United Nations
Economic Commission for Africa

African Trade Policy Centre

APPENDIXES

Case Studies of the Dynamics of Trade and Internal Displacement of People in Africa, 2000–2020

Appendix 1. Country case studies

This appendix presents a detailed assessment of the trade dynamics of prolonged conflicts and disasters, relative to the rise of internally displaced persons in Africa during 2000–2020. The appendix can be read alongside the study *Triple Nexus and Trade: Towards a New Agenda for Africa* (UNECA, 2022).

While a state's overall income as measured by gross domestic product (GDP) impacts its resilience to crises caused by conflict and conflict-related internally displaced persons, GDP has generally tended upwards in most of the states analysed, regardless of conflict or disaster displacement and regardless of whether trade declines steadily for a few years or intermittently over a few years. This is explained largely by the geographic spaces on the territorial margins of the states where these crises occur within countries, their cross-border nature and the fact current internal conflicts do not pose an existential threat to states. Trade openness (trade-to-GDP ratio) and international trade dependence on exports appear to be factors in trade disruption arising from new displacements. However, this may vary based on the products being traded. These are typically a narrow range of primary commodities in less advanced economies.

The report limits assessment of the intensity of a natural disaster to the number of displaced people and the effect on trade and GDP and does not assess other factors affecting the overall gravity of a natural or conflict event. The graphs with time markers relate to trade in goods, and the graph with internally displaced persons as a proportion of the total population shows annual percentage change for trade in goods and services.

Definitions of variables can be found in appendix 3.

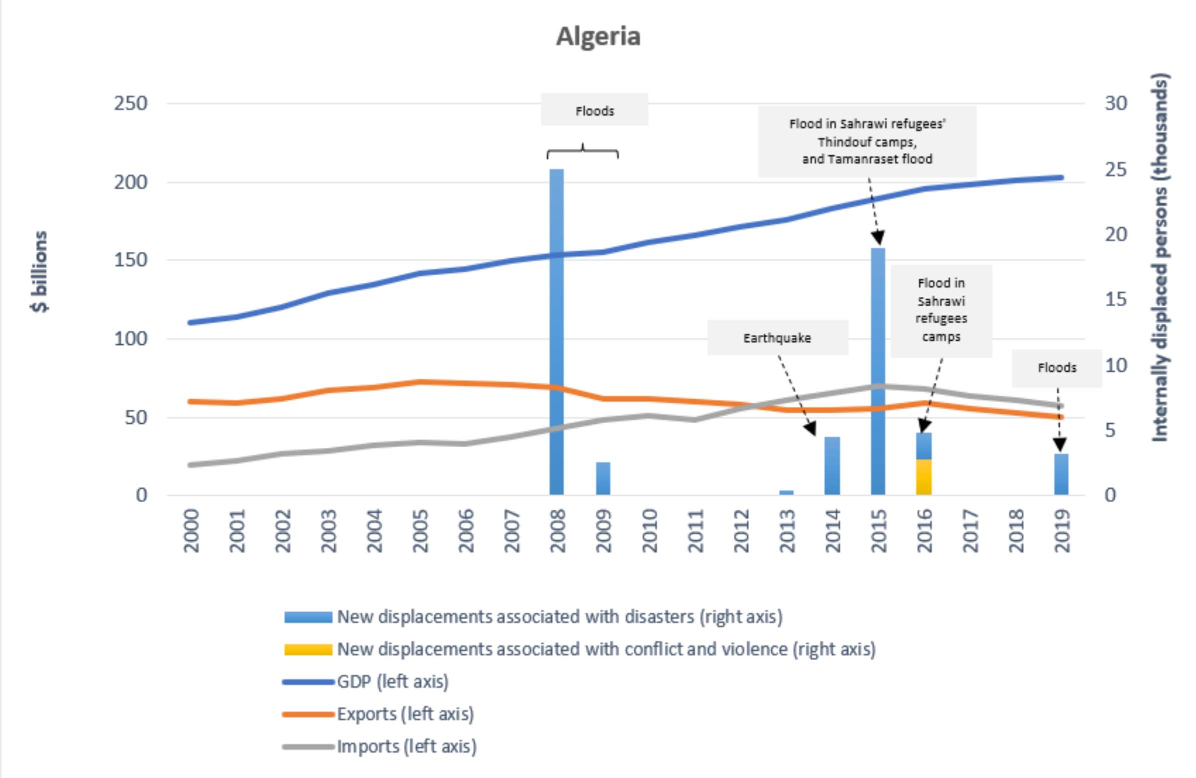
North Africa

Morocco registered internal displacement of persons arising from disasters in 2008, 2010, 2012 and 2014 with a small decline in imports and exports in 2009 and 2015.

Algeria

Algeria, a lower middle-income state, was classified as elevated warning, with a Fragile States Index score of 74.6 in 2020. Algeria's GDP grew from $110 billion in 2000 to $202 billion in 2019 and maintained positive growth after floods in 2008–2009 displaced 25,000 people (0.07 per cent of the total population). Algeria's dependence on oil and gas, which account for nearly 30 per cent of GDP and 95 per cent of foreign currency receipts (Kwasi and Cilliers, 2020), makes the country particularly vulnerable to external shocks, necessitating comprehensive structural reform towards an opportunity-based economy. Algeria's trade openness has progressively declined, from a peak of 76.7 per cent in 2008 to 52 per cent in 2020, and the country realized a trade deficit in 2012 prior to multiple disaster-related displacements in 2014–2016. This displacement was compounded in 2016 by conflict-related displacement, though in this instance, the number of people accounted for a much smaller proportion of the population. Over 2016–2019, both imports and exports declined steadily (figure AP1.1).

Figure AP1.1. Algeria: Number of internally displaced persons due to disasters and conflicts, gross domestic product, exports and imports, 2000–2019

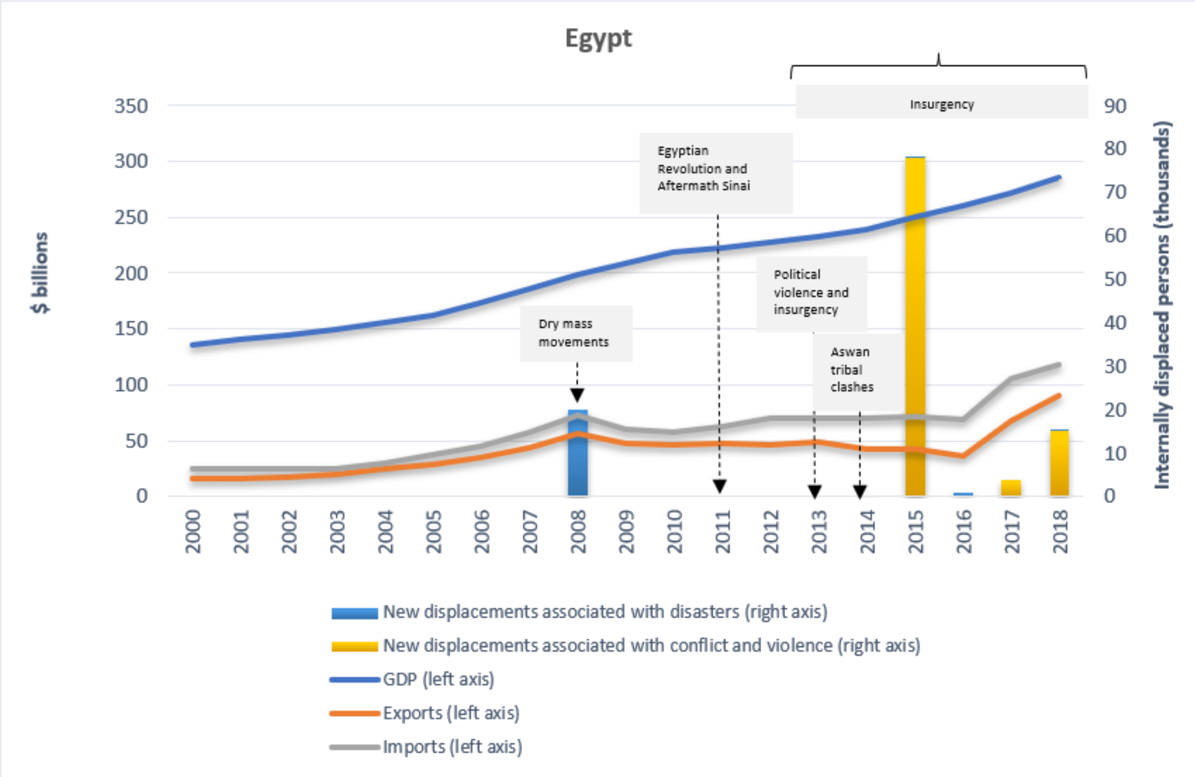


Source: ECA calculations based on data from the World Bank's World Development Indicators database and the Internal Displacement Monitoring Centre.

Egypt

Egypt, a lower middle-income state, saw GDP grow by 114 per cent from 2000 to 2019, to $302 billion. Situated in the high warning category, Egypt scored 86.0 on the Fragile States Index in 2020. Trade in goods was drastically disrupted by a rockslide east of Cairo in 2008, which displaced people. Both imports and exports declined from 2008 to 2009: imports from $73.1 billion to $60.1 billion and exports from $56.3 billion to $48.1 billion. This was followed by a widening deficit from 2010, ahead of the 2011 revolution and violence in both 2013 and 2014, which culminated in the conflict-related displacement of people in 2015. During the insurgency period, the value of both imports and exports increased marginally starting in 2016 and continuing to 2019. Trade as a percentage of GDP peaked at 71.7 per cent in 2008 before progressively declining to a low of 30.2 per cent in 2016 and settling at 48.3 per cent in 2018. There have been clashes and insurgency since 2014. The effect of the new displacement of 15,000 people in 2018, relative to the displacement of 78,000 people (or 0.09 per cent of the population) in 2015, is unclear, as trade data are unavailable (figure AP1.2).

Figure AP1.2. Egypt: Number of internally displaced persons due to disasters and conflicts, gross domestic product, exports and imports, 2000–2019



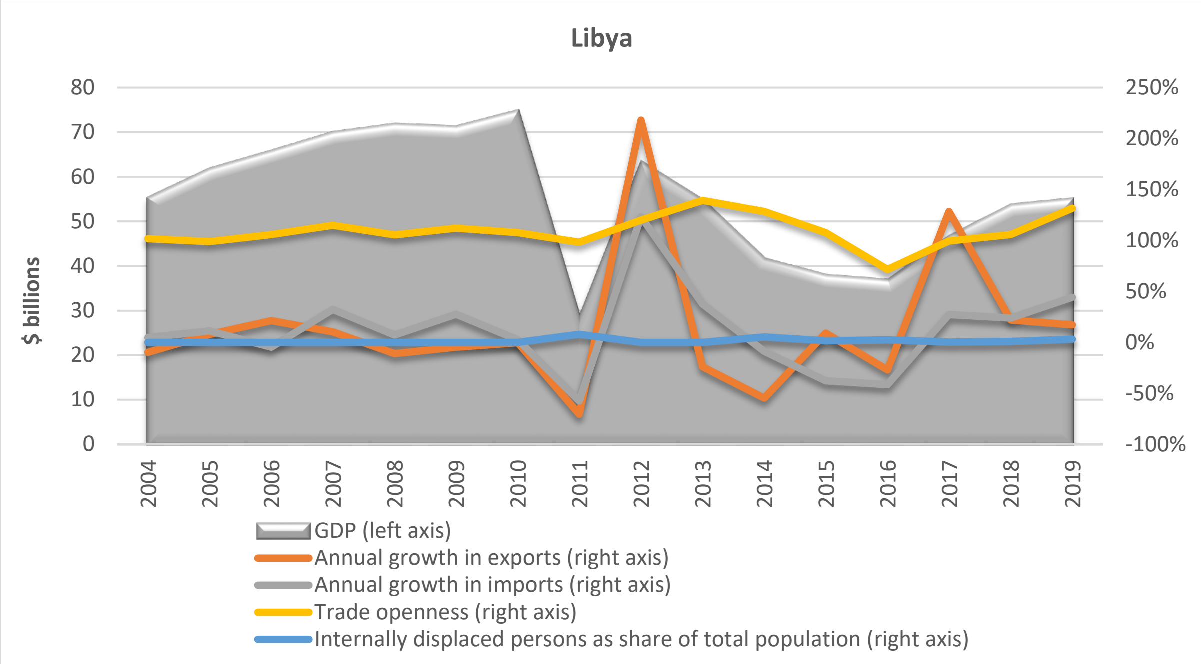
Source: ECA calculations based on data from the World Bank's World Development Indicators database and the Internal Displacement Monitoring Centre.

