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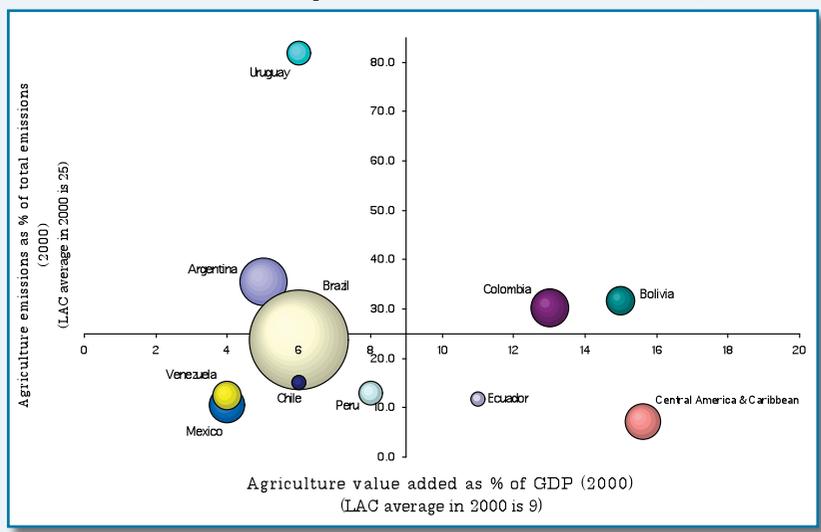


EL SALVADOR 53791

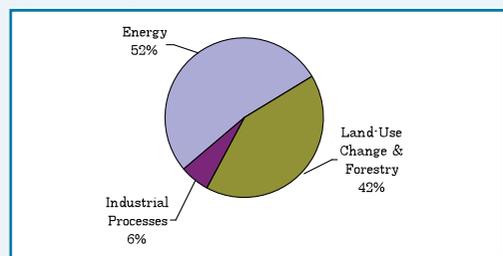
Country Note on Climate Change Aspects in Agriculture

This Country Note briefly summarizes information relevant to both climate change and agriculture in El Salvador, with focus on policy developments (including action plans and programs) and institutional make-up.

Contribution of agriculture (without LUCF) to the economy and to emissions in LAC countries
(size of bubble in MTCO₂ of LUCF emissions; axes cross at LAC average)

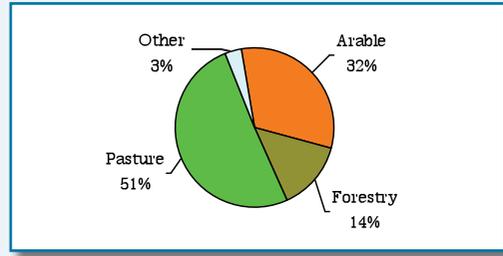


Percent of GHG emissions in CO₂ equivalent, by sector (2000)



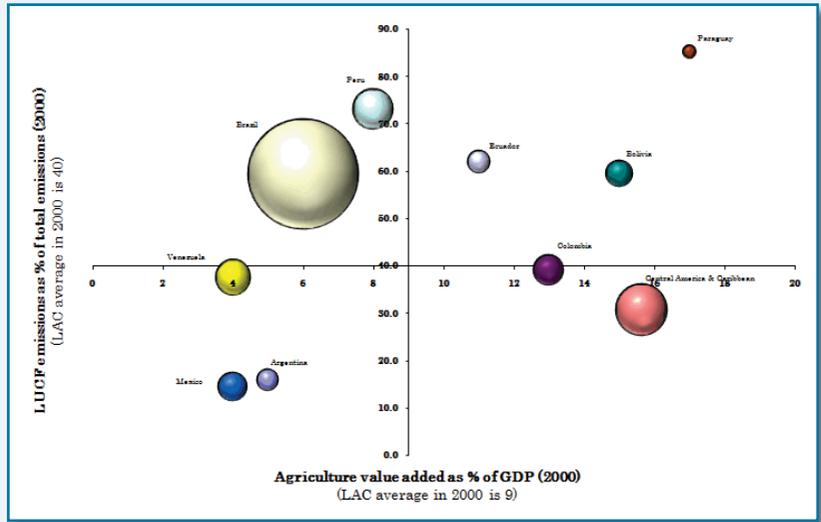
Source: World Resources Institute <http://cait.wri.org>
Note: According to the National GHG Inventory (2000), the contribution of LUCF to total emissions has decreased, while that of energy has increased.

