

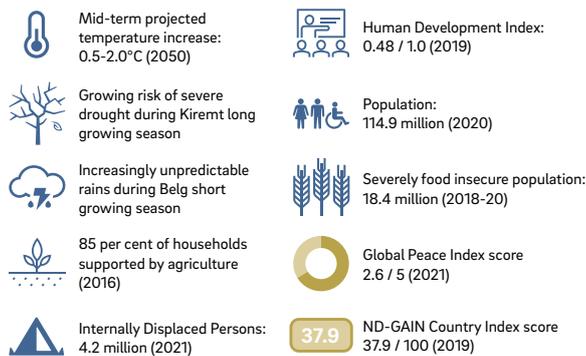
# Ethiopia

Ethiopia is currently experiencing one of its most severe droughts in decades following four consecutive failed rainy seasons. The country has a high dependency on rainfed agriculture, and recent reductions in economic growth rates, rapid population growth, weak institutional capacity and high levels of conflict make it particularly vulnerable to the impacts of climate change. While climatic conditions differ substantially across Ethiopia, the average temperature is projected to increase, and rainfall is expected to become more erratic. Ethiopia's long history of drought, famine and locust outbreaks all further the need for increased capacity and resilience to cope with the projected impacts of climate change. Political instability and conflict have compounded the humanitarian situation in the country, hampering the ability of the Ethiopian Government to implement its climate adaptation and mitigation policies.

- Access to land and water has been linked to conflict among pastoralist and agropastoral communities in Ethiopia. Insufficient rainfall and prolonged droughts are likely to increase pasture shortages, and increased tensions might also cross borders if pastoralists are forced further into the Karamoja cluster area and potentially cross the border into South Sudan and Kenya.
- Ongoing conflicts, including inter-communal conflicts across the country and the armed conflict in the Tigray region, have exacerbated food insecurity and reduced capacity to adapt livelihoods to the consequences of climate change at both state and community levels.
- High levels of gender inequality in Ethiopia create barriers to climate adaptation for women and female-headed households; in many instances, women lack access to the financial, technical and other resources needed to adapt to climate change.
- Due to population growth, climate change and increasingly water-intensive agriculture, the flow of the Nile river is expected to fall below demand within decades.

## RECOMMENDED ACTIONS:

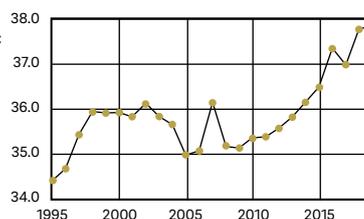
- ▶ The African Union (AU), the Intergovernmental Authority on Development (IGAD), the United Nations (UN) system and international partners should further expand their support to the Ethiopian Government's efforts to implement its Climate Resilient Green Economy strategy. Particular attention should be paid to the disproportionate effect of both climate-related impacts and conflict on women and girls.
- ▶ International partners should take urgent steps to increase development-oriented climate finance and related technical support to the Ethiopian Government and civil society institutions.
- ▶ The AU, IGAD, UN system and other international partners should actively engage with, and support, Ethiopian Government-led efforts to coordinate responses to climate change-related impacts, as well as climate adaptation and mitigation programming. Ensuring farmers' and pastoralists' right to access information about the environment and right to participate in environmental decision-making should be a priority in this work.
- ▶ The Nile river riparian states should continue to engage in dialogue, information-sharing and technical cooperation, including through the Nile Basin Initiative. To reinvigorate and stimulate dialogue, one action could be to undertake cross-regional research into the projected effects of climate change on Nile river resources, as well as opportunities to mitigate these impacts.



### ND-GAIN Country Index

The ND-GAIN Country Index captures a country's Vulnerability to climate change and other global challenges, and its Readiness to improve resilience.

