

# Vulnerability, Risk Reduction, and Adaptation to Climate Change

TOGO



**GFDRR**  
Global Facility for Disaster Reduction and Recovery



## COUNTRY OVERVIEW

The Togolese Republic (Togo) is located in West Africa on the Atlantic coast of the Gulf of Guinea. The country spans an area of 54,400 km<sup>2</sup> encompassing rolling hills (the *Chaîne du Togo*) in the north, a southern plateau (Ouatchi Plateau or Terre de Barre), and a low coastal plain with extensive lagoons and marshes. A number of lakes dot the Togolese landscape, the largest being Lake Togo, in the south.<sup>1</sup> In 2006, the country had an estimated population of 6.6 million with an average annual growth rate of 2.5%.<sup>2</sup> Considered to be one of the poorest countries in Sub-Saharan Africa, Togo's average per capita GNP is estimated at US \$440.<sup>34</sup> This is particularly low compared to the Sub-Saharan Africa average (US \$842) and to the Low-Income Countries average (US \$650).

In Togo, over 61% of the population lives below the poverty line, a situation more acute in rural areas. Rural poverty is a significant problem in the country; the Savannah region is the poorest with roughly 90% living in poverty, followed by the Central region (78%), Kara (75%), Coastal (69%), Plateau (56%), and Lomé (24%). Undernourishment afflicts 64.2% of the population, and the poor lack reliable access to education, health, electricity, and drinking water.<sup>5</sup> The country's poverty is in part due to the political turmoil it experienced between 1991-2006 when per capita incomes fell by 20%. In addition to widespread poverty, environmental problems and population growth continue to hinder advancements in development. Togo's natural resources are being depleted rapidly with devastating consequences for the ecosystem. In particular, clean water is becoming increasingly scarce.

According to the Togo's National Adaptation Programme of Action (NAPA), the country's economy depends on the agriculture (mainly coffee, cocoa, and cotton). Agriculture activity represents about 40% of GDP (comprises 50% of the country's export earnings) and employs 70% of the population.<sup>6</sup> The livestock sector remains undeveloped. Phosphate exporting is an important source of revenue for the country. Togo's climate varies from tropical to savanna. The main climate risks facing Togo are violent winds, coastal erosion, poor distribution of rain, and late rains, with flooding and drought remaining the greatest threats.<sup>7</sup>

## PRIORITY ADAPTATION MEASURES

Togo published a National Adaptation Programme of Action<sup>8</sup> in September 2009, listing the most urgent adaptation needs, as follows:

- ➔ Adaptation of agricultural production systems in three regions through the introduction of cultural techniques including the improvement of agro-meteorological information;
- ➔ Establishment of an early warning system to provide real-time information regarding flooding in the Maritime and Kara regions;

<sup>1</sup> GFDRR Disaster Risk Management Programs for Priority Countries. Togo Case Study.

<sup>2</sup> World Bank Data Portal: Togo Country Profile. Accessed on 14 January 2011 at <http://data.worldbank.org/country/togo>.

<sup>3</sup> Ibid.

<sup>4</sup> African Development Bank, 2009. Republic of Togo 2009-2010 INTERIM COUNTRY STRATEGY PAPER. Data from 2006.

<sup>5</sup> African Development Bank. Togo Homepage Available at: <http://www.afdb.org/en/countries/west-africa/togo/>.

<sup>6</sup> I-PRSP, 2008.

<sup>7</sup> National Adaptation Programme of Action of Togo.

<sup>8</sup> Ibid.

- ➔ Strengthen coastal protection against coastal erosion in the eastern port of Lomé;
- ➔ Support for rural communities in the Savannah and Kara regions to prevent and combat vector-borne diseases;
- ➔ Develop small-scale irrigation in lowland areas for groups of farmers living in the Central, Kara, and Savannah regions in an effort to curtail migration;
- ➔ Initiate income-generating schemes for communities of farmers and fishermen in coastal areas with the objective of building capacity to manage the adverse effects of climate change;
- ➔ Support the capture of surface water in the Savannah and Kara by multi-purpose hillside water catchments;
- ➔ Sustainable management of wood and charcoal energy, bush fire, reforestation, and participative management of existent forest;
- ➔ Develop and reinforce the electricity network for its transportation and distribution.

Priority Sectors
Agriculture
Water Resources
Coastal Zone Management
Health
Energy

Source: Togo’s National Adaptation Programme of Action.

## CLIMATE BASELINE AND CLIMATE FUTURE

### CLIMATE BASELINE

Togo's climate varies from tropical to savanna. The southern part of the country is humid, with temperatures ranging from 23°C to 32°C. In the north, temperature fluctuations are greater—from 18°C to more than 38°C. Rainfall in the south of the country comes in the form of two seasons (the first between April and July and the second between September and November). The dry desert winds of the Hamattan blow south between November to March, bringing cooler, drier weather, and periodic droughts to the north of the country.

### RECENT CLIMATE TRENDS

According to the National Adaptation Programme of Action, a shift in the rainy season has been observed, which can begin up to 30 days later than usual. When there is a delay, the rainy season is punctuated by waves of drought, which interrupt crop growth. Likewise, heat waves are now common in all regions of the country with significant consequences on livelihoods and natural resources.<sup>9, 10</sup>

- ➔ Togo's mean annual temperature has increased by 1.1°C since 1960, an average rate of 0.24°C per decade. The rate of increase has been most rapid in the northern regions between April-June, around 0.31°C per decade.
- ➔ Daily temperature data indicate that the frequency of ‘hot’ days<sup>8</sup> and nights<sup>11</sup> has increased

<sup>9</sup> National Adaptation Programme of Action of Togo.