Land use (2005)

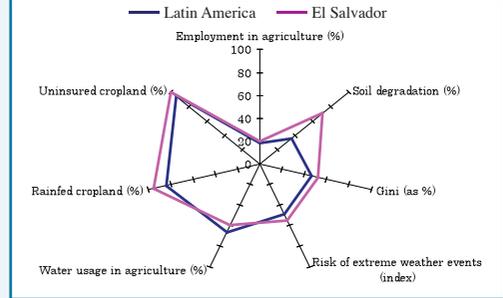


Source: World Development Indicators

Contribution of agriculture to the economy and of LUCF to emissions in LAC countries
(size of bubble in MTCO₂ of LUCF emissions; axes cross at LAC average)



Vulnerability Indicators



Note: Employment in agriculture (% of total employment)*; Rainfed cropland (% of total cropland)*; Gini*; Water usage in agriculture (% of total annual fresh water withdrawals)*; Uninsured cropland (% of total cultivated land area)**; Soil degradation (% of total land)***; Risk of extreme weather events (index; annual average 1997-2006)****

Sources: *World Development Indicators 2007, 2000-2007 average; **IADB, IICA, 2002/2003 figures; ***FAO AGL 2005¹; ****Germanwatch

Note: In the first bubble graph, the total emissions for Uruguay do not account for the positive effects of LUCF (i.e. afforestation efforts). If they are considered, agriculture represents 222% of total emissions. Because of afforestation efforts in Uruguay and Chile, land use change and forestry (LUCF) is not a net contributor to emissions; hence the countries do not appear in the second bubble graph, but are considered in the calculation of the average in the vertical axis.

¹ <http://www.fao.org/landandwater/agll/glasod/glasodmaps.jsp?country=SLV&search=Display+map+%21>

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Summary

Like most countries in Latin America, El Salvador has submitted one national communication to the United Nations Framework Convention on Climate Change (UNFCCC) with a second one under preparation. According to the National GHG Inventory (2000), land use change and forestry (LUCF) is the second largest contributor to GHG emissions in the country, after the energy sector. The emission reduction potential of the sector is large. El Salvador counts with 6 CDM projects, none of which are in the agricultural sector. It is estimated that Central America produces less than 0.5% of global carbon emissions, but it is one of the most vulnerable regions to climate change related impacts on the planet². Agriculture is highly vulnerable to climate variability and to observed climate change, this coupled with problems of land degradation in the country. A greater emphasis on recovering deforested or agricultural lands, reducing land degradation, reforestation and developing and applying adequate insurance mechanisms can be placed for better management of public resources in light of natural disasters in the agriculture sector.

Working definitions

Agriculture is defined as a managed system of crops, livestock, soil management, forest resources (productive use, goods & services) and water resources (irrigation), including land use and land use change. **Climate change** encompasses both **mitigation** and adaptation activities within the agricultural sector. On the mitigation side, the focus is on the potential to reduce greenhouse gas emissions by the different sub-sectors. On the **adaptation** side, the focus is on the potential to build resilience to climate and to increase the adaptive capacity through sustainable management of agriculture and other complementary factors (e.g. financial instruments). There is no specific **time frame** used in the country notes. An effort was made to collect the most recent available information on country indicators and policy matters.

Acknowledgments:

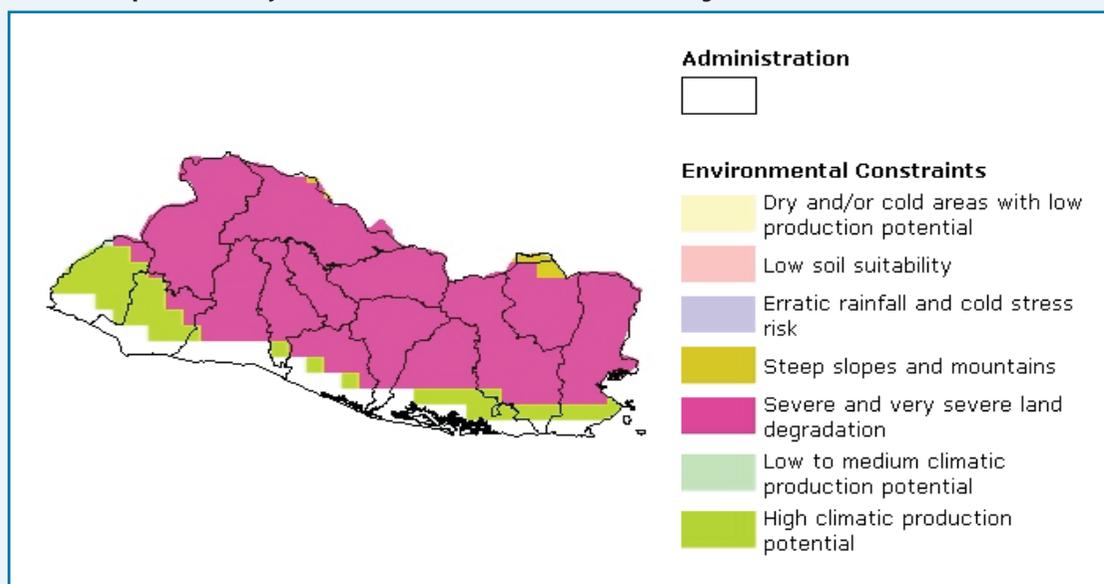
This *Country Note* was produced by a World Bank team of specialists (in agriculture, forestry, social development, risk and knowledge management) from the Latin America and the Caribbean region and other units of the World Bank. The team is very grateful for all the comments and suggestions received from the focal points on climate change and agriculture in many of the countries.