ND-GAIN Country Index score over time



Country comparison	ND-GAIN Country	Global Peace Index
Pakistan	38.3/100	28/5
Mozambique	38.1/100	2.1/5
Papua New Guinea	37.7/100	2.1/5
Sierra Leone	37.7/100	1.8/5

Figure 1. Data sources: The Federal Democratic Republic of Ethiopia (2015). [Climate resilience strategy, Agriculture and forestry](#); The Federal Democratic Republic of Ethiopia, Ministry of Water Resources, National Meteorological Agency (2007). [Climate change national adaptation programme of action \(NAPA\) of Ethiopia](#); FAO (2016). [Ethiopia climate-smart agriculture scoping study](#); IOM (2022). [Ethiopian humanitarian response overview](#); UNDP (2019). [Human development reports: Ethiopia](#); World Bank (2020) [Population, total - Ethiopia](#); FAO, IFAD, UNICEF, WFP and WHO (2021). [The state of food security and nutrition in the world 2021](#); Vision of Humanity (2021). [Global peace index](#); ND GAIN (2021). [ND GAIN country index](#).

## Climate Exposure: Trends and Projections

Ethiopia has a diverse topography with differing climates. In the south and south-west, equatorial rainforests are characterised by high levels of rainfall and humidity, whereas the north-east, east and south-east lowlands are arid with little to no rainfall.<sup>1</sup> The mountainous highland area, in the centre and to the north, is regarded as the “water tower” of East Africa, with steady seasonal rainfalls that contribute to more than 80 per cent of the Nile river’s flow.<sup>2</sup>

**Temperature:** Temperatures differ substantially across the country, but studies show that both minimum and maximum temperatures have been increasing, with an estimated decadal increase of 0.1-0.4°C since 1960.<sup>3</sup> While highly uncertain, forecasts predict that future temperature increases will be between 0.5°C and 2°C by 2050.<sup>4</sup>

**Precipitation:** Annual rainfall also varies across the country. In the arid and semi-arid lowlands average rainfall is at 115-165 mm per year, compared to 1700 mm in the north and south-west regions.<sup>5</sup> Projected changes in precipitation are uncertain, but the inter-annual precipitation change anomaly for 2040 to 2059 range from a 0.76 per cent decrease in June to a 58.5 per cent increase in January.<sup>6</sup> Rainfall is becoming erratic, and the most severe droughts tend to occur in the long growing season, Kiremt, while rains in the short growing season, Belg, are reported to be increasingly unpredictable.<sup>7</sup>

## Socio-ecological Vulnerabilities

Ethiopia is vulnerable to the effects of climate change due to its dependency on rainfed agriculture, low levels of economic development in rural areas, rapid population growth, limited ability to manage disasters and weak institutional capacity.<sup>8</sup> Current high levels of violence and intensifying conflict, including the armed conflict in Tigray, further undermine the stability and integrity of the Ethiopian federal system.<sup>9</sup>

Agriculture supports 85 per cent of the population and contributes over 50 per cent of Ethiopia’s GDP. The agricultural sector is characterised by small-scale farming and the majority of the country’s agriculture is rainfed, with cereals being especially important for food security.<sup>10</sup> If the current projected decline in annual average rainfall levels continues to mid-century, it will reduce Ethiopia’s yearly agricultural output by 6 per cent per year.<sup>11</sup> As pastoralism makes up another 12-16 per cent of the country’s GDP, droughts also impact the more than 12 million Ethiopians who depend on livestock for their livelihoods.<sup>12</sup>

Combined with large-scale conversion of rangeland to farmland, rapid urbanization, population pressures and pollution, climate change is accelerating land degradation in the country.<sup>13</sup> Additionally, despite significant economic development in the past two decades, the combined impacts of global economic shocks, COVID-19 and conflict mean long-term food insecurity and malnutrition continue to be high.<sup>14</sup> The World

Food Programme estimates that as of January 2022 nine million people across Ethiopia’s northern regions were suffering from acute hunger, and a total of 4.2 million people were displaced across Ethiopia.<sup>15</sup>