<sup>10</sup> UNDP Climate Change Country Profiles for Togo.

<sup>11</sup> Hot nights are defined as the temperature exceeded on 10% of days or nights in current climate of that region and season.

significantly in all seasons.

- ➔ The average number of 'hot' days<sup>12</sup> per year in Togo increased by 57 (an additional 15.5% of days) between 1960 and 2003, most strongly between September-October, during the second rainy season.

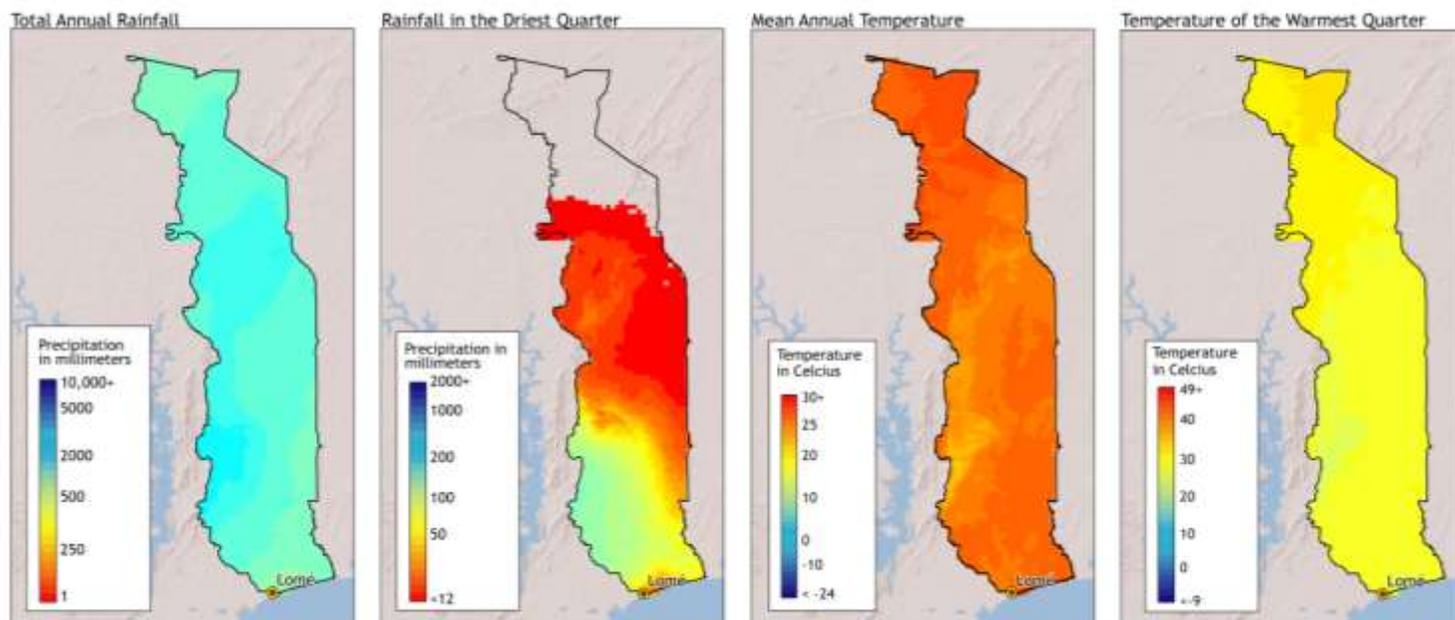


Figure 2: Climate baseline for Togo<sup>13</sup>

- ➔ The average number of 'hot' nights<sup>9</sup> per year increased by 79 (an additional 21.5% of nights) between 1960 and 2003, again most strongly during the second rainy season between September-October.
- ➔ The frequency of cold days and nights<sup>14</sup> has decreased significantly since 1960 in all seasons.
- ➔ The average number of 'cold' days per year has decreased by 21 (5.8% of days) between 1960 and 2003. This rate of decrease is most rapid in summer (June-August) when the average number of cold summer days has decreased by 2.5 days per month (8.1% of summer days).
- ➔ The average number of 'cold' nights per year has decreased by 14 (4.0% of days), and this decrease is most rapid in June-August when the average number of cold nights has decreased by 2.8 nights per month.
- ➔ Rainfall in Togo varies on both decadal and inter-annual scales, making long-term trends difficult to pinpoint. Rainfall levels were particularly pronounced in the 1960s and decreased to low

<sup>12</sup> Hot days are defined as the temperature exceeded on 10% of days or nights in current climate of that region and season.

<sup>13</sup> WorldClim 1960-1990 averages. Robert J. Hijmans, Susan Cameron, and Juan Parra, at the Museum of Vertebrate Zoology, University of California, Berkeley, in collaboration with Peter Jones and Andrew Jarvis (CIAT), and with Karen Richardson (Rainforest CRC). [www.worldclim.org/current](http://www.worldclim.org/current).

<sup>14</sup> Cold nights are defined as the temperature below which 10% of days or nights are recorded in current climate of that region or season.

levels in the late 1970s and early 1980s, as in much of the Sahelian region. Overall, this has led to a decreasing trend of an average 2.3 mm per month (2.4%) per decade from 1960 to 2006.

## CLIMATE FUTURE

Global Climate Models (GCMs) are our primary source of information about future climate. GCMs comprise simplified but systematically rigorous interacting mathematical descriptions of important physical and chemical processes governing climate, including the role of the atmosphere, land, oceans, and biological processes. The following insights into a changing climate are from a suite of GCMs used by the Intergovernmental Panel on Climate Change<sup>15</sup>.