² <http://www2.ohchr.org/english/issues/climatechange/docs/submissions/Guatemala.pdf>, pg.6

1. The Climate Context

The baseline map provides a visual characterization of El Salvador's agricultural potential given current environmental constraints and their regional distribution. Around 83% of El Salvador's land is used for agriculture (51% for pasture and 32% for cultivation), with forestry occupying 14% of the land in the country (WDI, 2005).

Baseline map: Current Major Environmental Constraints related to Agricultural Potential



Source: FAO Note: For more maps on El Salvador and agricultural resources, go to <http://www.fao.org/countryprofiles/Maps/SLV/04/ec/index.html>

1.1. Country Projections

According to climate scenarios developed by researchers for El Salvador and published within the First National Communication the following climate changes with impact on agriculture are likely to be noticed³:

- a) **temperature increases** – it is probable that the temperature will increase by 0.8-1.1°C by 2020 and between 2.5°C-3.7°C by 2100 according to a series of climate scenarios
- b) **change in precipitation regime** – precipitation changes of between -11.3% to 3.5% are to be expected by 2020 and between -36.6% to 11.1% by 2100
- c) **sea level increase** – it is probable that the sea level will increase by around 20cm by 2030, 40cm by 2040 and up to 70cm by 2100

According to two studies on the impacts of climate change on the coastal zone and on adaptation strategies to climate change realized by the **Ministry of Environment and Natural Resources** with the support of the **National Service of Territorial Studies (SNET, Spanish acronym)** in the coastal zone of El Salvador⁴, the following was concluded for the year 2015; i) loss of between 10 and 19% of the territory due to sea elevation of 13-55cm, especially in the mangrove swamp area; ii) forest fires and forest plagues; iii) increased soil erosion and loss of humidity in soil and iv) diminishing productivity of corn of between US\$3.1 million and US\$7.5 million for the years 2025 and 2100 respectively caused by droughts.

³ <http://www.marn.gob.sv/uploaded/content/category/575225856.pdf>

⁴ <http://www.marn.gob.sv/uploaded/content/category/1847517184.pdf>

In recent years (between 2001 and 2005), storms and droughts have had the highest human and economic impact in the country- 400,000 people have been affected by droughts (1 event) with the cost of damages reaching US\$22.4 million and 74,941 people have been affected by storms (2 events) with the cost of damages reaching US\$355 million⁵.

1.2. Agriculture-Related Impacts

Tropical storm Stan which hit El Salvador on October 3, 2005 destroyed 70% of the basic grains and crops (corn and beans) that 30% of the population depends on for subsistence and survival. Fifty percent of the coffee crop from the area near the Llamatepeque volcano in Santa Ana was lost, representing 5% of the total coffee crop in the country⁶. Furthermore, Hurricane Mitch led to the loss of 49% of the agricultural and livestock sector in El Salvador with a total loss of US\$ 165.4 million⁷. The earthquakes hitting El Salvador in 2001, led to the destruction of 30,000 farms and 20% of coffee processing plants, thus greatly affecting the incomes of rural families who were just recovering from the damages inflicted by Hurricane Mitch⁸. The drought of 1987 in El Salvador resulted in losses for rice and maize of 83.8% and 65.8% respectively⁹.

2. The Policy Context

To date, El Salvador has submitted only one **National Communication**¹⁰ to the **United Nations Framework Convention on Climate Change**¹¹ (UNFCCC) in February 2000, laying out the actions that the government has already taken and the analytical basis for its policy response to climate change and its commitment to take future actions within an official international framework. It contains the First National GHG Inventory with 1994 as its base year, the emission scenarios and mitigation assessment for the energy sector and the identified mitigation options up to 2020, the results of future climate change scenarios, as well as climate change impact assessment in agriculture, food security along the coast line and adaptation projects currently active in the region.

The **Second National Communication** is currently under preparation and will contain: i) the Second National GHG Inventory for the years 2000 and 2005; ii) national future climate change scenarios; iii) vulnerability and adaptation assessments for at least three priority human systems; iv) the National Climate Change Plan (as per the Environmental Law).