Ethiopia has seen inter-communal violence and various ethnic insurgencies for over five decades.<sup>16</sup> A number of inter-regional conflicts (e.g. Afar-Somali, Amhara-Oromia, Somali-Oromia, Tigray-Afar, Tigray-Amhara) make up a complicated conflict landscape across the country.<sup>17</sup> Ethiopia’s current security situation is dominated by the ongoing armed conflict between the federal government and the Tigray People’s Liberation Front (TPLF) that erupted in November 2020. The conflict in Tigray has contributed to extremely high levels of hunger and displacement, as well as significant loss of life.<sup>18</sup>

## Climate-related Peace and Security Risks

Research has identified multiple pathways through which climate change interacts with political, social and environmental stresses to compound existing vulnerabilities and tensions.<sup>19</sup> While climate change is rarely the main driver of conflict, it can undermine development gains, exacerbate the dynamics influencing ongoing violence and disrupt fragile peace processes. In turn, violent conflict and political instability undermine community resilience to manage the effects of climate change.<sup>20</sup>

This Fact Sheet uses four interrelated pathways to navigate the complex relationship between climate change, peace and security: (1) livelihood deterioration, (2) migration and mobility, (3) military and armed actors, and (4) political and economic exploitation and mismanagement.<sup>21</sup>

### Livelihood Deterioration

Climate change and increased conflict levels are negatively affecting livelihoods in Ethiopia. Climate variability and an increase in the intensity and frequency of extreme weather events, such as floods and droughts, exacerbate household insecurity, especially for the many relying on rainfed agriculture or pastoralism. Other environmental challenges such as land degradation and deforestation further compound the negative effects of climate change on agricultural production and pastoralism.<sup>22</sup> The armed conflict in Tigray has also been found to undermine previous reforestation and other environmental progress in the region.<sup>23</sup>

Research finds links between changing access to water and land and conflict in Ethiopia, especially among the country’s pastoralist and agropastoralist communities.<sup>24</sup> While these conflicts are often multi-faceted, the high level of violence in the Karamoja transhumance corridor along the Ethiopia-Kenya border and the long-standing contention between pastoral groups in Afar are linked to disputes over rangeland.<sup>25</sup>

The impacts of climate change in Ethiopia, such as flooding and drought, are expected to worsen land degradation and reduce ecosystem services and biodiversity, negatively affecting agricultural output and pasture

<sup>1</sup> World Bank Group (2021). [Climate risk country profile: Ethiopia](#).

<sup>2</sup> Awange, J.L. et al. (2014). [Water storage changes and climate variability within the Nile Basin between 2002 and 2011](#). *Advances in Water Resources*, 73; The Federal Democratic Republic of Ethiopia, Ministry of Water Resources, National Meteorological Agency (2007). [Climate change national adaptation programme of action \(NAPA\) of Ethiopia](#).

<sup>3</sup> World Bank Group, 2021.

<sup>4</sup> The Federal Democratic Republic of Ethiopia (2015). [Ethiopia’s climate resilient green economy. Climate resilience strategy](#); The Federal Democratic Republic of Ethiopia, Ministry of Water Resources, National Meteorological Agency, 2007.

<sup>5</sup> Kassaye, A. et al. (2021). [Quantification of drought severity change in Ethiopia during 1952–2017](#). *Environment, Development and Sustainability: A Multidisciplinary Approach to the Theory and Practice of Sustainable Development*, 23(4).

<sup>6</sup> World Bank Group, 2021.

<sup>7</sup> USAID (2016). [Ethiopia – Complex emergency fact sheet](#); Conway, D. & Schipper, E. (2011). [Adaptation to climate change in Africa: Challenges and opportunities identified from Ethiopia](#). *Global Environmental Change*, 21(1).