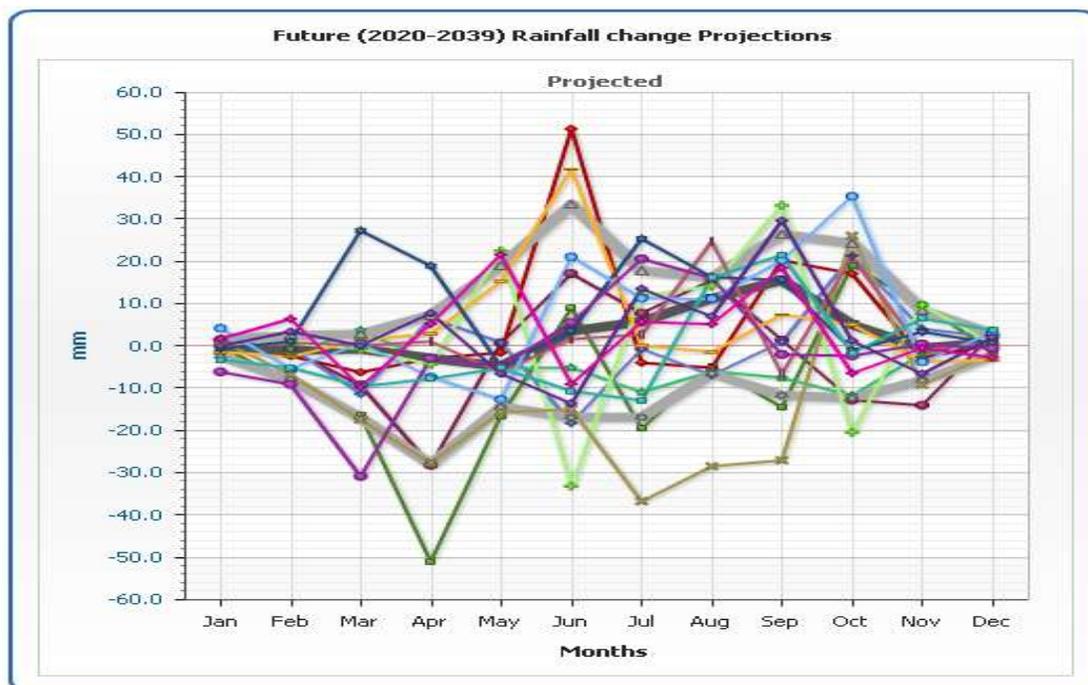
- ➔ Mean annual temperatures are projected to increase by 1.0 to 3.1°C by the 2060s, and by 1.5°C to 5.3°C by the 2090s. The range of projections by the 2090s varies in temperature increases between 1.5-2.5°C. Warming is projected to be most rapid in the inland north rather than the coast.
- ➔ All projections indicate substantial increases in the frequency of days and nights that are considered 'hot' in current climate.
- ➔ Annually, projections indicate that 'hot' days will occur on 17-56% of days by the 2060s and 23-88% of days by the 2090s. Days considered 'hot' by current climate standards may increase most rapidly in June-September.
- ➔ Nights that are considered 'hot' for the annual climate of 1970-99 are projected to occur on 28-76% of nights by the 2060s and 38-89% of nights by the 2090s.
- ➔ Most projections indicate decreases in the frequency of days and nights that are considered 'cold' in current climate. 'Cold' days and nights occur on less than 3% of days by the 2090s.
- ➔ Although the projected mean temperature increases most rapidly in the interior regions of Togo than near the coast, the projected changes in the daily temperature extremes ('hot' and 'cold' days and nights) in Togo are largest in the coastal areas and smaller inland.

Projections of changes in rainfall are less certain for Togo, with both increases and decreases indicated by different models<sup>16</sup> (Figure 3). However, the predicted changes in average rainfall, either for an increase or decrease, are rather insignificant for much of the country (+/-30 mm). The frequency of intense rainfall events and longer periods of drought may increase.

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<sup>15</sup> UNDP Climate Change Country Profile for Togo and WB Climate Change Knowledge Portal.

<sup>16</sup> World Bank Knowledge Portal. [www.worldbank.org/climateportal](http://www.worldbank.org/climateportal).



**Figure 3: Projected change in rainfall between the historical period (1980-1999) and the future period projections (2020-2039) across 14 models of the Intergovernmental Panel of Climate Change's Fourth Assessment Report.<sup>17</sup>**

## CLIMATE CHANGE IMPACTS ON NATURAL HAZARDS VULNERABILITY

The main climate risks facing Togo are flooding, drought, poor distribution of rain, late rains, violent winds, and coastal erosion. According to the country's NAPA<sup>18</sup>, the sectors that will be most affected by climate change are agriculture, health, fisheries, water, and coastal resources. Across the country, drought and floods pose the greatest threats from natural hazards:

- ➔ **Floods** — between 1925 and 1992, Togo endured 60 flood events that caused major damage to infrastructure, as well as significant loss of life.<sup>19</sup> Over the past decade, six major floods have inflicted significant environmental, social, and economic damage. Governance deficiencies and a lack of appropriate disaster preparedness plans have severely hampered the country's ability to respond to these hazards.<sup>20</sup> The successive flooding has leached essential nutrients from topsoils, accelerated erosion, and degraded the quality of the arable land.<sup>21</sup>

<sup>17</sup> World Bank's Climate Change Data Portal

<sup>18</sup> National Adaptation Program of Action of Togo.

<sup>19</sup> Ibid.

