



GUATEMALA

CLIMATE VULNERABILITY PROFILE



US Foreign Assistance: ¹ (thousands USD)	Requested FY 2012	Requested FY 2013
Estimated total:	95,185	93,570
Adaptation:	0	2,000
Feed the Future:	13,000	13,000
Priority Adaptation Country in 2011:	YES	
Key Climate Stressors:	Heat, Drought, Flooding, Sea level rise, Extreme events	

INTRODUCTION

Guatemala, located in Central America, borders the North Pacific Ocean and the Gulf of Honduras in the Caribbean Sea. With a population of approximately 14 million people, Guatemala is the most populous country in Central America. Guatemala's agricultural sector contributes over 13 percent of its Gross Domestic Product (GDP) and employs nearly 40 percent of the labor force. The Caribbean coast is extremely susceptible to hurricanes and other tropical storms. The main development stressors in Guatemala are malnutrition and poverty as well as violence and impunity.

PROJECTED WEATHER AND CLIMATE CHANGES

Guatemala is a mostly mountainous country. The climate varies with the topography, ranging from hot and dry to cool and humid. Currently, tropical storms, droughts, and extreme rainfall are the most significant climate hazards.

TEMPERATURE: According to the Climate Change Knowledge Portal (CCKP), climate models project increases in average monthly temperature between 1.5°C and 4.5°C above current levels by 2050. May is projected to be the hottest month by 2050, with temperatures exceeding 28°C.

PRECIPITATION: Model projections for changes in precipitation are less conclusive than those for temperature. The Adaptation Partnership's data suggest that under different emissions scenarios, precipitation could either increase or decrease. The CCKP points to results that project an average reduction in precipitation by 2050 for July-September, with August showing the biggest decrease.

EXTREME EVENTS: Droughts, tropical storms, hurricanes, and cyclones present a current threat to Guatemala. Projections lack clarity about whether these extreme events will increase or decrease in frequency and severity. Heat waves, however, are projected to intensify, due to the combined increase in temperature and decrease in summer precipitation.

SEA LEVEL RISE: Global sea levels are projected to rise; however, local projections for the Guatemalan coast are inconclusive.

KEY CLIMATE IMPACTS AND VULNERABILITIES

The main climate concerns in Guatemala revolve around agriculture and threats to natural resources. Chronic malnutrition is a major concern and climate changes could place additional strain on agricultural production.

Drought and flooding could threaten the viability of critical crops. Additionally, Guatemala's key agricultural exports—including coffee, sugar, bananas, and vegetables—are climate-sensitive and production could be altered by changes in precipitation, temperature, and extreme events.

KEY USAID PROGRAM VULNERABILITIES

The USAID Guatemala Country Development Cooperation Strategy for 2012-2016 is based on three development objectives: (1) Greater Security and Justice for Citizens, (2) Improved Levels of Economic Growth and Social Development in the Western Highlands, and (3) Improved Management of Natural Resources to Mitigate Impacts of Global Climate Change. Their key program vulnerabilities relate to citizen security, food security, and health.

CITIZEN SECURITY: USAID implements activities to counter security threats from drug trafficking and organized crime. Climate stresses on the already limited food supply may contribute to conflict and disrupt the peace and security of the country. The Central America Regional Security Initiative (CARSI) Economic Support Fund provides at-risk youth with educational and alternative opportunities to avert future crime and violence. As climate stressors and changes in extreme events undermine agricultural production, the need may increase for programs to provide economic alternatives for displaced workers and youth.

FOOD SECURITY AND AGRICULTURE: Guatemala is a priority country under the Feed the Future Initiative (FTF). Approximately 50 percent of Guatemalan children under the age of five suffer from chronic malnutrition. The majority of people suffering from chronic malnutrition live in the rural areas of the Western Highlands, which is the focus area for FTF investments. FY 2012 programs targeted agriculture and food supplies and FY 2013 programs are designed to improve coffee and horticulture value chains in order to increase incomes. Coffee production, especially Arabica beans that are produced in Guatemala, requires a specific climate for optimal quantity and quality. Changes in climate may increase the productivity of land at higher elevations, but that increase is unlikely to offset the changes in the areas where coffee growing is currently optimal.