Libya

Libya, an upper-middle income state, saw GDP grow by 14.6 per cent from 2009 to 2019, to $55 billion. Libya's population in 2019 was just under 6.8 million, compared with more than 43 million in Algeria and more than 100 million in Egypt. With a Fragile States Index score of 95.2 in 2020, Libya exhibits a high responsiveness to conflict and displacements. This could be linked to its small size and trade openness, which was 118 per cent in 2019, compared with 45.3 per cent in 2000. Libya also ranks 20th on the Fragile States Index, lower than Egypt (35th) and Algeria (31st). The civil war and associated violence in 2011 and displacement of 498,000 people (or 8 per cent of the population) may also be contributing factors. Trade as percentage of GDP declined from 107.7 per cent in 2010 to 99.6 per cent in 2011, and GDP, imports and exports further declined, continuing the downward trend that started in 2007 (figure AP1.3).

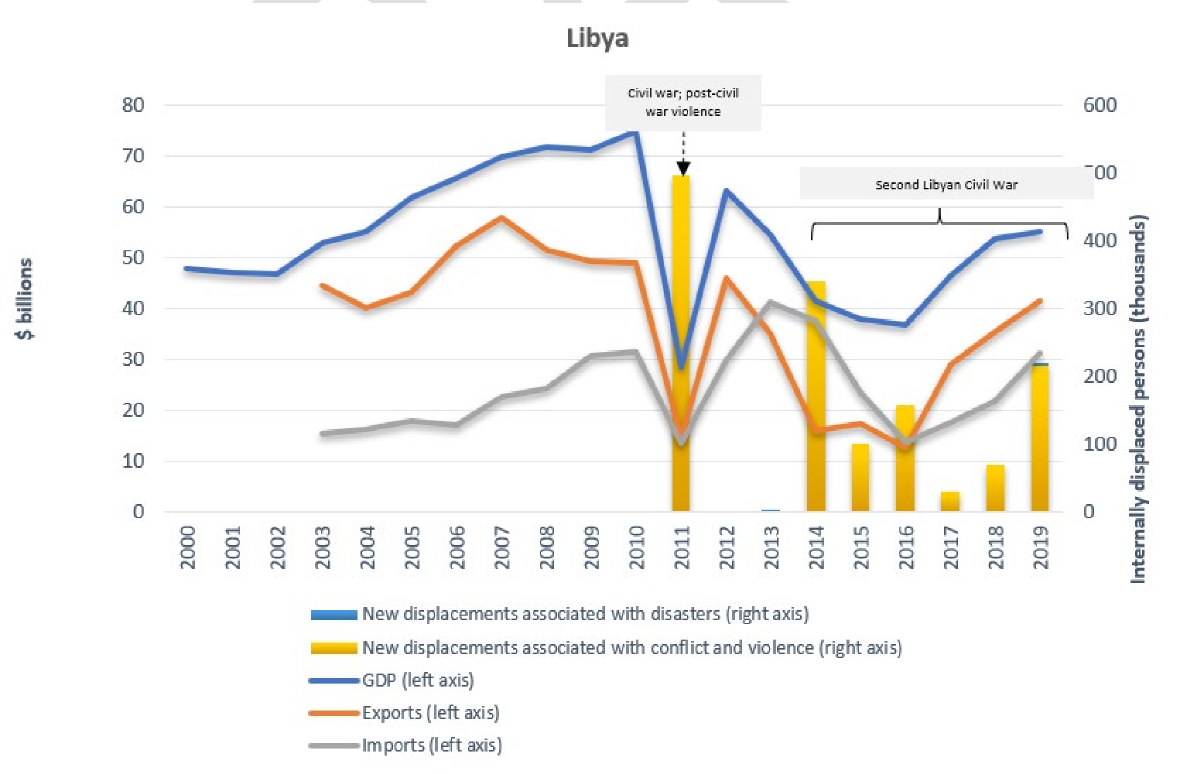
In 2014, at the start of the second civil war, 5.4 per cent of the population was displaced. Libya had a substantial trade deficit, with exports of $15.9 billion and imports of $37.5 billion. Exports were declining while imports were stagnant and soon to be declining. Imports declined more dramatically than exports, from $37.5 billion in 2014 to $23.4 billion in 2015, or 18 per cent. In 2015, there was a new displacement of people, about 1.56 per cent of the population, and in 2016, there was a further displacement of 2.4 per cent, at which point exports and imports started to increase through 2019. Libya had a trade deficit of $1 billion in 2016, which flipped to a trade surplus of about $10 billion in 2017, $14 billion in 2018 and $10 billion in 2019. Internally displaced persons accounted for 0.44 per cent of the population in 2017, 1.05 per cent in 2018 and 3.2 per cent in 2019 (figure AP1.4). GDP growth slowed from 15 per cent in 2018 to 3 per cent in 2019. These figures suggest a substantial cumulative effect of internal displacement of people for Libya, as well as an equilibrium point for displacement and trade and potential for recovery in terms of trade balance and GDP.

Figure AP1.3. Libya: Gross domestic product, trade openness, internally displaced persons as a proportion of the population, and annual change in exports and imports, 2001–2019



Source: ECA calculations based on data from the World Bank's World Development Indicators database and the Internal Displacement Monitoring Centre.

Figure AP1.4. Libya: Number of internally displaced persons due to disasters and conflicts, gross domestic product, exports and imports, 2000–2019



Source: ECA calculations based on data from the World Bank's World Development Indicators database and the Internal Displacement Monitoring Centre.

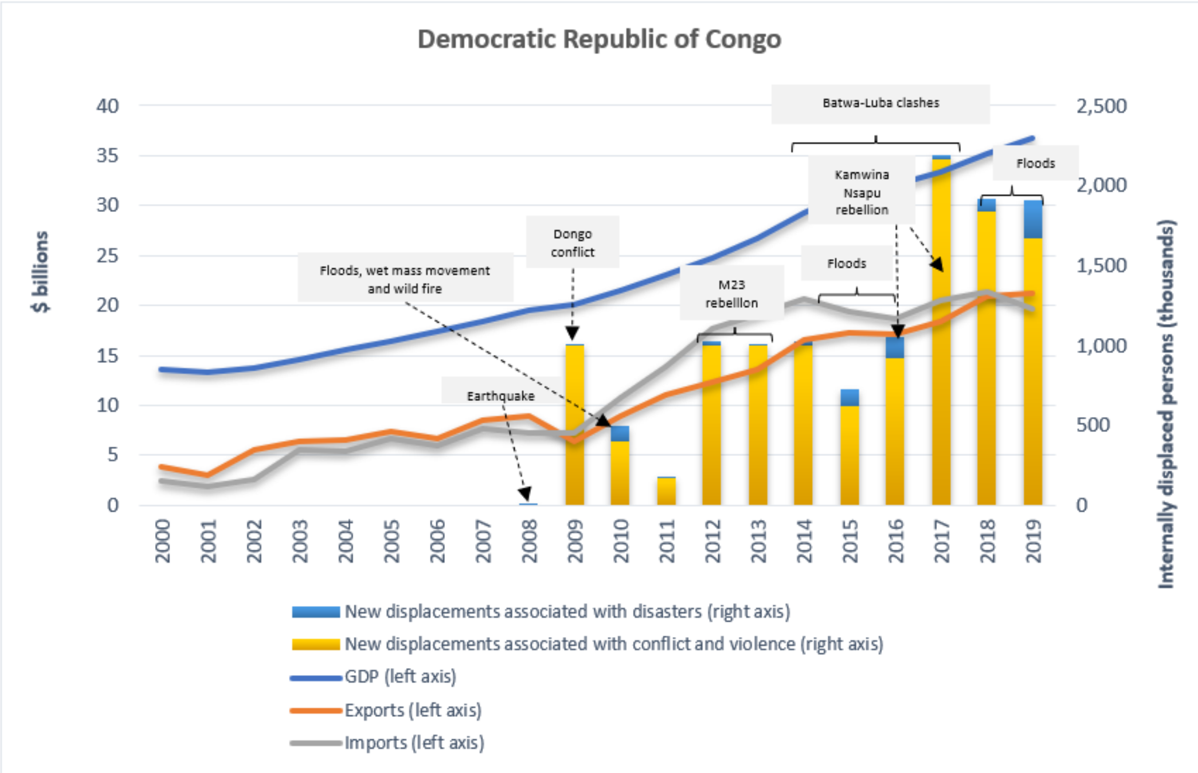
Great Lakes

Democratic Republic of the Congo

The Democratic Republic of the Congo, geographically the largest country in Sub-Saharan Africa and a low-income state, ranked 5th on the Fragile States index in 2020. The country was a crisis hotspot in 2016, and in 2019 remained the site of a major situation and internally displaced person initiative. In the Democratic Republic of the Congo, total displacements and new displacements have been consistently high, and exports and imports changed twice from 2000 to 2019, with a trade deficit in 2009 coinciding with the new displacement of 1 million people (figure AP1.5). This raised the total number of displaced people to 1.9 million, or 3.04 per cent of the total population. In 2019, the total number of displaced people had more than doubled to 5.5 million, or 6.35 per cent of the total population. More than half of displaced people were children, and there were more than 900,000 Congolese refugees in 2019.