<sup>20</sup> GFDRR Disaster Risk Management Programs for Priority Countries. Togo Case Study.

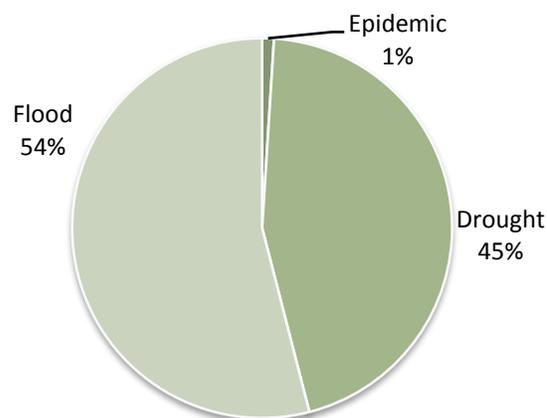
<sup>21</sup> Ibid.

The most recent severe flooding occurred in 2007 and 2008, with the northern region bearing the brunt of the damages. In 2007, over 127,880 people were affected, 13,764 people displaced, and dozens killed.<sup>22</sup> In 2008, heavy rains unleashed severe floods in the northern Savannah, southern Maritime, and Central regions, displacing over 4,000 people.<sup>23</sup> During both flood events, food security plummeted as prices skyrocketed, and inflation rates rose from 1% in 2007 to 9.1% in 2008.<sup>24</sup>

Preliminary assessments indicate that the damaging floods of 2008 destroyed 11,688 hectares of cultivated land, resulting in a serious loss of income for farmers while also creating a spike in food shortages across the region. Moreover, 300 km in roads and eleven major bridges were destroyed, leading to an increase in transportation costs. Consequently, many rural Togolese faced limited opportunities to engage in economic activities such as the purchasing of basic necessities. Also, rising transportation prices negatively impacted the national economy, as much needed tax revenue from large companies fell as flooding reduced their profits. Entrance fees for import and export business, traditionally collected from neighboring landlocked countries such as Burkina Faso, Mali, and Niger, also dropped once Togo's main port suffered damage in the floods.<sup>25</sup>

Climate change is projected to increase the frequency, magnitude, and intensity of floods and associated landslides. Togo has increased its vulnerability to landslides in the past decades as more erosion and unsustainable deforestation and agriculture of marginal areas persist. Future events could be even more damaging without effective disaster risk reduction and adaptation measures in place.

➔ **Drought** — Drought events occur most frequently in the Kara and Savannah regions, where each year temperatures reach above 40°C. Over the past 60 years, Togo has experienced three major droughts (between 1942-1943, 1976-1977, and 1982-1983) leading to severe famines. Droughts are characterized by a progressive increase in temperature, a decline in rainfall events, a reduction in the number of rainy days, and a shift in the ratio of rainfall to potential evapotranspiration. In addition to direct environmental impacts, such as soil degradation and loss of biodiversity, the socio-economic consequences of these events include a reduction in agricultural yields, death of livestock, reduction in agricultural revenue, an increase in rural to urban migration, exacerbation of famine, and an upsurge in water- and vector-borne diseases.<sup>26</sup>



**Figure 1: Average impacts of major natural hazards in Togo.**

Source: EM-DAT- Source of data: "EM-DAT: The OFDA/ CREI International Disaster Database, Université Catholique de Louvain, Brussels, Bel." Data version: v11.08

<sup>22</sup> GGFDRR Disaster Risk Management Programs for Priority Countries. Togo Case Study.

<sup>23</sup> West Africa Floods map 2008, UN Office for the Coordination of Humanitarian Affairs, 2 September 2008, available at: [http://www.reliefweb.int/rw/fullMaps\\_Af.nsf/luFullMap/5598E04D6AF1AB19C12574B900467E0F/\\$File/ocha\\_FL\\_afr080902.pdf?OpenElement](http://www.reliefweb.int/rw/fullMaps_Af.nsf/luFullMap/5598E04D6AF1AB19C12574B900467E0F/$File/ocha_FL_afr080902.pdf?OpenElement).

<sup>24</sup> African Development Bank.

<sup>25</sup> GFDRR Disaster Risk Management Programs for Priority Countries. Togo Case Study. <http://gfdrr.org/ctrydrmmnotes/Togo.pdf>.

<sup>26</sup> National Adaptation Program of Action of Togo.