2.1. National Climate Change Plans, Strategies and Programs

The Ministry of Environment and Natural Resources is currently working on a National Climate Change Plan that will include: i) the National Action Program on Adaptation (NAPA); ii) the National Appropriate Mitigation Actions (NAMAs) in the context of the national development priorities; iii) science and technology for adaptation and mitigation; iv) national and local capacity building for adaptation and mitigation; and v) education, public awareness raising and participation of the relevant actors and sectors in the design and implementation of the national public policies related to climate change.

2.2. Regional initiatives Institutions:

The **Central American Commission on Environment and Development**¹² (CCAD, Spanish acronym) is a regional institution in charge of the environmental agenda of the region. It counts with an information portal -**Ecoportal**¹³- which includes information on various environmental

⁵ [http://www.emdat.be/Database/CountryProfile/countryprofile2.php?disgroup=natural&country=slv&period=1999\\$2008](http://www.emdat.be/Database/CountryProfile/countryprofile2.php?disgroup=natural&country=slv&period=1999$2008)

⁶ <http://www.reliefweb.int/rw/rwb.nsf/db900SID/RMO1-6JL56Z?OpenDocument>

⁷ <http://zeus.iica.ac.cr/docs/sc/coreca/200604/MJIMENEZ-SLV-2006.pdf>

⁸ http://www.oas.org/dsd/policy_series/4_spa.pdf

⁹ <http://74.125.45.132/search?q=cache:hoTl6bIVtUIJ:www.fao.org/docrep/meeting/X4583E.htm+drought+effects+reduction+crop+yields+chile&hl=en&ct=clnk&cd=8&gl=us>

¹⁰ <http://unfccc.int/resource/docs/natc/elsnc1e.pdf>

¹¹ www.unfccc.int

¹² www.ccad.ws

¹³ <http://www.ccad.ws/ecportal/cambio/camnica.html>

issues from the region, including information on climate change issues (programs, plans, initiatives) in all the Central American countries.

The **Regional Technical Assistance Unit**¹⁴ (**RUTA**, Spanish acronym) is a common initiative of the governments of the seven Central American countries and seven international development agencies aimed at fostering the sustainable development and reduction of poverty in rural areas of Central America. Amongst its working areas are the environment and natural resources and the Central American agricultural policy.

Projects:

The **Project Forests and Climate Change in Latin America**¹⁵ (**PBCC**, Spanish acronym) financed by the Food and Agriculture Organization (FAO) and the government of the Netherlands with the headquarters in Honduras and realized in coordination with the **Central American Commission on Environment and Development**¹⁶ (**CCAD**, Spanish acronym) was developed with the purpose of helping Central American countries develop the mitigation potential of forests to climate change and to take advantage of the opportunities offered by the Clean Development Mechanism. As part of this, it launched a **Central American Series on Forests and Climate Change**¹⁷ for Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama and a regional one. These eight publications describe the mitigation potential of forests and the legal and institutional framework for each Central American country and for the region. It also includes a regional document presenting the overall situation of the region in the Clean Development Mechanism.

The Project on **Capacity building for Stage II adaptation to climate change (Costa Rica, Cuba, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama)** was funded through the GEF Trust Fund and is implemented by UNDP. Central America, Mexico and Cuba serve as the pilot region for elaborating and applying an Adaptation Policy Framework for preparing adaptation strategies, policies and measures. The application of this framework demonstrated how policy for adaptation can be integrated into national sustainable development for at least three human systems: water resources, agriculture and human health. This demonstration project builds upon the Stage I vulnerability and adaptation assessments of the Initial National Communications of the eight participating countries of the region and will prepare them to move onto Stage III Adaptation. The outputs of the project, Stage II adaptation strategies are being used for preparing Second National Communications¹⁸ and to take steps to submit adaptation initiatives to the Special Climate Change Fund and to other financing mechanisms. Likewise, some countries submitted their national outputs to the IPCC process to be included in the forthcoming Fifth Assessment Report (5AR) or to international journals to be published. The outputs of El Salvador will be published in the Climate Research Journal No. 20 and included in the 5AR.

Programs:

The **Regional Strategic Program for Management of Forest Ecosystems**¹⁹ (**PERFOR**, Spanish acronym) designed for the period 2008-2012 has as a main objective the improvement of forest management in Central America and the Dominican Republic. Among others, it aims to position the forest agenda in the inter-sectoral agenda of the **Regional Agro-environmental Strategy (ERA)**, Spanish acronym), thus contributing to poverty reduction, reduction of vulnerability to climate change events and to mitigation and adaptation to climate change.