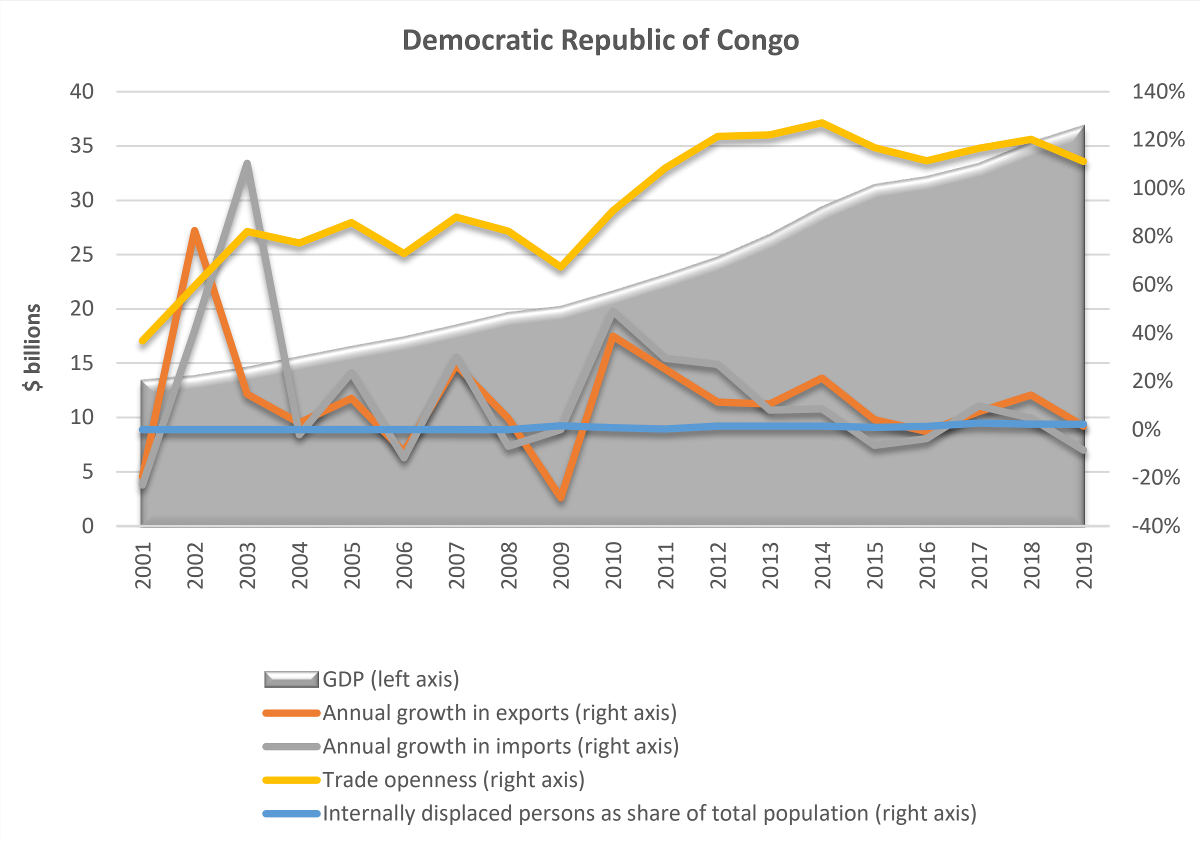
The Democratic Republic of the Congo ran a narrow trade surplus over 2000–2008, which transitioned to a progressively widening trade deficit. In 2019, new internal displacements arising from conflict and disaster stood at 1.9 million, the highest in Africa. Trade openness dropped from 90 per cent in 2000 to 67.3 per cent in 2019. A trade surplus was regained in 2018, while GDP steadily increased by 169 per cent, to $36 billion, 6 per cent from 2017 to 2018 and 4 per cent from 2018 to 2019 (figure AP1.6). This comes against the backdrop of an increased in displaced people from 1.6 per cent of the population in 2009 to 2.19 per cent in 2019. The population grew by 39 per cent from 2009 to 2019.

Figure AP1.3. Democratic Republic of the Congo: Number of internally displaced persons due to disasters and conflicts, gross domestic product, exports and imports, 2000–2019



Source: ECA calculations based on data from the World Bank's World Development Indicators database and the Internal Displacement Monitoring Centre.

Figure AP1.4. Democratic Republic of the Congo: Gross domestic product, trade openness, internally displaced persons as a proportion of the population, and annual change in exports and imports, 2001–2019

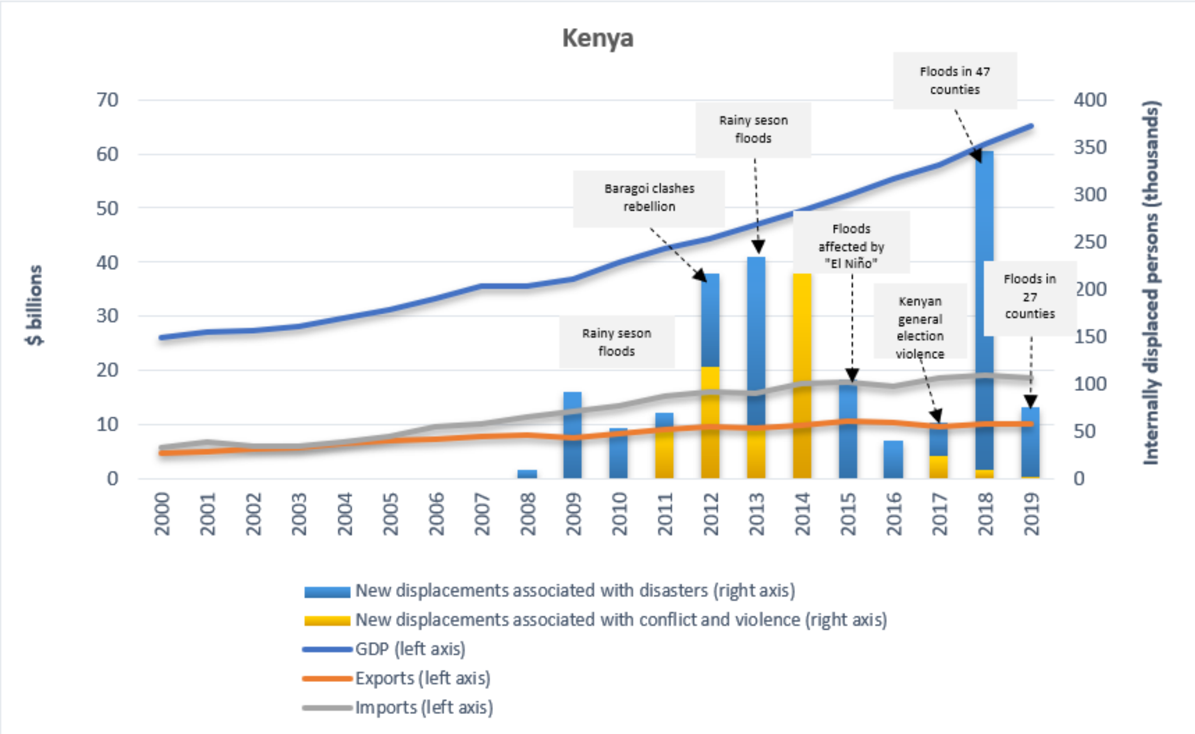


Source: ECA calculations based on data from the World Bank's World Development Indicators database and the Internal Displacement Monitoring Centre.

Kenya

Kenya, a lower middle-income state, ranked 29th on the Fragile States Index in 2020. Kenya saw GDP grow by 148 per cent from 2000 to 2019, to $65 billion. Internally displaced persons as a proportion of the population is constant, and the country has a low trade openness, which varies in response to imports and export fluctuations. However, the country has been experiencing a widening deficit in goods trade since 2005. Trade appears to have been undisrupted by displacement of people in 2011, 2012, 2013 and 2014 and again in 2017 and 2018. New internal displacement of people has ranged from 0.3 per cent of the population in 2008 to 0.67 per cent in 2018. In several years, people were displaced by both disaster and conflict, while in 2014, new internally displaced persons were linked to conflict without a substantial effect on growth of GDP, imports or exports (figure AP1.7). Kenya has had a worsening overall trade deficit since 2004. Since then, imports have increased steadily while exports have plateaued. After peaking at 64.5 per cent in 2005 and 60.4 per cent in 2011, Kenya's trade openness is now 33 per cent, the lowest since 2000, reflecting high dependence on the internal market.

Figure AP1.5. Kenya: Number of internally displaced persons due to disasters and conflicts, gross domestic product, exports and imports, 2000–2019



Source: ECA calculations based on data from the World Bank's World Development Indicators database and the Internal Displacement Monitoring Centre.

Central Africa

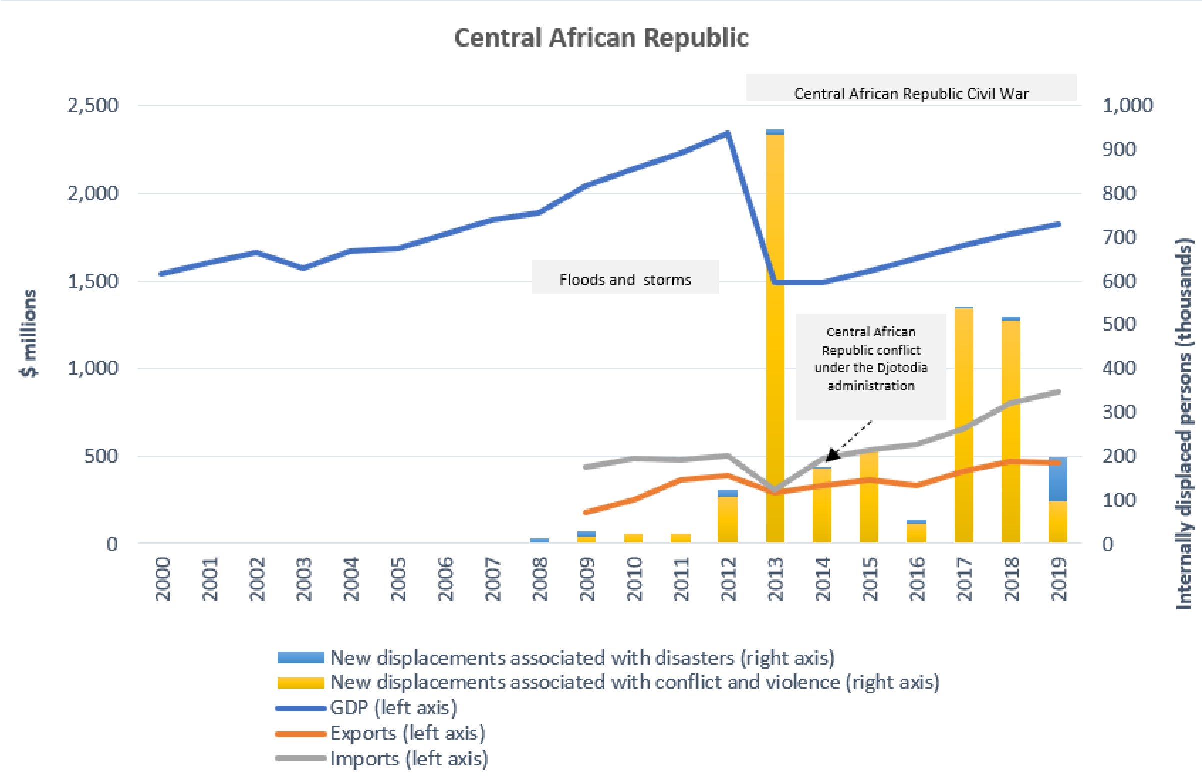
Central African Republic

The Central African Republic, a lower middle-income state, ranked 6th on the Fragile States Index in 2020. Its GDP grew by 18 per cent from 2000 to 2019, to $1.8 billion. The country has had a trade deficit since 2010 that widened from 2017 to 2019.[1] Trade openness has ranged from 31.5 per cent in 2009 to 66.1 per cent in 2019 (figure AP1.9).

The increase in internally displaced persons in the Central African Republic started in 2008 amid an upward trend in imports and exports. Internally displaced persons accounted for 0.33 per cent of the population in 2009 and progressively increased before spiking to 21.3 per cent in 2013 with the onset of the Civil War and to just over 11 per cent in 2017 and 2018. There appears to be a strong relationship between the increase in internally displaced persons as a proportion of the total population from 2012 to 2014 and the decline in imports, exports and by extension trade as a percentage of GDP. In the 2013 spike in displaced persons, there was a surge in imports in the next year, and the trade deficit narrowed in line with a drop in the proportion of displaced persons (figure AP1.8). The Central African Republic appears to be sensitive to displacements in terms of trade and GDP performance while not being as reliant on international trade as other countries under analysis.