<sup>8</sup> Congressional Research Service (2021). [Ethiopia’s transition and the Tigray conflict](#); Mudida, R. (2009). [Links between climate change and conflict in Ethiopia](#). In J. Wakhungu. & E. Nyukuri (eds), *Climate change and conflicts in East and Horn of Africa*. African Centre for Technological Studies.

<sup>9</sup> Congressional Research Service, 2021.

<sup>10</sup> Evangelista, P. et al. (2014). [How will climate change spatially affect agriculture production in Ethiopia? Case studies of important cereal crops](#). *Climatic Change*, 119.

<sup>11</sup> World Bank Group, 2021.

<sup>12</sup> Gebremeskel, E.N. et al. (2019). [Pastoral development in Ethiopia. Trends and the way forward](#). The World Bank.

<sup>13</sup> Wassie, S. (2020). [Natural resource degradation tendencies in Ethiopia: A review](#). *Environmental Systems Research*, 9(33).

<sup>14</sup> WFP (2022). [Ethiopia](#); Zhang, W. et al. (2022). [Impact of COVID-19 on food security in Ethiopia](#). *Epidemiologia*, 3(2).

<sup>15</sup> WFP (2022). [Severe hunger tightens grip on Northern Ethiopia](#); IOM (2022). [Ethiopian humanitarian response overview](#).

<sup>16</sup> de Waal, A. (1991). *Evil days. 30 years of war and famine*. Africa Watch; Mussa, M. et al. (2017). [Indigenous conflict management and resolution mechanisms on range lands in pastoral areas, Ethiopia](#). *Journal of African Studies and Development*, 9(9).

<sup>17</sup> Taye, B. (2017). [Ethnic federalism and conflict in Ethiopia](#). *African Journal of Conflict Resolution*, 17(2).

<sup>18</sup> Global Conflict Tracker (2022). [War in Ethiopia](#). The Council on Foreign Relations.

<sup>19</sup> Mobjörk, M. et al. (2020). [Pathways of climate insecurity: Guidance for policymakers](#). SIPRI.

<sup>20</sup> Moran, A. et al. (2018). [The intersection of global fragility and climate risks](#). USAID; de Coning, C. & Krampe, F. (2020). [Multilateral cooperation in the area of climate-related security and development risks in Africa](#). NUPI Report 4/2020.

<sup>21</sup> Mobjörk et al., 2020.

<sup>22</sup> César, E. & Ekbom, A. (2013). [Ethiopia environmental and climate change policy brief](#). Sida’s Helpdesk for Environment and Climate Change; Schmidt, M. & Pearson, O. (2016). [Pastoral livelihoods under pressure: Ecological, political and socioeconomic transitions in Afar \(Ethiopia\)](#). *Journal of Arid Environments*, 124.

<sup>23</sup> Conflict and Environment Observatory (2022). [The war in Tigray is undermining its environmental recovery](#).

<sup>24</sup> Lumborg, S. et al. (2021). [Examining local perspectives on the influence of climate change on the health of Hamar pastoralists and their livestock in Ethiopia](#). *Pastoralism*, 11(1).

<sup>25</sup> Yshak, M. (2019). [Climate fragility risk brief: Ethiopia](#). Climate Security Expert Group; Wassie, 2020.

availability. This may further compound long-standing tension and existing competition over resources, especially land and water.<sup>26</sup>

Women and girls, especially in rural parts of Ethiopia, are particularly vulnerable to the impacts of climate change and environmental degradation. High levels of gender inequality in Ethiopia create significant direct and indirect barriers to adaptation for women and female-headed households; in many instances, women lack access to the financial and technical resources needed to adapt to climate change, and are often disadvantaged in land use access due to the continued use of customary systems of tenure which hinder the effective implementation of Ethiopian women's legal rights to possess and control land.<sup>27</sup>

The Ethiopian Government and humanitarian agencies should continue to strengthen, including through coordination, their capacities to respond to food insecurity and displacement linked to climate change and conflict as reflected in the government's Climate Resilient Green Economy strategy. Support to climate adaptation efforts should address gender disparity and facilitate women's and female-headed households' increased participation in the economy, as aspired to in the government's Ten Years Perspective Development Plan.