A **Regional Climate Change Strategy**²⁰ for Central America is currently in preparation and will include five areas: i) vulnerability and adaptation; ii) mitigation; iii) institutional and capacity development; iv) education, public awareness and v) international cooperation. The initial

¹⁴ www.ruta.org

¹⁵ <http://www.fao.org/regional/honduras/pbcc/Descripcion.htm>

¹⁶ <http://www.ccad.ws/>

¹⁷ http://www.ccad.ws/forestal/pp_regional.htm

¹⁸ http://unfccc.int/files/adaptation/adverse_effects_and_response_measures_art_48/application/pdf/200609_background_latin_american_wkshp.pdf

¹⁹ <http://www.sica.int/ccad/program.aspx?IdEnt=2>

²⁰ <http://www.sica.int/ccad/temporal/LINEAMIENTOS.pdf>

guidelines for this strategy have been approved in April 25, 2008, an action plan should be completed within six months from the approval of the guidelines and the strategy should be finished within one year. The strategy will represent a key instrument for future climate change adaptation and mitigation actions in the region.

The **Central American Forest Program**²¹ (**PROCAFOR**, Spanish acronym), is a program financed by the Finnish Cooperation, aimed at improving the well-being of rural communities through sustainable forest management in the region.

2.3 Agricultural Sector Initiatives

The **Ministry of Environment and Natural Resources**²² (**MARN**, Spanish acronym) created in 1997, is the environmental authority in the country, it oversees El Salvador's commitments to the UNFCCC and other climate change related actions and represents the Designated National Authority (DNA) on climate change and, in particular, on Clean Development Mechanism (CDM) in the country. It counts with a **Climate Change Unit (UCC**, Spanish acronym) at a high advisory level, which is responsible for the appropriate application of the UNFCCC, and has a facilitative role focused on promoting and coordinating the inter-institutional and inter-sectoral climate change strategies, plans, programs and actions at the national and local levels.

3.1. Inter-Sectoral Coordination

3.2. Agricultural Sector Institutions

The **Ministry of Agriculture and Livestock**²³ (**MAG**, Spanish acronym) has authority over agriculture, livestock, forestry and fisheries in the country. It counts with a **General Directorate of Forestry, River Basin and Irrigation Management**²⁴ (**DGFCR**, Spanish acronym) in charge of generating and distributing information and technical and legal assistance about forest, soil and water resources, as well as implementing programs contributing to the sustainable development of forest, water and soil resources in El Salvador. The **Irrigation and Drainage Division** is in charge of administrating and regulating the irrigation systems.

3.3. Fostering Capacity to Deal with Climate Change

Emissions inventory: To date, El Salvador counts with one National GHG Inventory with 1994 as its base year that has already been published. The inventory includes data on emissions for all the relevant sectors as per the IPCC manual, including energy, waste, industry, agriculture, land use, land use change and forestry, providing disaggregated data by type of emissions and different source category. A second National GHG Inventory for 2000 and 2005 has already been finished and will be included in the Second National Communication.

Studies related to climate change and agriculture:

- 1) Evaluation of the climate change impacts in the agricultural sector of the coastal area of El Salvador (brief summary included in the First National Communication) published in 2000.
- 2) Evaluation of climate change impacts on food security in El Salvador (brief summary included in the First National Communication), published in 2000.
- 3) Vulnerability and adaptation to climate change of the local population living in the central coastal area of El Salvador (to be published in the Climate Research Journal No. 20).

²¹ <http://www.elsalvadorforestal.com/nota.php?id=53>

²² www.marn.gob.sv

²³ <http://www.mag.gob.sv>

²⁴ <http://www.mag.gob.sv/forestal/>

Further initiatives were implemented, such as:

- Climate change scenarios produced in 1998 and recently finished updated scenarios which will be included in the Second National Communication and will constitute the basis for the new vulnerability and adaptation studies.
- Evaluation of impacts for various sectors: food security, coastal area, agriculture. Further integrated impact evaluations will be realized for the Second National Communication, including human systems.
- Development of strategies and adaptation measures, already realized for the regional adaptation project financed by GEF and finalized in 2007. The results have served as the basis for managing the financing for the execution of the mentioned strategy, as well as to contribute to the AR5 IPCC process.
- Emission projections for 2020 for the waste management sector, energy and LULUCF and analysis of mitigation options for the 3 sectors; this will serve as a basis for the development of the NAMA in the context of the national climate change plan.

The World Bank published a flagship document for the entire region of Latin America and the Caribbean titled "Low carbon, High Growth: Latin American Responses to Climate Change"²⁵, encompassing information on climate change impacts in the region, on the potential contribution to mitigation efforts as well as a listing of future low carbon-high growth policies.

4. The Impact of Agriculture on Climate Change - Mitigation Measures

According to the country's updated National Greenhouse Gas Inventory, land-use change and forestry represents the second highest source of GHG emission in the country (36% of total GHG emissions) in 2000. Agriculture accounts for 60% of all methane emissions in the country, mainly from enteric fermentation from farm animals and 25 come from rice cultivation, and for 96% of total nitrous oxide emissions, from crop cultivation and pasturing.