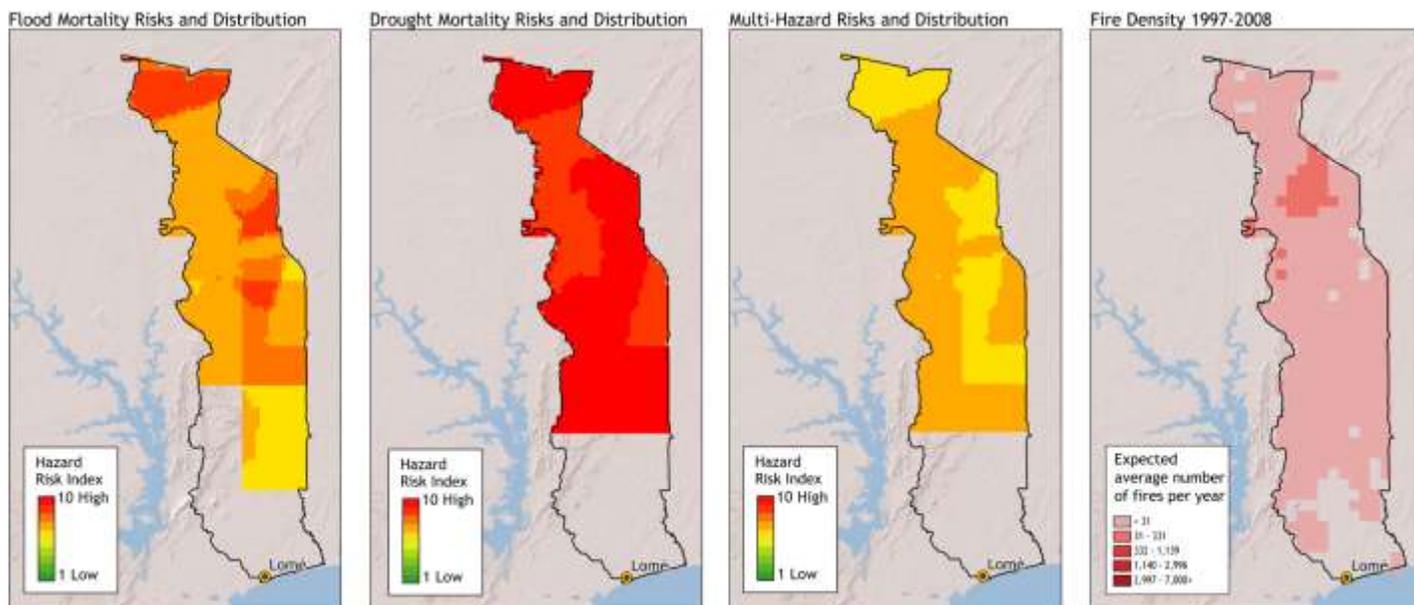


Figure 4: Exposure to climate-related hazards across Togo<sup>27</sup>

### Implications for DRM

- ➔ Projected increases in the intensity and frequency of flood events will continue to cause severe economic distress in Togo. Investments in ex-ante measures in the agriculture to avoid food shortages, in transportation, as well as in the infrastructure sector will be necessary to build resilience to floods.
- ➔ Developing a drought risk reduction framework is vital to building coping capacity at the local, regional, and nation levels. Such a framework would need to emphasize
  - Drought risk identification, impact assessment, and early warning (including hazard monitoring and analysis), vulnerability and capability analysis, assessments of possible impacts, and the development of early warning and communication systems;
  - Drought awareness and knowledge management to establish the foundation at the community level for drought risk reduction and moving building resilience;
  - Effective drought mitigation and preparedness measures to move from policies to practices with the objective of minimizing the potential negative effects of drought.<sup>28</sup>

<sup>27</sup> Unep's Global Risk Data Platform, Columbia University Center for Hazards and Risk Research (CHRR), and Columbia University Center for International Earth Science Information Network (CIESIN).

<sup>28</sup> ISDR, 2007. Drought Risk Reduction Framework and Practices: Contributing to the Implementation of the Hyogo Framework for Action.

## SECTORAL CLIMATE RISK REDUCTION RECOMMENDATIONS

## AGRICULTURE

Highly vulnerable to climate variations, Togo's agriculture sector constitutes 43% of GDP and is the mainstay of most Togolese livelihoods. Agriculture will remain the mainstay of economic growth for the foreseeable future, with staple crops being yams, cassava, corn, millet, sorghum, cocoa, coffee, rice, and cotton.<sup>29</sup> If recent trends continue, future agricultural supplies will not be enough to meet demands and reduce poverty.<sup>30</sup> According to a recent WFP survey, 71.1% of Togolese are vulnerable to food insecurity. This is a result of low agricultural capacities and high reliance on increasingly erratic weather conditions, low productivity stemming from use of inadequate technologies, insufficient access to inputs (i.e. fertilizers and pesticides), lack of pest control, and major shortfalls in agricultural processing.<sup>31</sup>

Floods inundate fertile land, kill livestock, destroy standing crops, and reduce or eliminate yields. Corn and millet in particular—the main food staple of many Togolese – will suffer reduction in yields. Unless inputs are provided and opportunities arising from projected changes in climate are capitalized upon, not only will yields drop but prices of staples will rise. Climate change is projected to bring about a shift of seasons accompanied by a reduction of humid periods, a rise in evapotranspiration, and drying of soils. A majority of humid soils where rice and sugar cane are cultivated will become drier, while projected changes in floods and droughts suggest a reduction in rainfed maize production by 2025. In monetary terms this is the equivalent to a loss of \$USD 12–24 billion. As the price of maize continues to rise, these losses stand to significantly impact Togo.<sup>32</sup> The consequences of drought will be equally devastating to agricultural yields.

Togolese farmers have a long history of coping with climate variability. As climate conditions change, these farmers are increasingly receptive to new agricultural technologies offered by extension services. The use of drought-resistant seeds is becoming more common, which minimizes the risk of crop failure due to prolonged drought. Low-lying lands, once abandoned, are increasingly sought after due to their moisture and fertility, which are higher than in soils found on the plateau. Crops are increasingly cultivated in terraces along steep slopes. The use of alternative income-generating activities has empowered communities forced to abandon their traditional activities. In worst-case scenarios, people are forced to abandon their land and migrate to better conditions. The government of Togo has taken action to make flood-resilient seeds more available to farmers, subsidize the price of fertilizers for producers, subsidize mechanized services, and provide credit for improving access to fertilizer. Improved soil and water management to conserve soil moisture and increase nutrient content during cropping periods are needed.<sup>33</sup>

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<sup>29</sup> National Adaptation Programme of Action of Togo

<sup>30</sup> World Bank, 2010. Project Information Document "Togo Agricultural Sector Support Project" Report # AB5799.