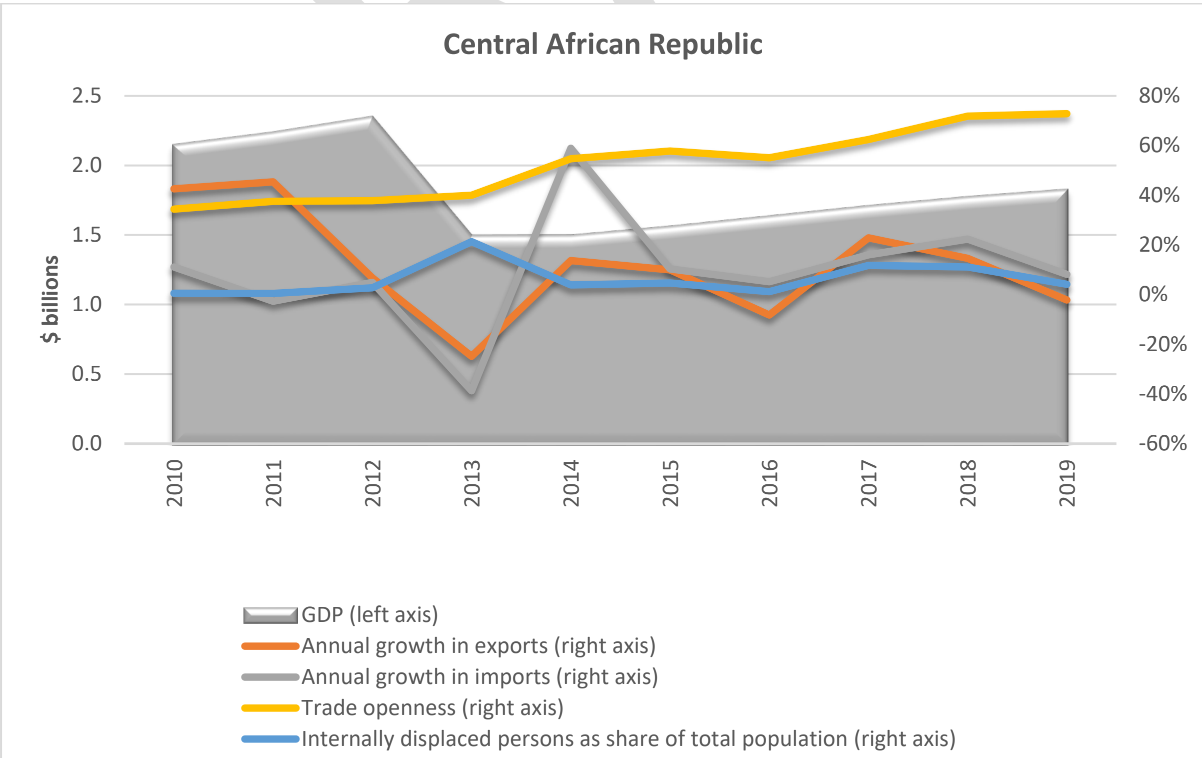
[1] Trade data are not available prior to 2010.

Figure AP1.6. Central African Republic: Number of internally displaced persons due to disasters and conflicts, gross domestic product, exports and imports, 2000–2019



Source: ECA calculations based on data from the World Bank's World Development Indicators database and the Internal Displacement Monitoring Centre.

Figure AP1.7. Central African Republic: Gross domestic product, trade openness, internally displaced persons as a proportion of the population, and annual change in exports and imports, 2001–2019



Source: ECA calculations based on data from the World Bank's World Development Indicators database and the Internal Displacement Monitoring Centre.

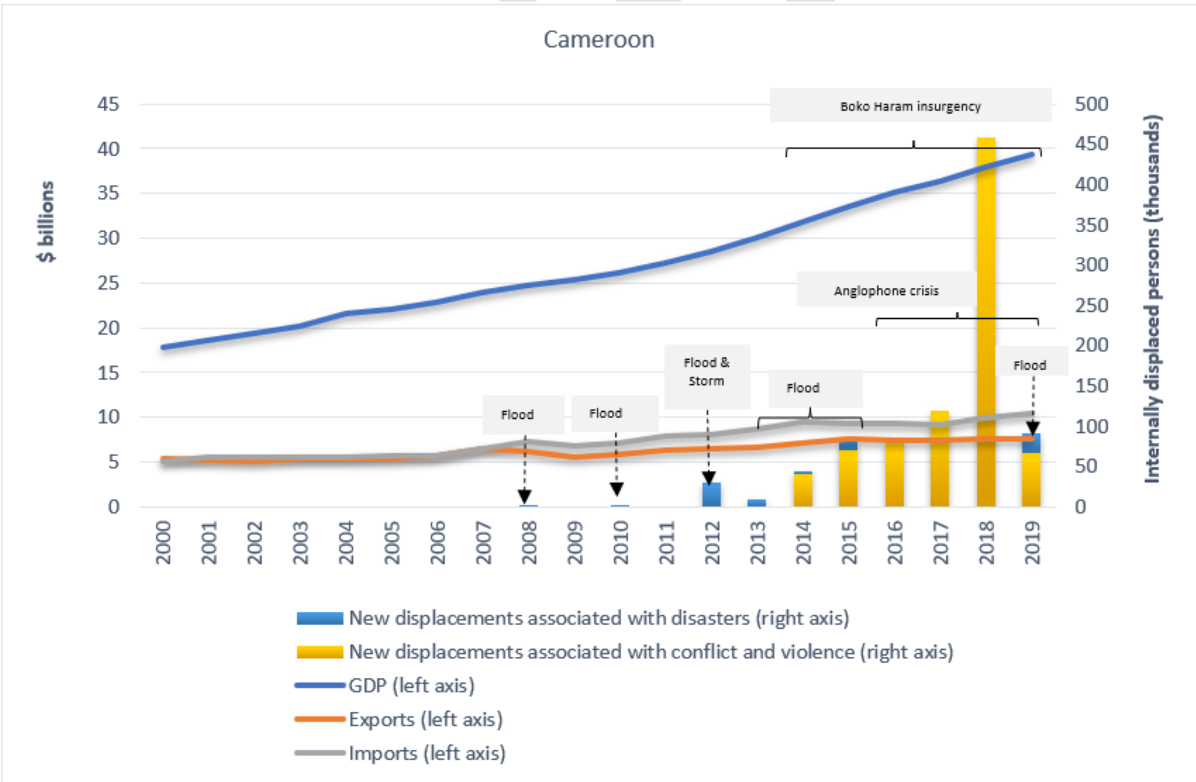
The Sahel

Guinea, Mauritania, and Senegal experienced internal displacement arising from disasters. In Sierra Leone, trade decline preceded the displacement of people in 2018 and worsened dramatically that year. The results of the substantial new displacements in 2019 are outside the reference period. Mali and Nigeria were also sites of major situations in 2019, and Niger was a crisis hotspot in 2016. For further readings on examples of the impact of disaster on displacement, see the case study in appendix 2 on disaster and its impact on key sectors in Sierra Leone, Liberia and Guinea.

Cameroon

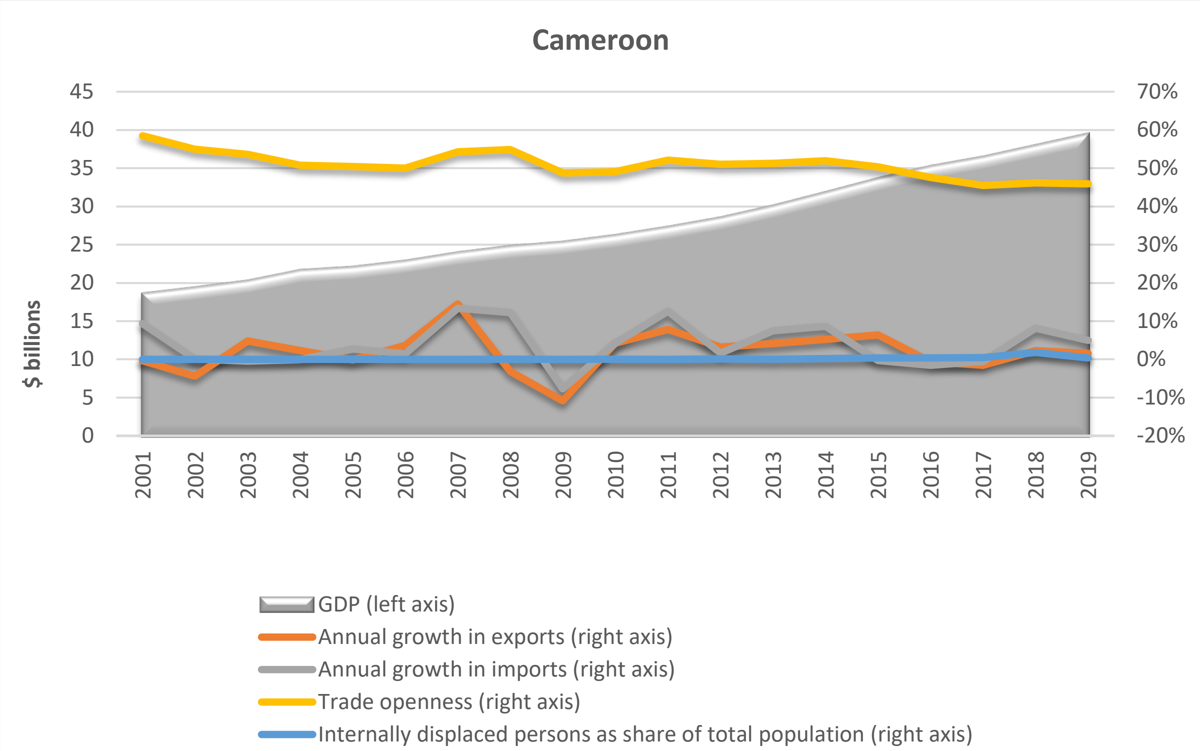
Cameroon, a lower middle-income state, ranked 11th on the Fragile States Index in 2020. GDP increased by 122 per cent from 2000 to 2019, to $39 billion, with no reversal over the period. After a small displacement of people due to flooding in 2008, 2010, 2012 and 2013, conflict became the primary push factor for displacement (figure AP1.10). Trade held constant after the number of displaced people progressively increased from 2014 to 2017, spiked in 2019 and then declined sharply to just below 2015 values. The country generally runs a narrow trade deficit, which has widened by about $2.5 billion since 2014, when internal displacement of people due to conflict in the Far North started. Trade openness also declined from the 2008 high of 62 per cent and then again in 2011, decreasing from 56.9 per cent to 40 per cent in 2019 (figure AP1.11). Given the widening trade gap and the peak displacement of 1.82 per cent of the country's 25 million people in 2018, Cameroon's ability to continue mitigating the effects of displacement will depend on continued restoration of stability.

Figure AP1.8. Cameroon: Number of internally displaced persons due to disasters and conflicts, gross domestic product, exports and imports, 2000–2019



Source: ECA calculations based on data from the World Bank's World Development Indicators database and the Internal Displacement Monitoring Centre.

Figure AP1.9. Cameroon: Gross domestic product, trade openness, internally displaced persons as a proportion of the population, and annual change in exports and imports, 2001–2019



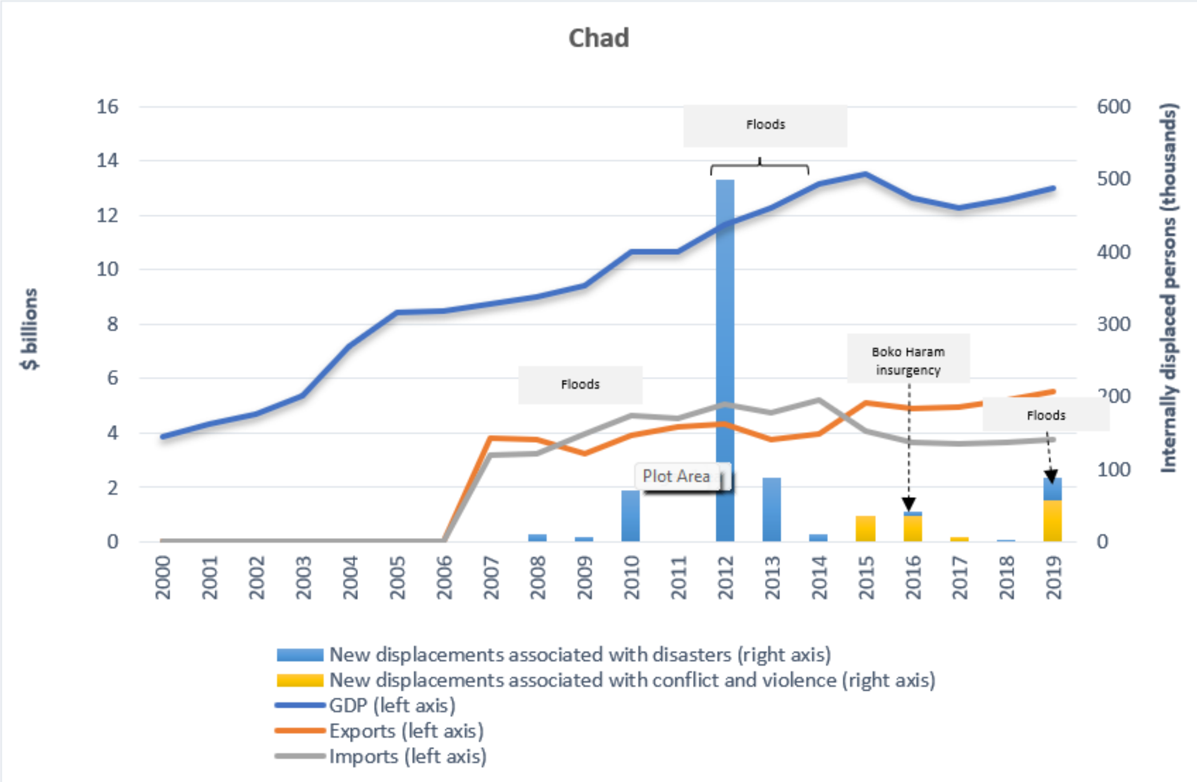
Source: ECA calculations based on data from the World Bank's World Development Indicators database and the Internal Displacement Monitoring Centre.