### Migration and Mobility

Forced displacement following droughts and floods is already affecting vulnerable communities in Ethiopia and is expected to increase in the coming years. The World Bank estimates a surge of rural-to-urban migrants due to the impacts of climate change by 2050, pointing to Addis Ababa as an urban hotspot for climate-induced migration.<sup>28</sup> This, in conjunction with the limited availability of economic resources and the effects on social cohesion, is expected to exacerbate future conflicts in receiving urban areas.<sup>29</sup>

Heightened levels of communal conflict over access to land and water following shifting politics at the federal level after the 2018 election, have led to the displacement of hundreds of thousands of people, especially in Oromia, the Southern Nations and the outskirts of Addis Ababa.<sup>30</sup> In Tigray and Amhara, the UN finds that large numbers of the newly displaced have contributed to exacerbating existing tensions between Amharas and Tigrayans who previously lived together in the same areas. Tensions have exacerbated as internally displaced persons (IDPs) have not been provided with adequate food, nutrition, water, healthcare or sanitation.<sup>31</sup>

Seasonal migration and mobility are fundamental for Ethiopia's 12 million pastoralists, allowing for adaptability to seasonal drought, rain and changes in weather.<sup>32</sup> Research suggests, however, that climate change has changed some of these mobility patterns in Ethiopia. This, in combination with government land policies and changes to regional borders in the 1990s following decentralisation, has contributed to increased instability, unpredictability and vulnerability to violent clashes.<sup>33</sup>

## Livelihood Zones and Political Violence

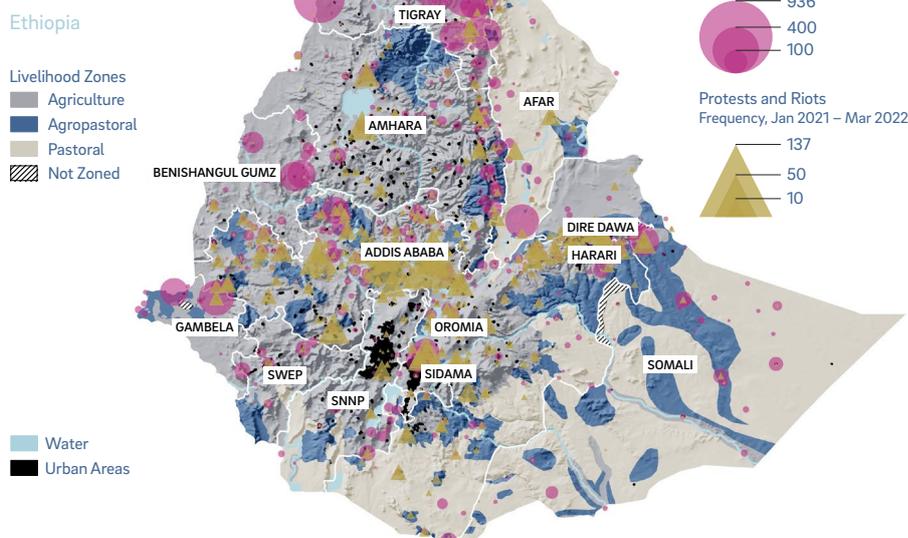


Figure 2. Data sources: FEWS, ACLED, SWAC-OECD & Natural Earth

For example, recurrent droughts have reduced access to rangeland which has subsequently increased competition between Karrayyu and Afar herders, sometimes resulting in communal violence.<sup>34</sup> Research also finds that climate change has contributed to an increased volume of involuntary movement more widely in the Karamoja cluster area.<sup>35</sup> If the impacts of climate change contribute to forcing pastoralists further into Kenya and South Sudan to seek pasture, research also suggests that increased risk of tensions might cross borders and take on an interstate nature.<sup>36</sup>

The AU, IGAD, UN and other international partners should support government-led efforts to engage with local actors to further strengthen local knowledge and analytical capabilities to track climate impacts. These efforts should also enhance abilities to work with affected communities to prevent and manage conflict and adapt to climate change-related impacts on their mobility patterns and options. While many of the capacities needed in this area have already been identified, the resources necessary for implementation are lacking, and require additional international support.