El Salvador's carbon dioxide emissions per capita in 2004 stand at 0.9tCO₂/capita, compared to the Latin America region of 2.6t CO₂/capita and the world at 4.5t CO₂/capita, thus showing the country's relatively small contribution to the global CO₂ emissions²⁶.

4.1. Action Frameworks

4.1.1. Forestry and Land Use Change

According to the First National Communication, land-use change and forestry are responsible for 45% of total GHG emissions for 1994, this including the sequestration of CO₂ from regenerated vegetation growing on abandoned land during the armed conflict of the 80's. This amount was estimated at 718.7 Gg CO₂, corresponding to an area of 98,000 hectares of recovered forests after 20 years of abandonment. The Main source of CO₂ emissions is change of forests and firewood consumption (87%), followed by burning of grasslands and farming waste (12%) and biomass decay (1%). As for the National GHG inventory for 2000, LULUCF are responsible for 36% of total GHG emissions and the main source of CO₂ emissions from this sector is the conversion of forest and grasslands due to deforestation (49%) followed by change in biomass from forests and other types of woody vegetation (52%). The average annual deforestation rate for 2002 for El Salvador is 4.6%, the second largest in the region after Haiti, and the main reason for it is clearing up land for firewood and cattle grazing²⁷.

²⁵ http://www-wds.worldbank.org/external/default/WDSPContentServer/WDSP/IB/2009/02/27/000334955_20090227082022/Rendered/PDF/476040PUB0Low0101Official0Use0Only1.pdf

²⁶ http://hdrstats.undp.org/countries/country_fact_sheets/cty_fs_slv.html

²⁷ World Development Indicators, 2005

According to the **Forestry Strategy for El Salvador**, a study realized by the Ministry of Agriculture and Livestock, in collaboration with MARN, the Ministry of Tourism, FAO and the Agricultural and Agro-industrial Chamber of El Salvador in 2002-2006, the carbon capturing potential of the forestry sector in El Salvador is of approximately 53 million metric tons of carbon if reforestation activities of 415,424 hectares are taking place.

Given that emissions from the LULUCF sector represent the second source of GHG emission in El Salvador, the following potential mitigation options have been identified in the context of the Second National Communication which is currently being developed: i) efficient firewood consumption, ii) firewood substitution by clean energies, iii) dendro-energy plantations, iv) natural induced regeneration in marginal lands, v) disentanglement of the use of plantations, vi) Promotion of trees as agri-forestry systems and other forest arrangements to fully incorporate the social dimension in forest-related activities, vii) strengthening of the wood industry and related-market, viii) management of secondary productive forest and ix) conservation of primary forest.

The Readiness Plan Idea Note presented to the Forest Carbon Partnership Facility (FCPF) by the Ministry of the Environment and Natural Resources suggests the possibility of a payment for environmental services program; and other measures to strengthen initiative in the forestry sector.

4.1.2. Livestock

According to the First National Communication, livestock is responsible for 94% of total methane emissions in the country due to enteric fermentation of farm animals. These depend on the type of animal and the animal diet. As for the 2000 GHG national inventory, livestock accounts for 93.95% of the total methane emissions in the agriculture sector.

According to a study evaluating the impacts of climate change on the agricultural sector of the coastal area of El Salvador, the floods affecting the Paz, Jiboa and Grande river basins in San Miguel lead to 80% loss in pastures and livestock²⁸.

4.2. Carbon Trading and Agriculture

Under the Clean Development Mechanism (CDM), developed (also referred to as Annex I) countries can implement project activities that reduce emissions in developing (non-Annex I) countries. Though the CDM is expected to generate investment in developing countries, especially from the private sector, and promote the transfer of environmentally-friendly technologies in that direction, the global share of agricultural sector projects (including afforestation and reforestation) is very small (5.71% of total registered projects globally as of December 2009)²⁹ and the potential is country-specific. Latin America, as a region, currently holds the largest share of registered agricultural projects globally, 61% (75 projects).

As of December 2009, there are 5 registered projects in El Salvador, with no registered CDM projects in agriculture nor under the "afforestation and reforestation" category³⁰.

The World Bank has mobilized a fund to demonstrate projects that sequester or conserve carbon in forest and agro-ecosystems. The BioCarbon Fund, a public/private initiative administered by the World Bank, aims to deliver cost-effective emission reductions, while promoting biodiversity conservation and poverty alleviation. In principle, the BioCarbon Fund can consider purchasing carbon from a variety of land use and forestry projects; its current portfolio includes Afforestation and Reforestation, Reducing Emissions from Deforestation and Degradation and the Fund is currently exploring innovative approaches to account for agricultural soil carbon.