<sup>31</sup> African Development Bank. 2009. Republic of Togo 2009-2010 INTERIM COUNTRY STRATEGY PAPER.

<sup>32</sup> National Adaptation Programme of Action of Togo.

<sup>33</sup> Togo's First National Communication to the UNFCCC.2001.

**Table 1: Projected changes in rain-fed, high-input cereal yields across Togo under future scenarios<sup>34</sup>**

Crop	Baseline Yield (1961-1990)	Projected Yield	Change %	Period
Rice	3083	3009	-2.4	2020s
Rice	3083	3108	0.81	2050s
Rice	3083	2762	-10.41	2080s
Sorghum	1550	2693	73.74	2020s
Sorghum	1550	1758	13.42	2050s
Sorghum	1550	2675	72.58	2080s
Maize	3008	4411	46.64	2020s
Maize	3008	3360	11.7	2050s
Maize	3008	4446	47.81	2080s

## WATER RESOURCES

In general, the decrease of water resources is expected to be accompanied by an increase in evapotranspiration due to rising temperatures. Land degradation, especially loss of forest cover, increases runoff and reduces rainwater infiltration to critical aquifers. Consequently, reservoirs of groundwater and surface water will be significantly affected both qualitatively and quantitatively. In the southern lagoon area, rising sea levels will reduce the hydraulic gradient streams, leading to siltation and increased frequency of flooding. Lakes and coastal lagoons are likely to become completely brackish due to sea-level rise and increased storm surges, further deteriorating these critical ecosystems. As a growing number of people move to urban areas, there will be increased demand for community water provisioning as well as wastewater treatment.<sup>35</sup>

One of Togo's greatest concerns is the availability of clean drinking water. These resources are not always readily accessible and their quality can vary depending on aquifer depth. Moreover, the availability of Togo's surface water resources is already jeopardized by seasonal and regional rainfall variation. An early onset to the dry season could further exacerbate this supply. Together, the city of Lomé and the Maritime region are home to 40% of the population and over 90% of domestic industries. Securing sufficient water for these regions under current management conditions is projected to grow increasingly challenging.<sup>36</sup> Increased ability to store water during wet periods and increased access to irrigation during drought periods could help decrease vulnerability to the projected increase of dry days within the cropping season.

## COASTAL RESOURCES

Togo's 60 km coastline is vulnerable to projected changes in sea level, which will severely affect the critical coastal ecosystem. Sea-level rise is expected to raise the level of lagoons and lakes along the coast and contribute to the salinization of lagoons and Lake Togo, with dire consequences not only for coastal ecosystems but also causing riverbed flooding, increased saltwater intrusion, and exacerbated coastal erosion. Already, coastal erosion measurements put the average loss of coastline to 5 m/year; this is mainly due to hydroelectric and port infrastructure developments, but

<sup>34</sup> World Bank Climate Change Data Portal –Agricultural Model Generated by IIASA.

<sup>35</sup> National Adaptation Programme of Action of Togo.

<sup>36</sup> Ibid.

is certain to be exacerbated by climate, to the tune of 10 m/year. Along the eastern section of Lomé harbor, an annual erosion rate of 20 m has been recorded. Close to 500,000 people live in precarious settlements along Togo's coast and their livelihoods are set to be severely compromised by changes in sea level. Coastal zones are also home to over 90% of Togo's economic activities, which will be jeopardized by the impacts of climate change; vital infrastructure services and economic activities in particular are found along the coast and have already suffered major losses due to floods. Lomé, a large and growing city located on the sea, is particularly vulnerable due to overcrowding and extremely fragile structures in the unplanned parts of the city.

Finally, sensitive ecosystems such as mangroves and farmland will be destroyed by excess salt due to salt-water intrusion. The animal ecology will be affected by these changes, and signs of deterioration will become more pronounced.<sup>37</sup> In coastal zones, improved early warning systems will be needed to better respond to floods. Support for alternative income-generating schemes for those whose livelihoods are dependent on fisheries and related coastal-zone activities will be necessary.<sup>38</sup>

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## HEALTH

Temperature and rainfall play important roles in the propagation and spread of various diseases. All scenarios predict a future climate with increased temperatures for all time periods. Such a warming will favor the growth of larvae or parasites throughout the national territory. Variations in rainfall could increase moisture availability in the north, affording ideal conditions for the spread of mosquito-borne diseases in the northern region (malaria and dengue). While changes in rainfall are less certain in the future, projected reductions will lead to an increase of phenomena that cause diarrheal diseases, and populations of northern regions would be subject to exceptionally high rates of deaths from malaria, diarrhea, and cholera, mainly in children. Where there are low flow rates into lakes and rivers, local populations along these coasts will be subjected to the traditionally critical thresholds of cholera.<sup>39</sup>

To escape floods and their associated health risks, local populations tend to move to higher grounds. Health problems are partly addressed through traditional medicine, consultation with traditional healers, and improved hygiene practices. Future adaptation measures will need to include provisions to reinforce and expand capacity of health personnel and improve health-related infrastructure in rural zones.

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## ENERGY

Energy access remains a challenge in Togo as many areas remain off the national grid and without a stable and affordable power supply. Togo's overall energy consumption is characterized by a preponderance of traditional energy sources (80%), including woody biomass, and only 20% is based on petroleum products and electricity. By 2025, wood consumption will reach 5.7 million tons, an increase of 30% over the 2010 consumption (4.4 million tons)<sup>40</sup>. Twenty-seven percent of the

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<sup>37</sup> Ibid.

<sup>38</sup> Ibid.