### Military and Armed Actors

There are dozens of armed actors operating across Ethiopia, and conflict over territory and cattle raiding is prevalent among different ethnic groups. Inter-pastoralist and pastoralist-agropastoralist violence has ensued primarily over resources and cattle rustling/raiding.<sup>37</sup> While cattle raiding is a long-standing cultural practice among pastoralist groups, research suggests that it has become a more predatory activity, and several studies have found that resource conflicts have increased in severity as a result of the militarisation of pastoralist societies.<sup>38</sup> Cattle raiding is increasingly linked to livestock trading on foreign markets and small arms proliferation, which in turn increase incentives to engage in the activity. Evidence shows that young pastoralist men are hired and armed

<sup>26</sup> Lumborg et al., 2021.

<sup>27</sup> Mersha, A. A. & Laerhoven, F. V. (2016). [A gender approach to understanding the differentiated impact of barrier to adaptation: responses to climate change in rural Ethiopia](#). Regional Environment Change, 16; Forum for Social Studies (2020). [Women land rights and land utilization in Ethiopia](#).

<sup>28</sup> Rigaud, K. K. et al. (2018). [Groundswell: Preparing for internal climate migration](#). World Bank.

<sup>29</sup> CGIAR (2021). [Assessing the relationship between climate, food security and conflict in Ethiopia and the Central American dry corridor \(CADC\)](#). FOCUS Climate Security.

<sup>30</sup> Yarnell, M. (2018). [The crisis below the headlines: Conflict displacement in Ethiopia](#). Refugees International.

<sup>31</sup> Ethiopian Human Rights Commission & UNHCR (2021). [Investigation into alleged violations of international human rights, humanitarian and refugee law committed by all parties to the conflict in the Tigray region of the Federal Democratic Republic of Ethiopia](#).

<sup>32</sup> Little, P.D. & McPeak, J. (2020). Resilience and pastoralism in Africa south of the Sahara. In S. Fan et al. (eds), [Resilience for food and nutrition security](#). Washington D.C.: International Food Policy Research Institute (IFPRI); Niamir-Fuller, M. (1998). The resilience of pastoral herding in Sahelian Africa. In F. Berkes et al. (eds), [Linking social and ecological systems: Management practices and social mechanisms for](#)

[building resilience](#). Cambridge: Cambridge University Press; Virtanen, P. et al. (2011). [Global climate policies, local institutions and food security in a pastoral society in Ethiopia](#). *Consilience*, 5; UNICEF Ethiopia (2019). [Education for pastoralist children](#).

<sup>33</sup> Hendrickson, D. et al. (1998). [The changing nature of conflict and famine vulnerability: The case of livestock raiding in Turkana district, Kenya](#). *Disasters*, 22(3); Ayele T. et al. (2021). [The impact of climate change on pastoralist livelihoods in Ethiopia: A review](#). *Journal of Resources, Development and Management*, 63; Kefale, A. (2010). [Federal restructuring in Ethiopia: Renegotiating identity and borders along the Oromo-Somalia ethnic frontiers](#). *Development and Change*, 41(4).

<sup>34</sup> Hundie, B. (2010). [Conflicts between Afar and their neighbours: Triggers and motivations](#). *International Journal of Conflict and Violence*, 4(1).

<sup>35</sup> UNDP African Borderlines Centre. (2020). [Mobility and migration in the Karamajo cluster](#). *Borderland Policy Briefing Series*.

<sup>36</sup> CGIAR, 2021.

