



# ETHIOPIA

## CLIMATE VULNERABILITY PROFILE

US Foreign Assistance: <sup>1</sup> (thousands USD)	Requested FY 2012	Requested FY 2013
Estimated total:	580,405	351,271
Adaptation:	5,000	4,000
Feed the Future:	29,000	50,000
Malaria	26,350	39,000
Water:	7,892	26,046
Priority Adaptation Country in 2011:	YES	
Key Climate Stressors:	Heat, Extreme events	

## INTRODUCTION

Ethiopia, located in eastern Africa, has a population of approximately 80 million people. Agriculture is an important sector of the economy; almost half of the country's Gross Domestic Product (GDP) comes from this sector and 85 percent of the population depends on agriculture for their livelihoods. Ethiopia is one of the poorest countries in the world and has encountered problems with inflation and regional security in the volatile Horn of Africa. The country faces numerous challenges to development, including high death and disease rates, limited access to education, and lack of food security. Growth in the agricultural sector is constrained by factors including increasing land degradation; conflicts over scarce resources; limited access to information, education, skills, and financial services; inadequate government policies, capacities, and coordination; and social and gender inequalities. Climate changes will exacerbate these development stressors.

## PROJECTED WEATHER AND CLIMATE CHANGES

The geography of Ethiopia varies by region and influences the local climate. The topography of the landlocked country includes high plateaus, mountains, and lowland plains. The climate is tropical in the southeast and northeast lowland areas and cooler in the central highland region.

**TEMPERATURE:** Global climate models project the temperature will rise between 1.5°C and 5.1°C from the base period 1970-1999 by the 2090s.

**PRECIPITATION:** Ethiopia's precipitation trends have strong inter-annual and inter-decadal variability, but it is overall an arid country. Rainfall projections are uncertain given the historical variability, but suggest a larger percentage of precipitation falling during heavy events.

**EXTREME EVENTS:** Historically, Ethiopia has been prone to extreme weather variability, particularly erratic rainfall resulting in droughts and floods. A rising frequency of severe flooding, droughts, and extreme heat days is projected to occur under climate change.

## KEY CLIMATE IMPACTS AND VULNERABILITIES

The population as a whole is vulnerable to climate impacts, particularly the large portion that depends on rain-fed agricultural and pastoral activities. The country is also vulnerable to desertification, drought, and flooding, which are each expected to have a negative impact on livestock, farmland, and overall nutrition. Furthermore, changes to water resources will affect agriculture, human health, and hydropower electricity production. Other

sectors of concern include changes to forest and biodiversity resources and public health, as climate changes may cause a greater prevalence of diarrhea and vector-borne diseases such as malaria. The regions of Afar, Somali, Oromia, and Tigray, which have relatively high poverty levels, are comparatively more vulnerable to climate changes than other regions in the country.

## KEY USAID PROGRAM VULNERABILITIES

USAID invests significantly in Ethiopia's social and economic development. Several of the USAID/Ethiopia Mission's programs will be vulnerable to climate changes, including food security, economic development, water, and malaria.

**FOOD SECURITY:** Food security programming supports the country's agricultural growth and is one of USAID's key programs in Ethiopia. The Feed the Future (FTF) Initiative employs a "push-pull" strategy to improve food security throughout the three distinct agro-ecological regions of Ethiopia.

Investment in agricultural production, labor, and services in the fertile and high potential areas of western Ethiopia is designed to "pull" the country towards rural economic growth. Key Ethiopian crops such as maize, wheat, and coffee may be increasingly vulnerable to rising temperatures and variable precipitation.

The strategy will also link the chronically food insecure households and pastoralist communities in central and eastern Ethiopia to food and economic markets in order to create greater demand and "push" for food security. This component, designed to prepare vulnerable populations for engagement in the improved agricultural markets and related livelihood opportunities, recognizes the need to facilitate the development of community adaptation responses to climate change.

The FTF strategy in Ethiopia will face rising need to respond to climate impacts. The more heavily invested agricultural components will need to adapt to heat and extreme precipitation events, especially because they are critical to pulling the country towards food security. Additionally, the changing climate will directly increase the importance of the disaster management and biodiversity projects under the Climate Change and Natural Resource Management program of the Feed the Future Initiative.

**ECONOMIC GROWTH:** Given that agriculture is a key sector of the economy and a focus for USAID in fostering economic growth, climate change impacts on livestock and rain-fed crops can hinder the goals of the economic development programs focused on strengthening market resilience and growth.

<sup>1</sup> 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.

**HEALTH:** Approximately 68 percent of Ethiopia's total population lives in malaria-endemic areas; historically, Ethiopia has experienced cycles of malaria epidemics every five to eight years. The malaria initiative, a core component of the Global Health Initiative, may need to be scaled up as vector-borne diseases become more prevalent, especially in higher altitudes, with rises in temperature potentially increasing the percentage of vulnerable population and frequency of malaria.

**WATER:** Current water supply and sanitation projects aim to provide clean and sustainable water supplies by creating wells, increasing awareness of sanitation practices, and improving local capacity to sustainably manage water facilities. Water availability in Ethiopia will be stressed under increasingly uncertain precipitation patterns and more intense extremes, which will ultimately increase the need for water initiatives. USAID includes conflict mitigation and "do no harm" approaches in all its pastoralist area work, and this strategy will be increasingly important in projects related to this vulnerable natural resource.

## ACTIONS UNDERWAY<sup>2</sup>

Ethiopia is an adaptation priority country for USAID, which has provided bilateral government funding for adaptation initiatives related to disaster risk management, agriculture, and ecosystem conservation. The USAID adaptation actions aim to develop early-warning systems related to drought, prevent over-exploitation of water resources, reduce the vulnerability of pastoralists, and build capacity to adapt food production systems to changing climate conditions. Other adaptation activities underway that are funded by multiple agencies focus on agriculture, but also address freshwater resources, disaster risk management, and capacity building for adaptation. The projects include assessment of climate risks and vulnerabilities, development of planning and management guidance for water storage, mainstreaming climate change considerations into poverty reduction development strategies, and development of a drought/crop insurance program.

## CHALLENGES TO ADAPTATION

Ethiopia is vulnerable to climate change due to high poverty rates, underdevelopment of water resources, low health service coverage, inadequate road infrastructure, weak institutions, and lack of awareness. The need for USAID assistance with these key non-climate challenges will need to be balanced with efforts to adapt to the impacts of a changing climate. Particular adaptation challenges include the need for more technical expertise in vulnerability and adaptation assessment and implementation; capacity to develop accurate weather and climate forecasts; a strengthened institutional framework for dealing with climate change; and enhanced coordination.

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## RESOURCES

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<sup>2</sup> 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>