Chad

In landlocked Chad (population 15.8 million in 2018), 36,000 people were newly displaced in 2015, GDP declined from 2015 to 2017. This was followed by steady recovery, though not yet to pre-2015 levels. Chad experienced a trade deficit in 2008 and realized a trade surplus in 2014, after a sudden drop in imports and a sharp increase in exports in late 2013 and early 2014. The surplus has been maintained through 2019, and there was a wave of new internal displacement in 2019, accounting for 0.55 per cent of the country's 15.95 million people.

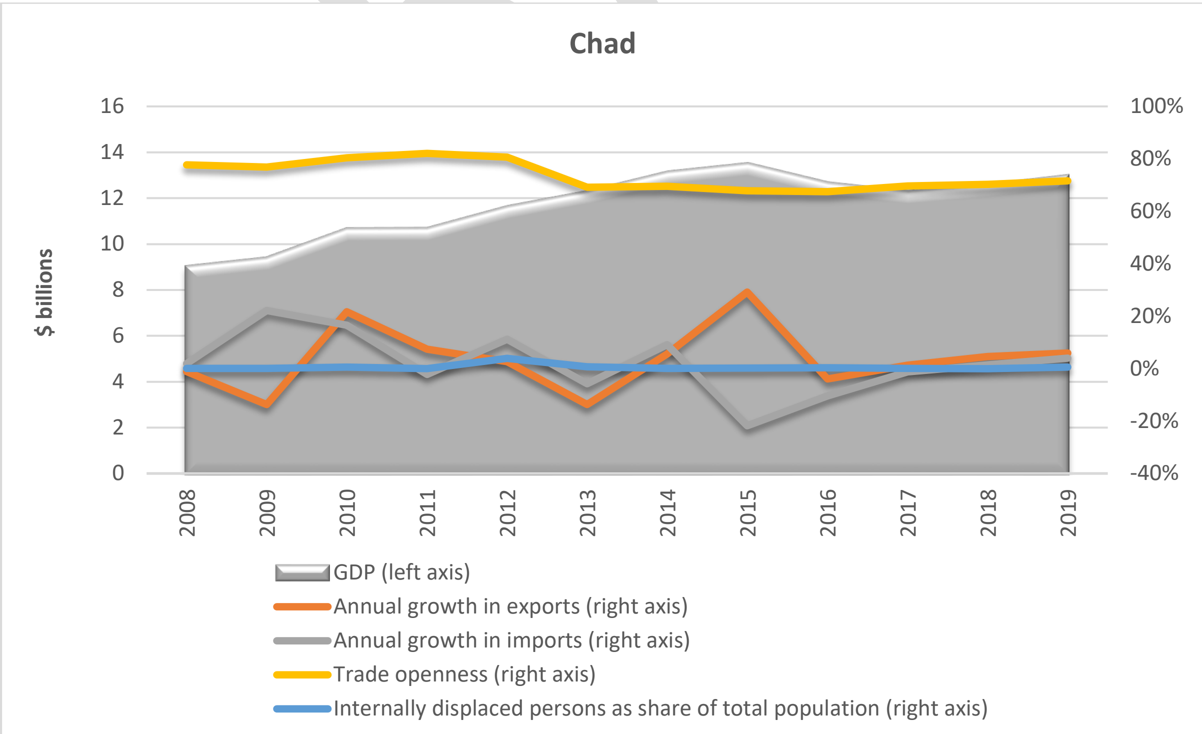
Chad realized positive GDP growth of 3.7 per cent in 2006, relative to an average of 0.6 per cent from 1998 to 2005. There appears to be a positive correlation between the increase in internally displaced persons as a proportion of the population to 3.9 per cent in 2012 and the decline in exports and imports (figure AP1.12). However, the sharp fluctuations in subsequent years are independent of changes in the proportion of displaced people and trade openness. GDP continued to grow even with a spike in displaced people linked to natural disasters (figure AP1.13). Imports declined in 2014, and Chad realized a trade surplus that widened from 2015 to 2019. However, GDP declined after conflict-related displacement of 0.25 per cent of the population in 2015 and 0.29 per cent in 2016.

Figure AP1.10. Chad: Number of internally displaced persons due to disasters and conflicts, gross domestic product, exports and imports, 2000–2019



Source: ECA calculations based on data from the World Bank's World Development Indicators database and the Internal Displacement Monitoring Centre.

Figure AP1.11. Chad: Gross domestic product, trade openness, internally displaced persons as a proportion of the population, and annual change in exports and imports, 2001–2019

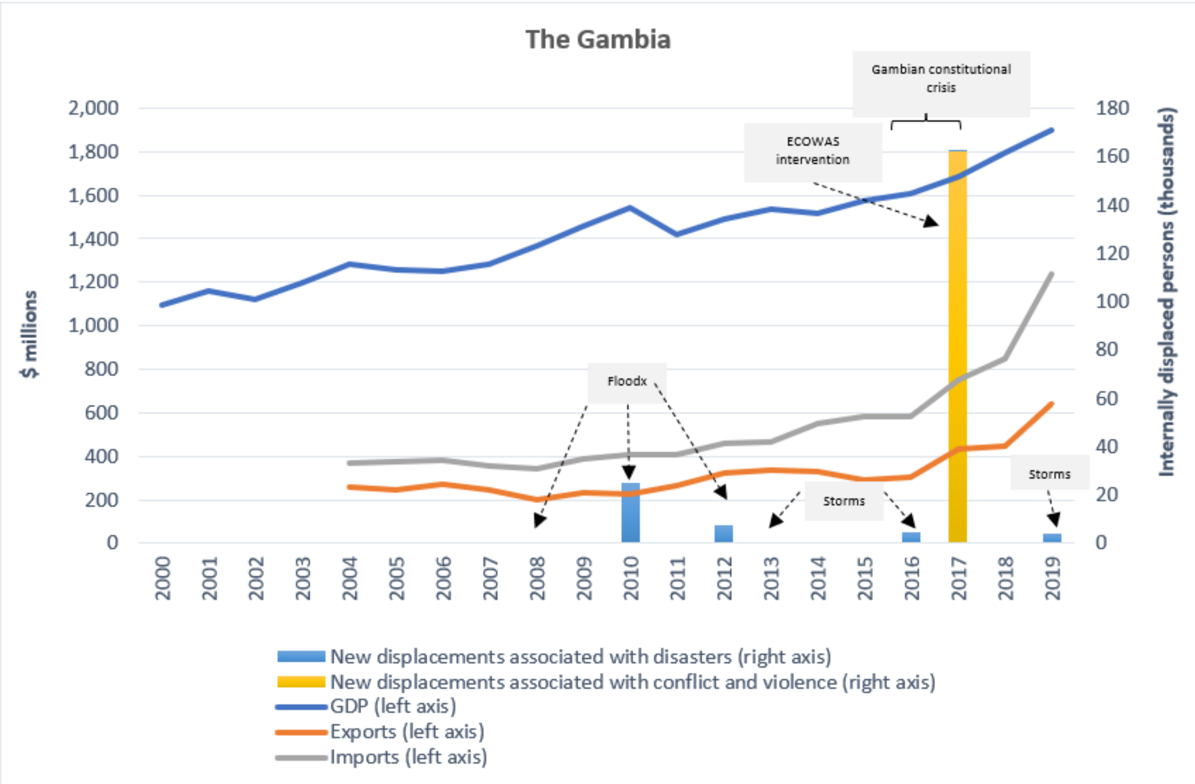


Source: ECA calculations based on data from the World Bank's World Development Indicators database and the Internal Displacement Monitoring Centre.

The Gambia

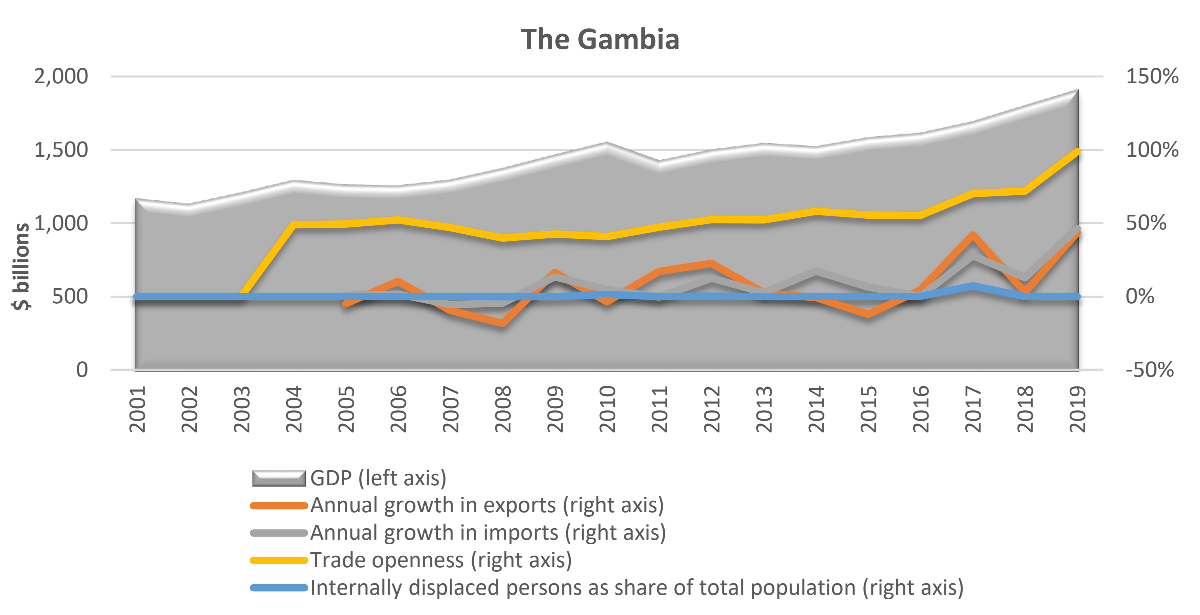
The Gambia, a low-income state, ranked 51st on the Fragile States Index in 2020. The Gambia saw GDP grow by 78.2 per cent from 2000 to 2019, to $1.9 billion, with a decline of 8.1 per cent in 2011. The internal displacement of people accounted for 1.39 per cent of the population. Both imports and exports increased in 2017 concurrent with an increase in internally displaced persons to 7.36 per cent of the country's 2.2 million people (figure AP1.14). The Gambia appears to have maintained positive trends despite the displacement, with a slight decline in annual growth of imports and exports in 2018, which was regained in 2019. The Gambia's trade-to-GDP ratio been increasing, from 39.1 per cent in 2008 to 65.5 per cent in 2019, peaking at 68.9 per cent in 2009 (figure AP1.15).