²⁸ <http://www.bvsde.paho.org/bvsacd/marnsv/costas.pdf>

²⁹ <http://cdm.unfccc.int/Statistics/Registration/RegisteredProjByScopePieChart.html>

³⁰ <http://cdm.unfccc.int/Projects/projsearch.html>

5. Impact of Climate Change on Agriculture - Adaptation Measures

El Salvador has developed vulnerability and adaptation studies and assessments, mainly on the vulnerability of agriculture in coastal areas to climate change related events and a climate change assessment on food security in the country. It has proposed clear adaptation measures for this sector in order to face the future challenges faced by this phenomenon on the agricultural sector.

El Salvador has adopted an integrated approach to address vulnerability and adaptation (V&A) issues. Furthermore, V&A studies are referred to human systems. In that line, from 2003 and during 3 ½ yr El Salvador developed a process with the view to develop an adaptation strategy and measures in the central coastal plain, including: i) reference and climate change scenarios by 2020 and 2080, ii) reference and future socio-economic scenarios by 2020 and 2080, iii) an integrated assessment of current climate vulnerability and impacts, iv) an integrated assessment of future climate vulnerability and impacts, and iv) a local adaptation strategy, including action lines and adaptation measures.

5.1. Action Frameworks

5.1.1. Land Management

The agricultural sector is the main responsible for nitrous oxide emissions in El Salvador in 1994 (96% of total emissions), mainly due to poor farming practices and fertilizer use in crop cultivation (22%) and pasturing (27%). Although showing a decreasing trend over the years, the intensity of fertilizer use in El Salvador in 1999 of 106kg/hectare of cropland is much higher than the Central America and the Caribbean region of 65kg/hectare of cropland³¹. As for the 2000 GHG national inventory, the agriculture sector contributes with 86.46% of total N₂O emissions: crop cultivation and pasturing (71.19%), waste burning, crops and savannas (2.32%) and atmospheric deposition and lixiviation in agricultural land (26.4%).

The First National Communication identifies the following potential mitigation options for the agricultural sector; i) post harvest management to avoid the burning of farm waste and the preservation of farm soil; ii) erosion, sedimentation and runoff control; iii) more appropriate and rational use of fertilizers; iv) generation of new crop varieties resistant to pests, tolerant of droughts and salinity; v) cultivation of different varieties with the capacity to resist to the negative effects of climate change; vi) foster zoning programs for the better use of soil to adjust cultivation times to climate forecasts.

5.1.2. Water Use

In 1998, arable and permanent cropland represented 38.5% of the country's total land area, which is much higher than the Central America and Caribbean average of 16%. However, the percentage of the arable area that is irrigated is only 4.9%, much lower than the region's average of 19.1%³². Of the total area under irrigation, 89% of it is done by surface irrigation (flooding) and the rest of 11% by sprinklers Agriculture accounts for 46% of all water extraction in the country, mainly for irrigation purposes. The main crops under irrigation in the country are: pastures, sugar cane, coffee and basic grains, mainly maize³³.

Program for Sustainable Agriculture in the Hillside of Central America³⁴ (PASOLAC, Spanish acronym) – implemented by the Swiss Inter-cooperation Foundation, it operates in Nicaragua, Honduras and El Salvador in cooperation with national authorities and municipalities and aims to support small and medium hillside agricultural producers by promoting sustainable water and soil management practices.

³¹ http://earthtrends.wri.org/pdf_library/country_profiles/agr_cou_222.pdf

³² http://earthtrends.wri.org/pdf_library/country_profiles/agr_cou_222.pdf

³³ http://www.fao.org/nr/water/aquastat/countries/el_salvador/indexesp.stm

³⁴ www.pasolac.org.ni

The **Drought Response and Mitigation Project**³⁵ in El Salvador, implemented by the Red Cross in 2002 as a form of mitigating the effects of droughts affecting the country on a yearly basis. The objective of this initiative is to increase the capacity of subsistence farmers in the east of the country to better respond to adverse effects of climate conditions, by providing technical assistance to diversify and market crops, to improve income and daily diet and to improve environmental conditions through reforestation by the use of fruit trees, use of organic fertilizers and small scale irrigation systems.

In El Salvador communities employ a number of land conservation measures to cope with recurrent droughts, for example, they build barriers consisting of stone and pine suckers, which serve two purposes: within a year their fruits can be eaten, thus improving the diet, and they provide additional income³⁶.

5.2. Social Aspects and Interventions

El Salvador's Human Development Index stands at 0.735, with a high inequality level in the country reflected in the Gini coefficient at 52.4. The rural population (40.2%) and indigenous groups (about 5% of the population) are the most vulnerable to climate variability and change due to their socioeconomic vulnerability (poverty, lower education, risky human settlements, lack of access to information and mobility, among other barriers or limitations). A map of regions with high marginalization is available at: <http://www.redsolidaria.gob.sv/content/view/678/47/>.