<sup>39</sup> Ibid.

<sup>40</sup> Togo First National Communication to UNFCCC, 2001.

electricity demand is produced by a dam built on the Mono Nangbéto River. The potential production of this hydropower is estimated to decline with climate projections of reduced precipitation. By 2025, the deficit energy becomes important and might increase the dependence of Togo on non-renewable sources.<sup>41</sup> A constant theme at the household level is the challenge of living without a reliable electricity supply while dealing with the poor health and fire hazards that kerosene lanterns pose.

There is an urgent need for an affordable, reliable power supply to help adapt to challenges brought forward by accelerating climate variability. Renewable energy in Togo represents a great leapfrog opportunity to enhance reliable energy access. However, a majority of the people remain unfamiliar with wind and solar options. National programs have acknowledged the issue and proposed actions, but implementation has been very slow. Key actions include the promotion of alternative energy sources with improved energy efficiency and sound management through incentives and control. Specific adaptation measures to implement in light of current and projected changes in climate include:

- ➔ Promotion of butane gas for cooking;
- ➔ Sustainable management of wood and charcoal energy, including bush fire management;
- ➔ Reforestation and participative management of the existing forests;
- ➔ Develop and reinforce the electricity network for its transportation and distribution.

### Ongoing Efforts—At a Glance<sup>42</sup>

<i>Vulnerability Reduction</i>	<i>Funding and Implementer</i>
-UNDP is assisting the Government of Togo through the Ministry of Environment to <i>enhance the coordination mechanisms of the national platform</i> .	UNDP
- Development of a national strategy for disaster risk management and prevention, a national risk/hazard mapping, a contingency plan, and an early warning system.	UNDP
- <i>Urban Environment</i> project in Lomé. This project has a component that finances the drainage of excess rainy water from the lagoon of Lomé. This project will help to overcome the floods caused by the water of the lagoon during the rainy season in some particularly exposed areas of the capital city.	European Union and West African Bank for Development
- <i>Rehabilitation of water reservoirs</i> in the Savannah Region for the benefit of women's groups and youth.	Department of Village Water Supply under the Ministry of Water and Sanitation , CC DARE, UNDP, UNEP, UNFCCC
- <i>Technical capacity building</i> of civil society organizations and Togolese private sector on climate change NGOs.	Friends of the Earth – Togo/ CC DARE, UNDP, UNEP, UNFCCC
- Development of the National Action Plan for Adaptation to Climate Change.	UNDP/ funded by GEF

<sup>41</sup> Ibid.

<sup>42</sup> Additional efforts are mentioned in the GFDRR Country Risk Profile, 2009.

<i>GFDRR Interventions</i> <sup>43</sup>	<i>Funding and Implementer</i>
-Risk mapping (Lomé and Baguida), risk and vulnerability assessments, and enhancement of national capacity building.	GFDRR
Support to local development activities to reduce vulnerability to climate change. Community risk assessments.	GFDRR
Emergency Infrastructure Rehabilitation and Energy Project (EIREP)	World Bank

## EXISTING ADAPTATION FRAMEWORK/STRATEGY/POLICY AND INSTITUTIONAL SETUP

### AT A GLANCE

Togo has completed an Inter-Agency Contingency Plan (IACP) with OCHA, UNHCR, UNICEF, and other agencies of the United Nations system to coordinate the assistance of development agencies to national response efforts, but the institutional and physical infrastructure for emergency management remains limited. A comprehensive study on the assessment of climate-related risks and vulnerabilities in Togo has yet to be conducted due to financial constraints. In addition, reliable early warning systems are yet to be deployed. Some initial steps toward risk mapping have taken place by the Government of Togo, with the support of UNDP. To facilitate the implementation of the National Adaptation Programme of Action, the following provisions have been taken:<sup>44</sup>

- ➔ Coordination Unit, consisting of a Program Management Coordinator and an Secretary-Accountant to assist in the monitoring and evaluation by the Directorate in charge of Environment, and development and implementation of the Programme work for resource mobilization in collaboration with the Directors of Programming and Forecasting, the Technical Directors of key structures, and local elected officials concerned;
- ➔ A Committee has been established with responsibility for providing strategic projects and validation studies. It consists of members of the Steering Committee, the Representatives of Local Government, and relevant non-governmental structures involved in the theme.

### INSTITUTIONAL AND POLICY GAPS

Activities realized in the preparation of Togo's Initial National Communication and other related activities led to the identification of the following needs that institutions need to address:

- ➔ To develop and reinforce the institutional capacity of national agencies responsible for the coordination of activities related to climate change.
- ➔ To reinforce existing links between organizations responsible for the preparation of national inventories and all other institutions involved in collection of data for these inventories; in

<sup>43</sup> GFDRR country profiles. <http://gfdr.org/ctrydrmnotes/Togo.pdf>.

<sup>44</sup> National Adaptation Program of Action of Togo.

addition, the need for support for the development of appropriate systems of information management in order to better archive and update results of the inventories.

- ➔ To produce essential documents for experts in French, not only English.
- ➔ To review methodology of UNFCCC and of the IPCC and when reviewing these documents, to take into consideration documents in languages other than English
- ➔ To ensure that the implementation of climate change-related activities such as the improvement of inventories, results monitoring and vulnerability and adaptation assessments are carried out in collaboration with policymakers, development actors, and with high public awareness.
- ➔ To make available more technological and financial resources to overcome constraints associated with producing a second National Communication and National Adaptation Plan.
- ➔ Financial resources and appropriate instruments are needed to support vulnerability studies and assessments of environmental and socio-economic impacts of climate change. Research on coastal erosion undertaken by the Centre for Integrated Coastal Zone Management and Environment at the University of Lomé has made little to no progress due to lack of financial resources. All of these efforts need to be supported.

