms in combination with adaptation and/or mitigation actions.

A number of international initiatives and agencies make a significant contribution to CSA in El Salvador. Multilateral agencies, such as the World Bank and the United Nations Development Programme (UNDP), maintain offices in El Salvador, and play an important role in supporting policy development and channeling finance for CSA-related initiatives.

El Salvador is a member of organizations responsible for coordinating regional responses to climate change policy, such as the Central American Commission for Environment and Development (CCAD).
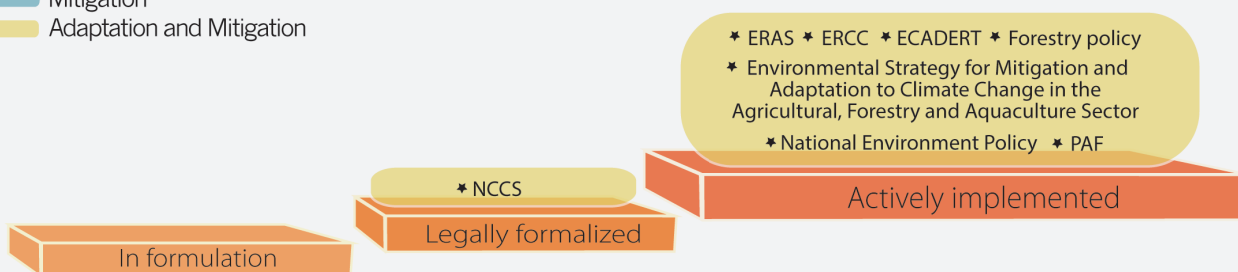
The intergovernmental agency Inter-American Institute for Cooperation on Agriculture (IICA) is active in El Salvador and is principally involved in supporting production through its participation in the PAF.

International research programs at the International Center for Tropical Agriculture (CIAT) and the Tropical Agricultural Research and Higher Education Center (CATIE) coordinate a number of regional studies that contribute to defining CSA options for El Salvador.

Enabling Policy Environment for CSA

Policies listed are related to enhancing **agricultural productivity** and:

- Adaptation
- Mitigation
- Adaptation and Mitigation

* ERAS * ERCC * ECADERT * Forestry policy
* Environmental Strategy for Mitigation and Adaptation to Climate Change in the Agricultural, Forestry and Aquaculture Sector
* National Environment Policy * PAF

Actively implemented

* NCCS

Legally formalized

In formulation

ECADERT Centro American Strategy for Rural Development **ERAS** Regional Agro-environmental and Health Strategy **ERCC** Regional Strategy on Climate Change **NCCS** National Climate Change Strategy **PAF** Family Agriculture Plan

Financing CSA

National finance

National environmental compensation and incentive mechanisms are still at an early stage of development in El Salvador. Nevertheless, a new initiative announced by MARN in June 2014 will set up an environmental compensation fund to be managed by the Fund for the Americas Initiative-El Salvador (FIAES).

State support for family agriculture is typically channeled through the PAF, particularly in the form of the "paquete agrícola," which in its current form does not contribute to CSA objectives.

CSA initiatives by large producers, particularly in the livestock and industrial sugar sectors, are largely self-financed. The principal incentives for CSA are the need to comply with increasingly stringent environmental legislation, pressure

from civil society, and consumer demand for products that are healthy and do not damage the environment.

International finance

El Salvador has access to extensive finance from international multilateral, bilateral, and private sector cooperation agencies. Finance for climate-change-related activities over the past ten years has focused on post-disaster reconstruction, risk reduction initiatives, and policy making. Key sources of finance for these initiatives have included the Special Climate Change Fund (SCCF) of the United Nations Framework Convention on Climate Change (UNFCCC), Global Facility for Disaster Reduction and Recovery (GFDRR), the German Development Bank (KfW), the Japan International Cooperation Agency (JICA), and the Bill and Melinda Gates Foundation (BMGF).

Ongoing climate-change-related activities are financed under agreements with the United Nations Environment Programme (UNEP), SCCF, the Least Developed Countries Fund (LCDF), and the UN's Adaptation Fund.

El Salvador has been allocated a total of US$4 million from Global Environment Facility GEF-5 funding under the focal areas of biodiversity protection, land degradation, and climate change mitigation and adaptation.

Direct financial aid for agriculture is mainly for the family farm sector and includes support for food security, access to markets, certification, and microfinance. Important donors include the UN's International Fund for Agricultural Development (IFAD), the Inter-American Development Bank (IDB), the European Union (EU), and the United States Agency for International Development (USAID). The agricultural sector also benefits from finance provided for wider infrastructure, economic development, and environmental initiatives.

CSA is rarely if ever mentioned explicitly in the descriptions of funded projects. However, a number of projects underway in El Salvador do in fact contribute to CSA, with financing from the World Bank, GEF, and the Austrian government development agency (HORIZONT3000), among others.

CSA is also incorporated as a component of wider landscape restoration programs. The most important of these to date, PREP, is funded by the French Global Environment Facility (FFEM).

El Salvador also participates in several important regional projects that support the identification and development of CSA practices for the coffee, sugarcane, and basic grains sectors. Donor agencies include GEF/UNDP, the Ford Foundation, the public-private Sustainable Agriculture Initiative (SAI) Platform, and the Norwegian Agency for Development Cooperation (NORAD).