Figure AP1.12. The Gambia: Number of internally displaced persons due to disasters and conflicts, gross domestic product, exports and imports, 2000–2019



Source: ECA calculations based on data from the World Bank's World Development Indicators database and the Internal Displacement Monitoring Centre.

Figure AP1.13. The Gambia: Gross domestic product, trade openness, internally displaced persons as a proportion of the population, and annual change in exports and imports, 2001–2019

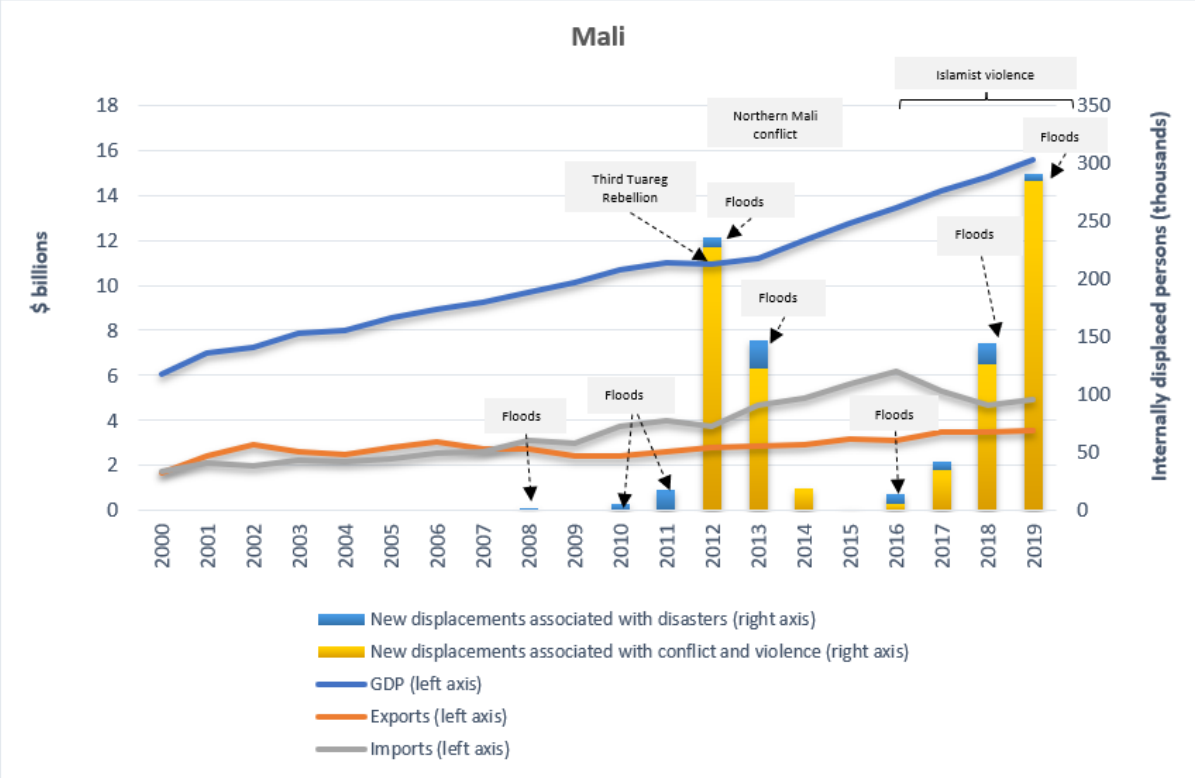


Source: ECA calculations based on data from the World Bank's World Development Indicators database and the Internal Displacement Monitoring Centre.

Mali

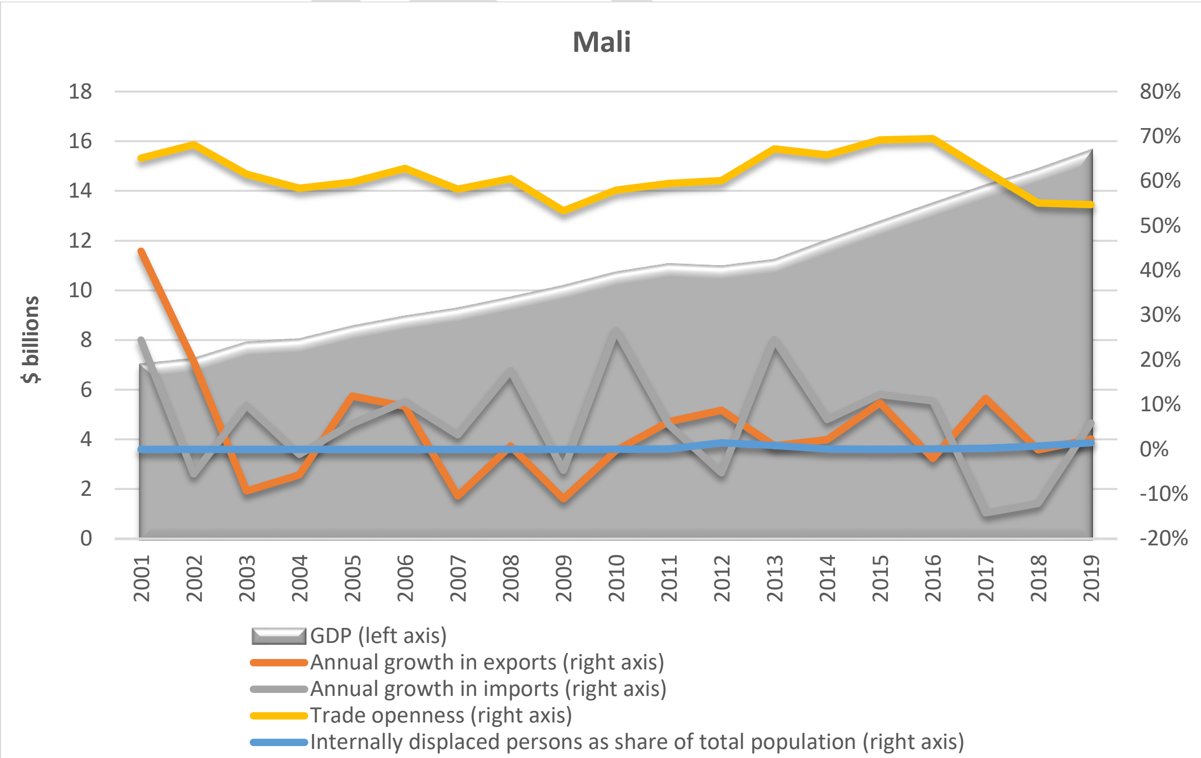
Mali, a landlocked, low-income state, ranked 16th on the Fragile States Index in 2020. Mali's GDP increased 157 per cent from 2000 to 2019, to $15 billion. The population has also grown steadily. Internally displaced persons accounted for 0.02 per cent of the country's 14.11 million people in 2010 and 1.47 per cent of the 16 million people in 2012, an increase driven mainly by conflict (figure AP1.17). This displacement triggered a slowdown in GDP. After continued and smaller displacements annually, there was another peak in 2019 of 1.49 per cent of the country's 19.66 million people. Mali has maintained a trade-to-GDP ratio of 50.5–64.8 per cent over 2000–2019. Mali had been heading to a trade deficit well before 2007 flooding, and there has been a steady and sustained increase in imports of goods and services since then, with declines after the 2016 displacement of people arising from both conflict and flooding (figure AP1.16).

Figure AP1.14. Mali: Number of internally displaced persons due to disasters and conflicts, gross domestic product, exports and imports, 2000–2019



Source: ECA calculations based on data from the World Bank's World Development Indicators database and the Internal Displacement Monitoring Centre.

Figure AP1.15. Mali: Gross domestic product, trade openness, internally displaced persons as a proportion of the population, and annual change in exports and imports, 2001–2019



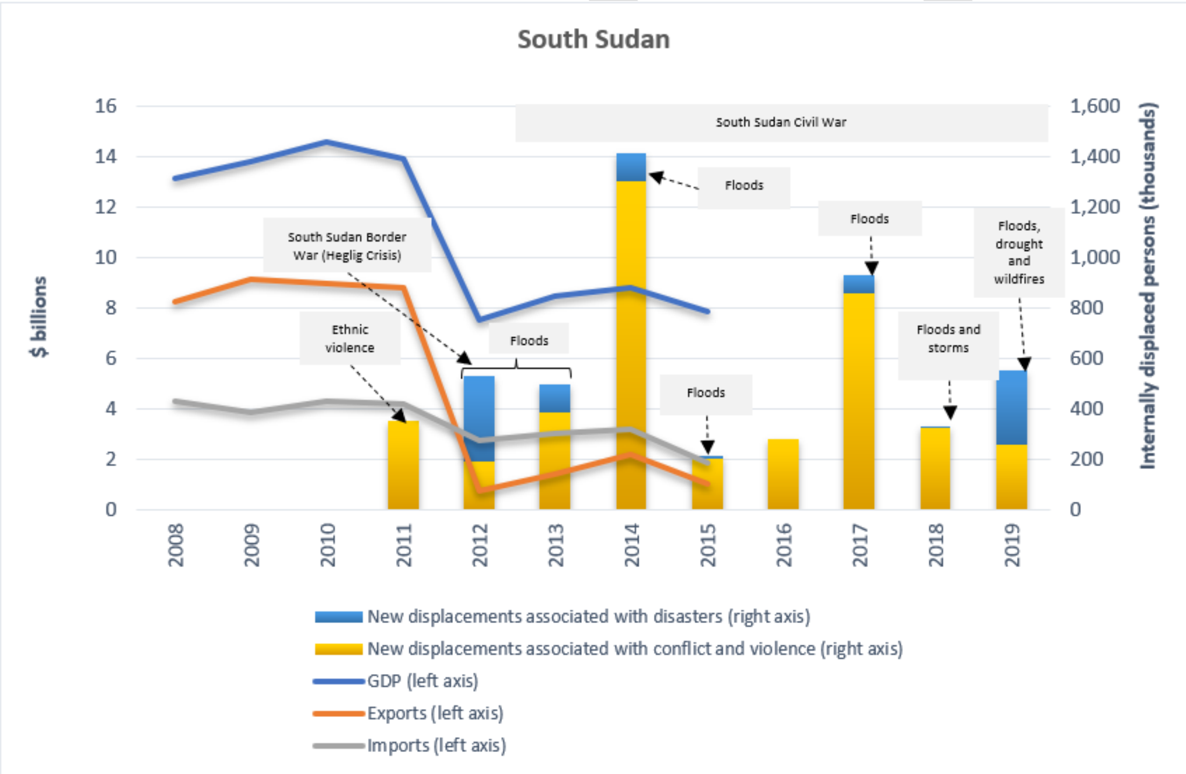
Source: ECA calculations based on data from the World Bank's World Development Indicators database and the Internal Displacement Monitoring Centre.

Horn of Africa

South Sudan

South Sudan, a landlocked, low-income state, ranked 3rd on the Fragile States Index in 2020. South Sudan's economy contracted by 40.1 per cent from 2008 to 2015, from $13 billion to $7 billion.[2] Some 350,000 people, or 3.56 per cent of the population, were internally displaced in 2011 because of ethnic violence. New displacement continued through 2019 during the civil war and was compounded by disaster-related displacements every year except 2016 (see the case study on Darfur in appendix 2). New displacement peaked in 2014 at 13.42 per cent of the country's 10.55 million people. Imports, exports and GDP declined in response to the 2011 displacement of people but moderately rebounded over the following two years (figure AP1.18). In 2014, the number of people displaced by the civil war peaked at 1.3 million. As noted earlier in the main report, South Sudan is one of the five states most affected by the internal displacement of people. Its trade openness declined from 93.2 per cent in 2011 to 65.6 per cent in 2015 (figure AP1.19). The combination of displacement, fragility and decline in trade and GDP reflects the potential for continued decline.