About 47% of the rural population in El Salvador lives in poverty³⁷. Small farmers, in particular in remote hilly areas are among the most vulnerable rural groups due to rapid land degradation in their plots and fewer opportunities for non-farm employment. Similar to the rest of the region, migration has been one of the main survival strategies for rural households in El Salvador. Currently, about 2.5 million Salvadorans live outside of El Salvador, and the emigration rate is estimated to continue being at more than 10,000/year.

ProVention Consortium, Community Risk Assessment and Action Planning Project³⁸: it is a toolkit for disaster preparedness and risk prevention that uses participatory research methods (community interviews and workshops; assignment of community focal points, etc.). Once a community identifies key risks and vulnerabilities, it develops an action plan for prevention and/or mitigation of risks. Risks could be associated with natural disasters (hurricanes, earthquakes, floods, etc.) or other threats e.g., conflict, environmental health hazards and epidemics. As part of this, El Salvador created the *Program for Prevention and Mitigation of Flood Disasters in the Lower Lempa River Basin*³⁹ aimed at providing an integral diagnosis of the zone and proposing and integrated intervention strategy that could lead to substantial flood disaster risk reduction.

Solidarity Network (Red Solidaria)⁴⁰: Includes three main components – family solidarity network (health and education cash transfers to mothers, who are heads of household and live in extreme poverty); basic services network (improving social infrastructure in regions of extreme poverty); and household livelihood network (promoting microcredit and productive activities for small farmers and rural families). Coverage of the program has been expanded progressively. In January 2008 it covered 89,000 households in 77 municipalities with high and extreme grades of poverty.

Central American Indigenous and Peasant Coordination Association⁴¹ (ACICAFOC, Spanish acronym): a community-based organization working with rural communities across Central America to exchange information and promote the sustainable use of natural and

³⁵ http://maindb.unfccc.int/public/adaptation/adaptation_casestudy.pl?id_project=143

³⁶ http://unfccc.int/files/adaptation/adverse_effects_and_response_measures_art_48/application/pdf/200609_background_latin_american_wkshp.pdf

³⁷ <http://www.ruralpovertyportal.org/english/regions/americas/index.htm>

³⁸ <http://www.proventionconsortium.org/?pageid=43>

³⁹ http://www.proventionconsortium.org/themes/default/pdfs/CRA/El_Salvador.pdf

⁴⁰ <http://www.redsolidaria.gob.sv/>

⁴¹ <http://en.acicafoc.org/>

cultural resources. It works in the following areas: Community forest management; Community management of water and environmental services; Local eco-tourism and agro-ecotourism; Sustainable production and commercialization. It is part of the **Sustainable Watch** project which is a network of NGOs and CSOs in Asia, Africa to promote consistent qualitative monitoring of sustainable development within countries and raise emerging issues to national and international attention. Focal points for this project in Central America so far are Guatemala, Nicaragua and El Salvador.

5.3. Insurance Instruments

Agricultural insurance was first introduced in El Salvador in 2001. The Government, through the BMI (Banco Multilateral de Inversiones), subsidizes 50% of insurance premiums for cotton, and the private insurance sector has been requesting to extend the subsidy to other crops. All of the insurance being offered is MPCI.

The Government of El Salvador has one instrument in place that supports the agriculture sector in managing climate risks – Premium subsidies for agriculture insurance are provided by BMI to cotton growers to finance up to 50% of agricultural insurance premium. A total of 4715 ha of cropland are insured, representing 0.52% of total cultivated area. There are a total of eight risks (freeze, flooding, hail, fire, hurricanes, tornadoes, winds, windstorms and lag of soil and harvest) covered for 10 different crops.

The government entity involved in initiatives relating to climate risk management for agriculture in El Salvador is represented by the public sector through **BMI** – The second tier public Bank administers the agriculture insurance subsidy and has been quite innovative in addressing agriculture risk management instruments (such as price hedging for coffee producers).



About *Country Notes on Climate Change Aspects in Agriculture...*

The **Country Notes** are a series of country briefs on climate change and agriculture for 19 countries in Latin America and the Caribbean region, with focus on policy developments (action plans and programs), institutional make-up, specific adaptation and mitigation strategies, as well as social aspects and insurance mechanisms to address risk in the sector. The **Country Notes** provide a snapshot of key vulnerability indicators and establish a baseline of knowledge on climate change and agriculture in each country. The **Country Notes** are the beginning of a process of information gathering on climate change and agriculture. The **Country Notes** are “live” documents and are periodically updated.



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Feedback

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