HEALTH: Guatemala is one of the few countries designated as a "GHI Plus" country under the Global Health Initiative (GHI). USAID identified Guatemala as one of the countries in need of an intensified effort to improve public health. The dollars spent through the GHI in Guatemala are used for family planning and reproductive health, maternal and child health, and nutrition. Nutrition may be increasingly stressed if agricultural production is affected by changes in water availability and increased temperatures. This would have an impact on chronic malnutrition, while extreme events would impact acute malnutrition.

¹ US foreign assistance includes both USAID and Department of State program funding, but in most cases the bulk of this funding is implemented through USAID. In order to have comparable figures in these categories, all country profiles use figures from the Congressional Budget Justification (CBJ) (see <http://transition.usaid.gov/performance/cbj/185016.pdf> and <http://transition.usaid.gov/performance/cbj/158269.pdf>). Between the time of the budget request and the 653(a) report to Congress, these figures can change significantly.

ACTIONS UNDERWAY²

Guatemala is an adaptation priority country for USAID. Through collaboration with the Government of Guatemala, USAID is working on an adaptation and sustainable land use program to build resilience to climate change impacts. Proposed USAID adaptation actions include a \$1 million food security support program (using indirect adaptation funding) that would assist small-scale producers in adjusting to changes in soil moisture and runoff that may result from changing precipitation regimes. Additional USAID food security programs will focus on ways to protect the area from climate shocks through improved cultivation and irrigation practices, early warning systems, and disaster preparation. USAID is providing scholarships for students to study climate change and apply their knowledge to help vulnerable communities adapt. USAID will also invest \$1 million in adaptation projects in the coastal zones of Central America.

There are several other adaptation efforts underway in Guatemala that are supported by other donors and actors. These range from sustainable forest management to coffee production analysis, integrated water resource management, disaster risk capacity strengthening, and community-based adaptation programs.

CHALLENGES TO ADAPTATION

Several data and information gaps exist that may be challenges to adaptation in Guatemala. The country's First National Communication to the United Nations Framework Convention on Climate Change noted that some of the climate data were incomplete or inaccurate from the five climate stations used. Guatemala will need to improve the number of weather stations to accurately monitor the changing climate, as well as improve dissemination of weather information to communities. There is also a lack of vulnerability and impact assessments, particularly on the climate thresholds for staple crops.

RESOURCES

Adaptation Partnership, 2011. Review of Current and Planned Adaptation Action: Central America and Mexico. Pages 75-90. Available at <http://www.adaptationpartnership.org/resource/central-america-and-mexico-current-and-planned-adaptation-action>

CIA World Factbook: Guatemala <https://www.cia.gov/library/publications/the-world-factbook/geos/gt.html>

Grainger, Sarah. 2010. Reuters. Accessed 5/14/2012. <http://www.reuters.com/article/2010/05/19/centralamerica-coffee-idUSN1924362420100519>

USAID, 2012. Congressional Budget Justification. Foreign Assistance Summary Tables – Fiscal Year 2013. Accessed 4/30/2012. <http://transition.usaid.gov/performance/cbj/185016.pdf>

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World Bank, 2011. Vulnerability, Risk Reduction, and Adaptation to Climate Change: Guatemala. Accessed 5/4/12. http://sdwebx.worldbank.org/climateportal/doc/GFDRRCountryProfiles/wb_gfdr climate_change_country_profile_for_GTM.pdf

World Bank, 2012. Climate Change Knowledge Portal: Guatemala. Accessed 4/27/12. <http://sdwebx.worldbank.org/climateportal/documents/Factsheets/GTM.pdf>

² Actions underway include those from direct adaptation funds and indirectly attributed funds. More information on U.S. climate finance can be found at <http://www.state.gov/e/oes/climate/faststart/index.htm>.