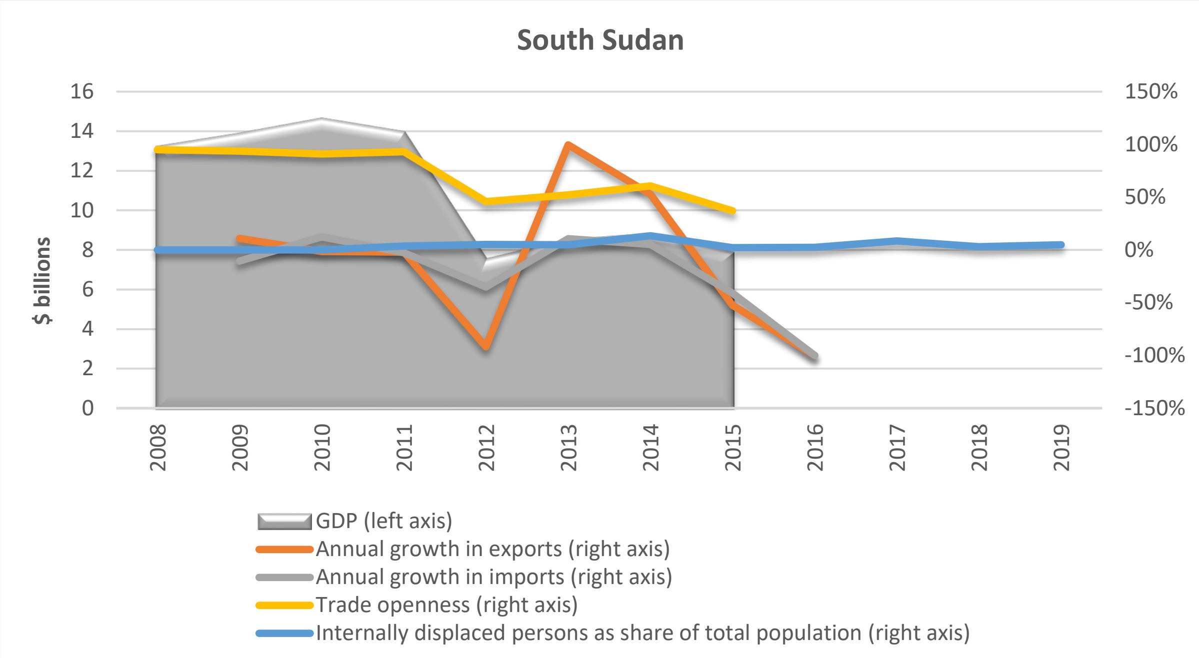
Figure AP1.16. South Sudan: Number of internally displaced persons due to disasters and conflicts, gross domestic product, exports and imports, 2000–2019



Source: ECA calculations based on data from the World Bank's World Development Indicators database and the Internal Displacement Monitoring Centre.

[2] GDP data are available only to 2015.

Figure AP1.17. South Sudan: Gross domestic product, trade openness, internally displaced persons as a proportion of the population, and annual change in exports and imports, 2008–2019

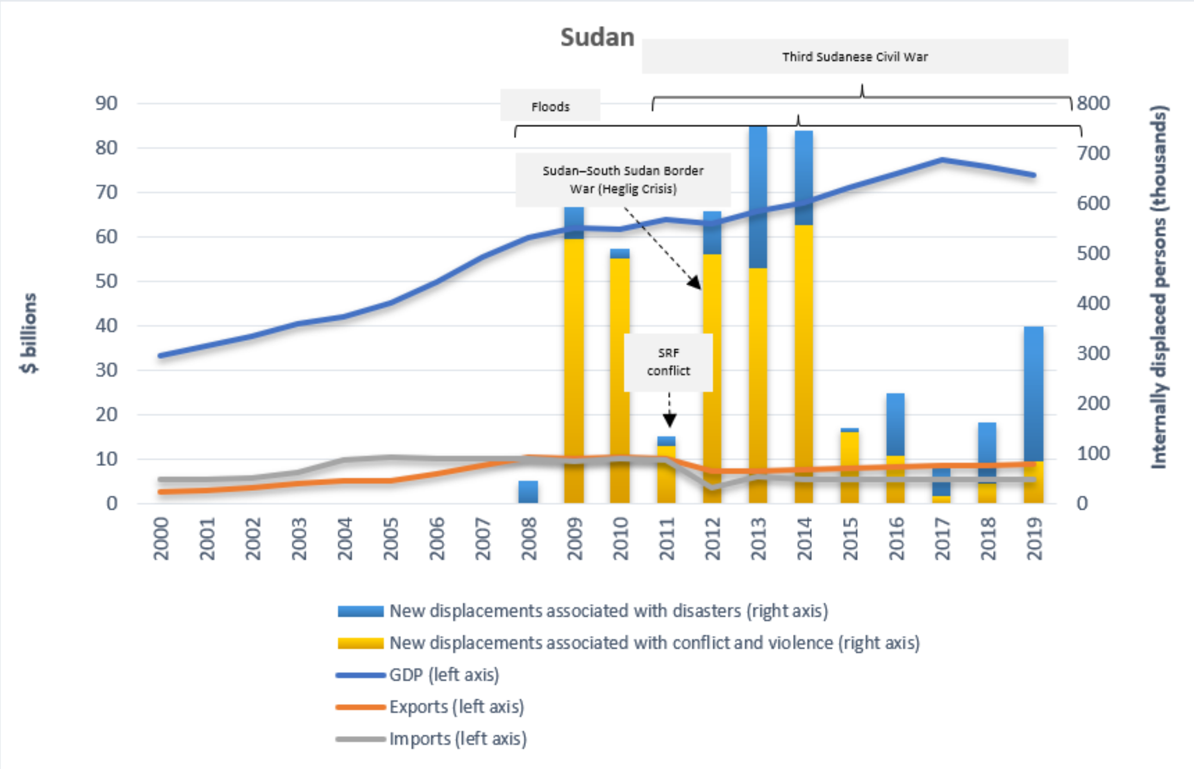


Source: ECA calculations based on data from the World Bank's World Development Indicators database and the Internal Displacement Monitoring Centre.

Sudan

Sudan, a low-income state, ranked 8th on the Fragile States Index in 2020. While Sudan's economy grew 58 per cent from 2000 to 2019, to $73.8 billion, trade as percentage of GDP peaked in 2005 at 47.6 per cent and fell to 26.7 per cent in 2019. Sudan realized a trade surplus in 2008 that it has since maintained. The country has had low trade in goods and services that does not appear very reactive to new displacements related to conflict or disaster (figure AP1.20).

Figure AP1.18. Sudan: Gross domestic product, trade openness, internally displaced persons as a proportion of the population, and annual change in exports and imports, 2000–2019



Source: ECA calculations based on data from the World Bank's World Development Indicators database and the Internal Displacement Monitoring Centre.

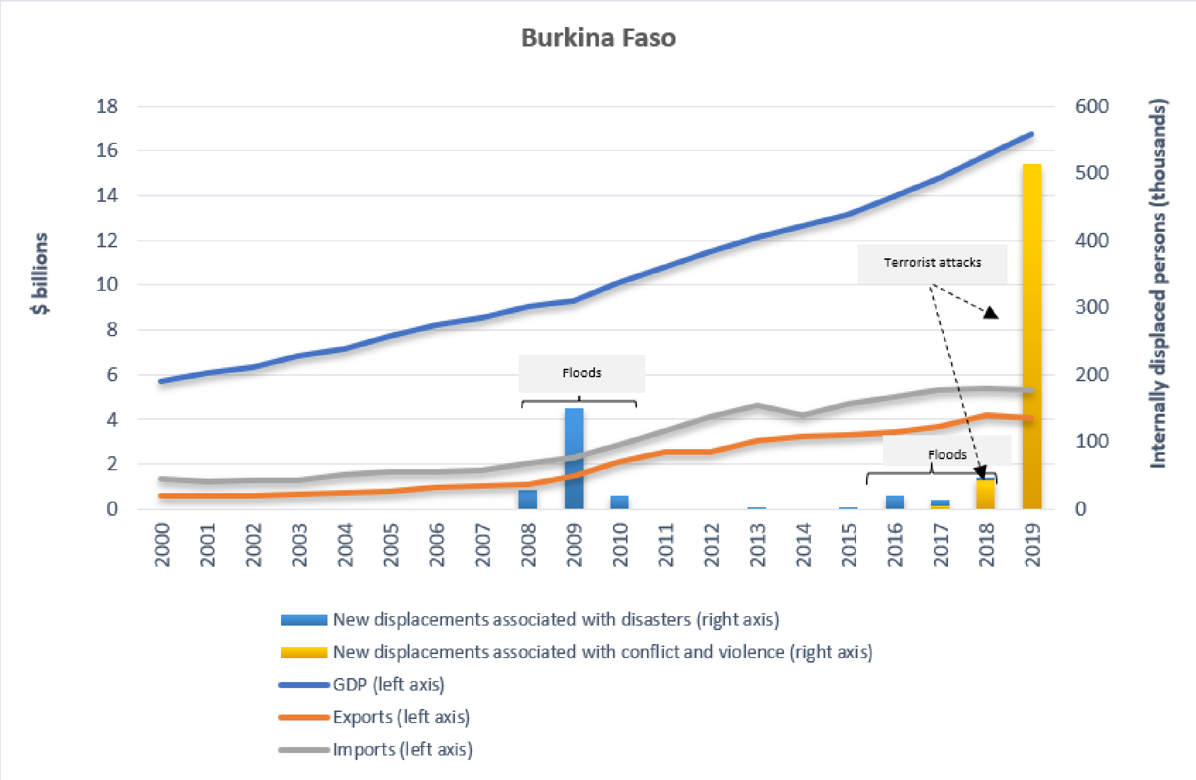
Emerging issues

Burkina Faso

Burkina Faso, a landlocked, low-income state, ranked 37th on the Fragile States index in 2020. GDP grew by 194.1 per cent from 2000 to 2019, to $16.7 billion. The population also grew by 75 per cent during the same period, from 11.6 million to 20.3 million. Trade as a percentage of GDP steadily increased over the period, from 35.1 per cent to 60.2 per cent, peaking in 2013 at 64 per cent. The country ran a trade deficit of $1–$1.7 million. From 2008 to 2010, Burkina Faso experienced internal displacement of people prompted by flooding. Displacement peaked in 2009 at 150,000 people, or 1 per cent of the population. The trajectory of trade in goods remained positive (figure AP1.21).

Burkina Faso recorded 513,000 new internally displaced persons in 2019, or 3 per cent of the population, the fifth largest number of displacements in Sub-Saharan Africa. The movement is linked to increasingly frequent religious-based terrorist attacks and reflects a dramatic increase that begun in 2017. Exports fell by just under $1 million in 2019, while imports fell by $80 million, reflecting a quick trade disruption.