### RESEARCH, DATA, AND INFORMATION GAPS

Togo's status as a developing country, highly dependent on agriculture, makes it particularly susceptible to the effects of climate change. Similar to other developing countries, Togo does not have adequate monitoring systems for predicting the likelihood of extreme events occurring, or for assessing possible changes in weather patterns. This deficiency makes the task of developing short term-response or disaster mitigation strategies extremely difficult. Adaptation strategies are likewise difficult to formulate unless detailed vulnerability and impact assessment studies are undertaken.

The majority of research, data, and information gaps exist because of lack of financial resources and technological capacity. Initiative curtailed due to lack of support include:

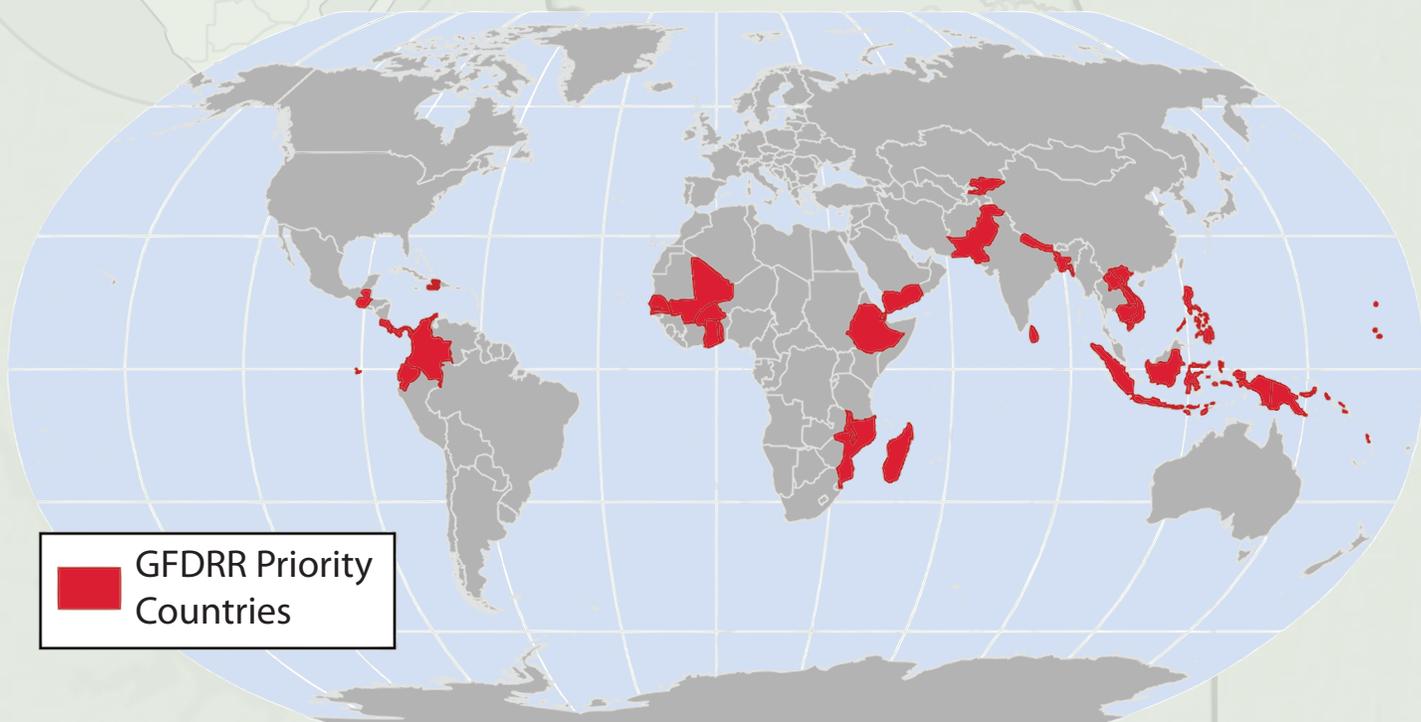
- ➔ The Laboratory of Atmospheric Physics of the Faculty of Sciences of the University of Lomé showed that there is considerable potential to generate more knowledge on climate change, for example, by initiating studies on tropical convection by using terrestrial photogrammetry of clouds. The lack of financial and technological resources has rendered these pursuits unviable.
- ➔ The Laboratory of Atmospheric Chemistry at the University of Lomé and some research institutions are developing research programs to improve outcomes for inventory studies. Lack of financial resources and technology are delaying the application of these research programs.
- ➔ Improving national weather service's ability to collect data across the country would offer significant benefits to addressing climate-related disaster risks and development of early warning systems for all vulnerable zones.<sup>45</sup>

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<sup>45</sup> Togo's Initial National Communication to the United Nations Framework Convention on Climate Change (UNFCCC).

# Climate Risk and Adaptation Country Profile

This Country Profile (<http://countryadaptationprofiles.gfdr.org>) is part of a series of 31 priority country briefs developed by the Global Facility for Disaster Reduction and Recovery (GFDRR) as part of its Disaster Risk Management Plans. The profile synthesizes most relevant data and information for Disaster Risk Reduction and Adaptation to Climate Change and is designed as a quick reference source for development practitioners to better integrate climate resilience in development planning and operations. Sources on climate and climate-related information are linked through the country profile's online dashboard, which is periodically updated to reflect the most recent publicly available climate analysis.



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