Funds for Agriculture and Climate Change

AECID Spanish Agency for International Cooperation **AF** Adaptation Fund **BMGF** Bill & Melinda Gates Foundation **CDKN** Climate and Development Knowledge Network **CDM** Clean Development Mechanism **CENTA** National Center for Agricultural and Forestry Technology **CIAT** International Center for Tropical Agriculture **CIF** Climate Investment Funds **FAO** Food and Agriculture Organization of the United Nations **FCPF** Forest Carbon Partnership Facility **FFEM** French Global Environment Facility **FORD** FOUNDATION **GEF** Global Environment Facility **GFDRR** Global Facility for Disaster Reduction and Recovery **GIZ** German Agency for International Cooperation **Keurig Green Mountain** Coffee Roasters **HORIZONT3000** Austrian Organization for Development Co-operation **ICF** UK´s International Climate Fund **IFAD** International Fund for Agricultural Development **IKI** German International Climate Initiative **IFC** International Finance Corporation **IDB-MIF** Inter-American Development Bank - Multilateral Investment Fund **JICA** Japan International Cooperation Agency **KfW** German Development Bank **MAG** Ministry of Agriculture **MARN** Ministry of Environment and Natural Resources **NICFI-NORAD** Norway's International Climate and Forest Initiative **NORAD** Norwegian Agency for Development Cooperation **OXFAM** Oxford Committee for Famine Relief **SIDA** Swedish International Development Cooperation Agency **SAIP** Sustainable Agriculture Initiative Platform **UNDP** United Nations Development Programme **UNEP** United Nations Environment Programme **UN-REDD** United Nations Programme for Reducing Emissions from Deforestation and Forest Degradation **USAID** U.S. Agency for International Development

CENTA ·
Development Bank of El Salvador ·
MAG · MARN · NGOs ·

NGOs

National Funds

AFD · BMGF · CDKN · CDM · CIAT · FAO · FCPF · FFEM · SAIP · GFDRR · GIZ · HORIZONT3000 · IFAD · IKI · Keurig Green Mountain · FORD · GEF · IFC · IDB-MIF · KfW · NORAD · OXFAM · SIDA · UNDP * UNEP * USAID

AECID · AF · CIF · GCF · ICF · NICFI-Norad · UN-REDD ·

International Funds

* Accessed Funds   * Financing opportunities

Product certification (for example, by the Rainforest Alliance) plays an important role in facilitating CSA by providing financial incentives, especially for coffee producers, to adopt environmentally sustainable practices.

El Salvador also promotes CSA through its participation in the international carbon trading market. The nine projects currently registered under the Clean Development Mechanism (CDM) include one for the sale of emissions reductions resulting from the cogeneration of power from sugar waste products. A further voluntary over-the-counter (OVC) emissions trading scheme provides compensation for "avoided deforestation in coffee forest," administered by the Development Bank of El Salvador (BANDESAL).

Potential finance

Small-scale agriculture currently depends heavily on government support. However, at present the nature of this support does not incentivize the adoption of CSA practices. Thus, the principal opportunity to increase finance for CSA would be to redesign the "paquetes agrícolas" so that they incorporate such incentives.

Payments for environmental services (PES) are not favored by the current government as they are seen as "commoditizing" environmental protection. However, there is considerable potential for financing agricultural activities that promote conservation through the development and expansion of incipient environmental compensation funds.

Measures to reform government support programs for the small-farm sector would probably facilitate access to additional international funding, for example, from IFAD's Adaptation for Smallholder Agriculture Program (ASAP) and the UNFCCC Adaptation Fund.

There is also potential to enlist the support of agencies currently financing other, non-agricultural development initiatives in El Salvador. These include the Spanish Agency for International Development Cooperation (AECID), whose main focus in El Salvador is currently human rights and prevention of violence; the UNFCCC's Special Climate Fund that finances ongoing projects in El Salvador but none at present related to CSA; and the IDB, which has not approved any projects for agriculture since 2007.

Outlook

El Salvador is one of the world's most at-risk countries from climate change. The country's most ecologically beneficial production system, shade coffee, is seriously threatened by rising temperature and the spread of disease. Other principal production systems, such as sugar, basic grains, and small-scale livestock, currently make use of practices that damage the environment. In response to these multiple challenges, the Salvadoran government has made good progress towards defining an appropriate policy framework, focusing on integrated risk management and adaptation-based mitigation, and bringing key state and non-state actors on board. Scaling-up CSA will involve not only the promotion of specific practices but also the development of decision-making capacity among the nation's farmers through measures, such as enhanced provision of climate information, reinvigoration of the CENTA extension service; and increased investment in research and development. At the same time, there is considerable potential for financing CSA activities through the development and expansion of incipient environmental compensation funds, and through increased participation in emissions trading schemes and other international financing mechanisms.

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For further information and online versions of the Annexes, visit http://dapa.ciat.cgiar.org/CSA-profiles/

Annex I: Acronyms

Annex II: Agriculture and foreign trade in El Salvador

Annex III: Land use in El Salvador

Annex IV: Climate change predictions in El Salvador

Annex V: CSA practices in El Salvador: a detailed list