<sup>37</sup> Lumborg et al., 2021; Debebe, A. (2016). [Mobility and conflict: Persistent challenges in expanding access to education among pastoralists of South Omo, Ethiopia](#). *Ethiopian Journal of Education and Sciences*, 11(2).

<sup>38</sup> Meier, P. et al. (2007). [Environmental influences on pastoral conflict in the Horn of Africa](#). *Political Geography*, 26(6); Hagmann, T. & Mulugeta, A. (2008). [Pastoral conflicts and state-building in the Ethiopian lowlands](#). *Africa Spectrum*, 43(1).

by wealthy individuals, including livestock traders, to carry out raids and at the same time reports of raids causing loss of human lives are increasing.<sup>39</sup>

Very dry conditions have been found to increase both armed groups' activity and violence between pastoralists and other livelihood groups, particularly when rains are absent during Kiremt.<sup>40</sup> This risk is higher in areas with existing ethno-political exclusion, where political and physical vulnerabilities can be mutually reinforcing and increase the likelihood that coping strategies take a violent form.<sup>41</sup> Several studies find abundant rainfall to be associated with increased conflict risk as vegetation and resources impact armed groups' tactical considerations concerning the timing and location of attacks.<sup>42</sup> For instance, increased vegetation provides cover for raiders as high grass and dense bush cover make it easier to track and ambush cattle without being caught.<sup>43</sup>

In order to help prevent the consequences of climate change further exacerbating existing vulnerabilities and tensions, the AU, IGAD and UN system should support efforts to identify, analyse and respond to climate-related peace and security risks.

**Political and Economic Exploitation and Mismanagement**

Ethiopia's history of drought and political mismanagement has played a key role in high levels of food insecurity and famine.<sup>44</sup> Evidence suggests that changes in the access to land plays a key role in pastoralist violence and conflict among ethnic groups.<sup>45</sup> The introduction of formalised property rights across pastoral lands is argued to have contributed to exclusion in areas governed by traditional understandings of communal natural resources, increasing pastoralists' vulnerability to climate change.<sup>46</sup>

The Ethiopian Government has promoted policies allowing for large-scale land leasing by foreign and domestic investors.<sup>47</sup> Whilst these policies have the potential to create employment and promote development, land viewed by the government as unused has in several instances been utilised by pastoral communities in ways not recognised by the state. Consequently, by enclosing areas from pastoralists, leasing of land is

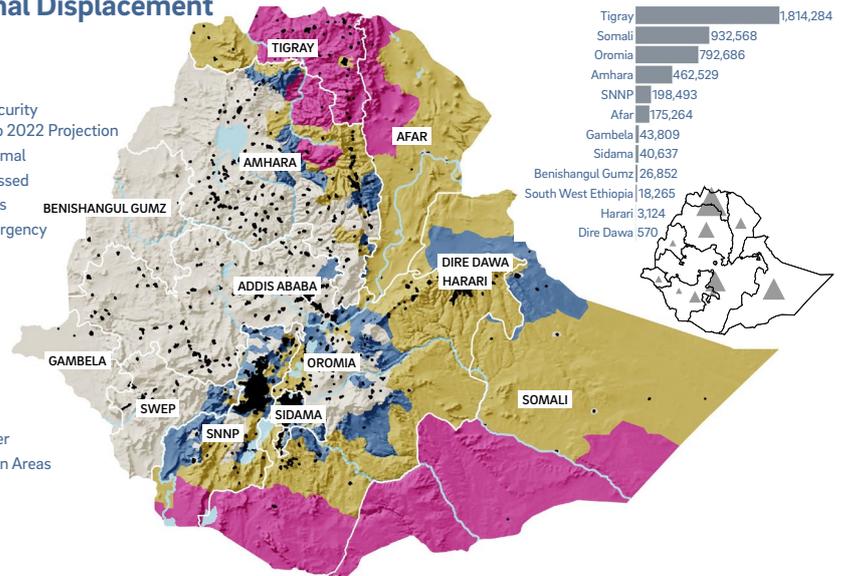
**Food Insecurity and Internal Displacement**

Ethiopia

Food Insecurity Mar – Sep 2022 Projection

- Minimal
- Stressed
- Crisis
- Emergency

- Water
- Urban Areas



IDPs by Region Feb 2022

Tigray	1,814,284
Somali	932,568
Oromia	792,686
Amhara	462,529
SNNP	198,493
Afar	175,264
Gambela	43,809
Sidama	40,637
Benishangul Gumuz	26,852
South West Ethiopia	18,265
Harari	3,124
Dire Dawa	570

Figure 3. Data sources: FEWS, IOM, SWAC-OECD & Natural Earth

found to have restricted pastoralists' searches for alternative migratory patterns in response to climate change and intensified competition over land in other areas.<sup>48</sup>

Relations among Nile river riparian countries have become strained by Ethiopia's construction of the Grand Ethiopian Renaissance Dam. An underlying factor exacerbating these tensions is increasing water scarcity in the region. Due to climate change, population growth and increasingly water-intensive agriculture, it is estimated that by 2030 the flow of the Nile river will regularly fail to meet demand.<sup>49</sup>

The Nile river riparian states should continue to engage in dialogue, information sharing and technical cooperation, including through the Nile Basin Initiative, to lower tensions and ensure cooperative use of the Nile river resources. In decision-making and mediation processes regarding the Nile river and its resources, as well as land use and climate adaptation mechanisms more generally, the Ethiopian Government must ensure that people's right to information about the environment and right to participate in environmental decision-making are upheld.<sup>50</sup>

<sup>39</sup> Meier et al., 2007; Lumborg et al, 2021.

<sup>40</sup> Fjælde, H. & von Uexkull, N. (2012). [Climate triggers: Rainfall anomalies, vulnerability and communal conflict in Sub-Saharan Africa](#). Political Geography, 31(7); van Weezel, S. (2019). [On climate and conflict: Precipitation decline and communal conflict in Ethiopia and Kenya](#). Journal of Peace Research, 56(4).

<sup>41</sup> van Weezel, 2019.

<sup>42</sup> Raleigh, C. & Kniveton, D. (2012). [Come rain or shine: An analysis of conflict and climate variability in East Africa](#). Journal of Peace Research, 49(1); Meier et al, 2007.

<sup>43</sup> Meier et al., 2007.

<sup>44</sup> Keller, E. (1992). [Drought, war, and the politics of famine in Ethiopia and Eritrea](#). The Journal of Modern African Studies, 30(4).

<sup>45</sup> Butler, C.K. & Gates, S. (2012). [African range wars: Climate, conflict, and property rights](#). Journal of Peace Research, 49(1); Adeghe, A. (2009). [Federalism and ethnic](#)

[conflict in Ethiopia. A comparative study of the Somali and Benishangul-Gumuz regions](#). Doctoral thesis, Leiden University.

<sup>46</sup> Butler & Gates, 2012; Schmidt & Pearson, 2016; Beyene, F. (2017). [Natural resource conflict analysis among pastoralists in southern Ethiopia](#). Journal of Peacebuilding and Development, 12(1).

<sup>47</sup> Lavers, T. (2012). [Patterns of agrarian transformation in Ethiopia: State-mediated commercialization and the 'land grab'](#). Journal of Peasant Studies, 39(3-4).

<sup>48</sup> Lavers, 2012.

<sup>49</sup> Coffel, E.D. et al. (2019). [Future hot and dry years worsen Nile Basin water scarcity despite projected precipitation increases](#). Earth's Future, 7(8).

<sup>50</sup> UN (2018). [Framework principles on human rights and the environment](#), Principles 7, 9 & 10; African Commission on Human Rights and Peoples' Rights (1981) [African charter on human and peoples' rights](#), Article 24.

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