Figure AP1.19. Burkina Faso: Number of internally displaced persons due to disasters and conflicts, gross domestic product, exports and imports, 2000–2019



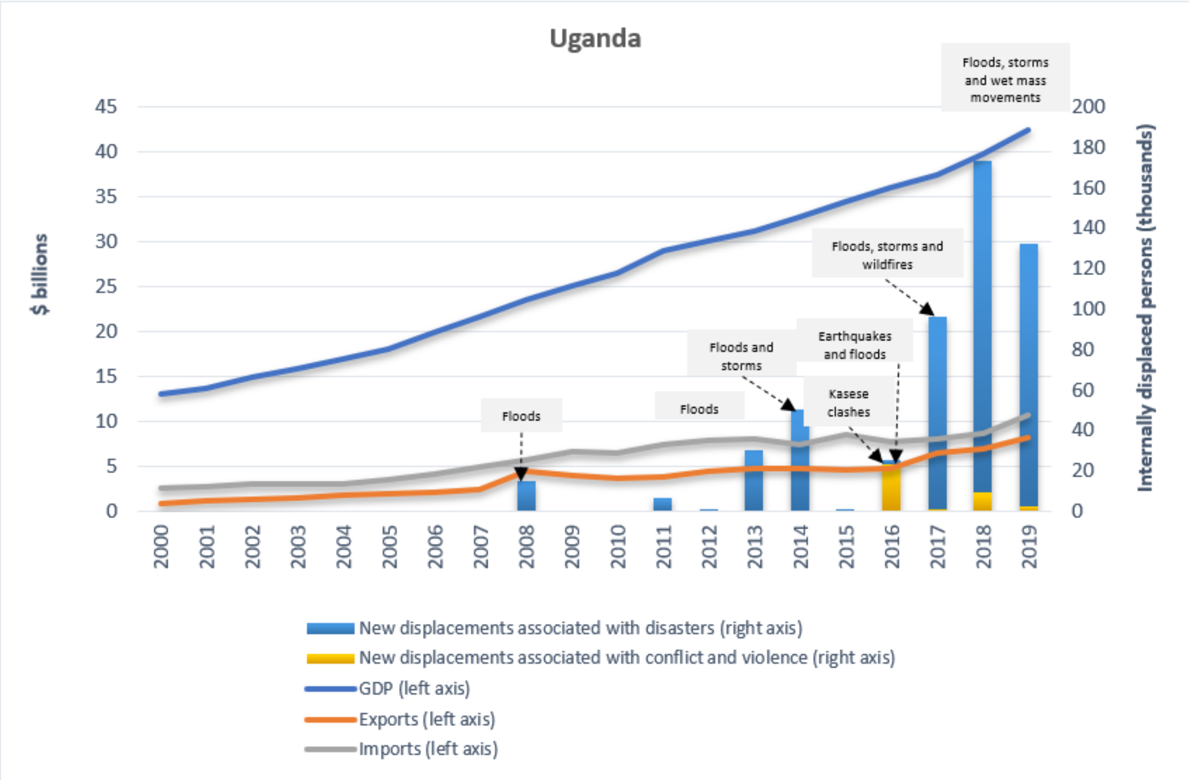
Source: ECA calculations based on data from the World Bank's World Development Indicators database and the Internal Displacement Monitoring Centre.

Uganda

Uganda, a landlocked, low-income state, ranked 24th on the Fragile States Index in 2020. Uganda's GDP grew by 226 per cent from 2000 to 2019, from $13 billion to $44.3 billion. Its population also grew over the period, from 23.66 million to 44.27 million. Trade as a percentage of GDP steadily increased from 32.7 per cent in 2000 to a peak of 56.3 per cent in 2008, as both imports and exports rose steadily and the country ran a trade deficit ranging from $1.37 million in 2004 to $2.5 million in 2007. In 2008, Uganda experienced an internal displacement of 15,000 people. This was followed by increased imports and decreased imports in 2009, then a decline in imports until 2010 before both imports and exports started to rise. This continued until 2014, when imports slumped in response to flooding and storm-related displacement of 50,000 people. Smaller numbers of people had already been moving each year since 2011 and increased by 5 per cent, after having declined by 9 per cent the previous year [Unclear what this sentence is saying]. Exports then grew incrementally in 2012, 2013 and 2014 before declining by 2.4 per cent in 2015. The pattern suggests that imports are disrupted in the same year as a large enough disaster, while exports may show decline within a year or two of the same event (figure AP1.22).

The 2016 Kasese clashes and earthquake displaced 23,000 people and 2,500 people, respectively, or about 0.06 per cent of the population. With repeated disasters in 2017–2019 period, internally displaced persons as a proportion of the total population increased to 0.23 per cent in 2017 and to 0.4 per cent in 2018 before falling to 0.3 per cent in 2019. Conflict-related displacement declined substantially in 2016. Against this backdrop, trade increased over the period. GDP also increased, with trade as a percentage of GDP just under 37 per cent in 2017 and 2018 and increasing to 46 per cent in 2019. Closer examination is required to identify the underlying factors for the positive relationship between the increase in new displacements and trade in Uganda. There appears to be a lag before trade effects are evident. It also appears that import disruptions may occur more quickly than export disruptions and that conflict-related displacement may have a more visible short-term effect on trade. The rate of new displacements and level of total displacements relative to the country's fragility could also be further investigated.

Figure AP1.20. Uganda: Number of internally displaced persons due to disasters and conflicts, gross domestic product, exports and imports, 2000–2019



Source: ECA calculations based on data from the World Bank's World Development Indicators database and the Internal Displacement Monitoring Centre.

Appendix 2. Situational case studies

The impacts of climate change on the Lake Chad Region

Since 1970, temperatures across the Lake Chad Basin, situated in the Sahel strip, have increased by almost 1ºC, nearly double the global average. The Inter-Governmental Panel on Climate Change expects temperatures in the Sahel to increase by 1ºC by 2040, by 2.1ºC by 2065 and 4ºC by the end of the 21st century.

Despite limited data on changes in environmental conditions, the Sahel (including the Lake Chad Basin) has experienced more severe and recurrent droughts and floods than in past years. Changing water levels have adversely affected riparian communities that depend on Lake Chad's strategic location as a node connecting several trade routes.

In addition to political, economic and social instability; poverty; historical grievances; poor governance; and weak institutions, Sahelian states face many challenges in managing the detrimental impacts of climate change.

Lake Chad is one such example that highlights the link among environmental, social and political vulnerability. Straddling Cameroon, Chad, Niger and Nigeria, Lake Chad is a vital resource for more than 50 million people. The lake and its drained basin provide not only jobs through food production and a rich trading economy, but also water and land for fishing and agriculture. The region is a focal point for agricultural production and encompasses expanses of shallow water, vegetation and rich soil used for a variety of purposes.

In recent years, the region's ability to be a net exporter of food and a source of employment has come under threat. Climate change challenges the biodiversity growing in the lake, creating a fragile ecosystem and increasing the vulnerability of the Sahel, which relies heavily on the resources of Lake Chad. Rising population growth rates have also generated an increasing number of incoming migrants, such as refugees and displaces persons fleeing Boko Haram.

Although these groups have historically been welcomed into the area, food, water, job insecurity and land saturation have created tensions over access to resources. With 2.8 million displaced people across the Lake Chad Basin in 2020 (OCHA, 2004), tensions may rise between host and displaced communities over competition for scarce resources. Traditional conflict resolution mechanisms may no longer help residents cope with the scale of the growing challenge.

The Sahel has experienced major tensions and violent conflicts directly related to these climatic changes. Pastoralists from the northern fringes of the Sahara, who have to use transhumance to sustain their herds, increasingly move southward in search of pasture. In these areas, agriculturists are already struggling with less predictable rainfall. Pastoralists also tend to stay in these areas over a longer period, including when crops are ready to be harvested. These situations have created serious conflict and destruction of both crops and cattle. Herders increasingly form militias to protect their cattle, look for protection from various armed groups and get drawn into violent conflict. In the Central African Republic and Mali, for instance, militia groups were created for protection and have played a strong role in local conflict dynamics. Nigeria has also seen this dimension of conflict, especially in the north of the country.

Source: Crawford (2015); Ferdi (2016); Guichaoua and Pellerin (2017); Marc, Verjee and Mogaka (2015).

Economic shocks and violent conflict

If not mitigated effectively, economic shocks can trigger violence, especially in already high-risk settings. Studies examining the relationship between economic shocks and violent conflict yield mixed findings. World Bank and United Nations (2018) reviewed 1995–2015 data for 161 countries and found a significant relationship between economic downturns and the onset of conflict. Similarly, Cali and Mulabdic's (2017) study of developing countries between 1960 and 2010 found that an increase in a country's export prices raised the risk of intrastate conflict. However, Bazzi and Blattman's (2014) global, longitudinal study of all low- and middle-income countries from 1957 to 2007 found that price shocks—even intense shocks in high-risk countries—had no significant effect on the outbreak of conflict but did have a mild, negative impact in countries with ongoing violent conflict.

Three main theories guide the literature in this area. The “rapacity effect” in the price of exports, especially capital-intensive products such as extractives, sparks violence because the benefits of the increase can be more easily appropriated (Bazzi and Blattman 2014). Cali and Mulabdic (2017) find support for this theory, as violence in their sample is more likely to be associated with increases in the price of natural resource exports. Others have argued that whether increased rents incentivize violence depends on the extent to which the state can control access to them (the state-deterrence theory). If the state exerts control over resources, a price increase generates more tax revenue, whereas if state control is weak, nonstate armed groups have greater incentive to appropriate resources (Dube and Vargas 2013; Fearon and Laitin 2003).

According to the “opportunity cost” theory, economic shocks lower the risk of conflict by increasing the opportunity cost of participating in violence (Collier and Hoeffler 2004; Bó and Bó 2011). This is especially the case with changes in the price of agricultural products, which are more labour-intensive. For example, in Colombia, falling coffee prices were associated with increased violence in regions producing more coffee, while increasing oil prices coincided with higher violence in municipalities where landowners sought to appropriate oil rents (Dube and Vargas 2013).

Economic shocks are more likely to trigger violence when they are not accompanied by mitigation measures. For example, Cali and Mulabdic (2017) find that countries with strong trading relationships with neighbour countries are less likely to experience violence associated with price shocks. These benefits can be enhanced when accompanied by measures to facilitate trade across borders, such as easing logistics or reducing transaction costs.

In some cases, economic shocks increase pressure on governments to make up for lost resources. The state may struggle to pay civil servants or security forces or may need to make fiscal adjustments by slashing subsidies, which can rapidly increase the price of basic goods. Accordingly, cuts in subsidies can be accompanied by a properly considered and communicated safety net program to buffer the impacts. Additionally, special provisions or protections may be needed for vulnerable groups, such as internally displaced persons or minority groups.

Source: World Bank and United Nations (2018).

Land management systems and environmental change in Darfur

The Darfur conflict in Sudan originated in the impact of drought on African settled farmers and Arab nomadic herders and in the breakdown of agreements over the right of passage for pastoralists. Previously amicable relationships among groups unravelled as drought and famine created new migration patterns, including the migration of camel-owning Zaghawa pastoralists of North Darfur southward beyond their traditional grazing ranges. As they moved south, they displaced others, including Masalit cattle herders and farmers. Farmers from the Fur group, whose lands the pastoralists traversed, had traditionally accommodated these herds.

A local governance system had evolved to meditate conflicts over resources, facilitate farming and grazing on the same plots of land and accommodate new arrivals. The native administration and officials appointed by the ruling tribes administered this system. Each man received a hut and a plot of land to farm, while grazing rights and access to waterpoints remained communal. Nomads were given temporary access to land to enable them to reach grazing routes but were obligated to prevent crop damage. Migrants were also given land, and the terms of their stay were negotiated by the village sheik.

The decline of central government control over the region stripped customary rulers of their authority to manage grazing patterns. Historically, once annual rainfall patterns became clear, customary authorities would meet to negotiate adjustments in the grazing patterns of different tribal groups.

Comity was a key principle. A tribe struggling with poor rainfall would be allowed to use land in the territory (dar) of another tribe, which in return had a reasonable expectation of receiving the same assistance in case of need. The vacuum in effective local authority caused the collapse of intertribal social control of land use and eliminated the best hope of peaceful mediation of the climate crisis.

Source: Charney (1975); Edwards (2008); Giannini, Biasutti and Verstraete (2008); Null and Risi (2016).

The Ebola disaster and its impact on agriculture in Sierra Leone, Liberia and Guinea

Disasters can have a devastating impact on the agricultural sector, with substantial losses in the production of crops, livestock and fisheries. The livelihoods of farmers and others involved in agriculture-dependent manufacturing, such as textiles and food processing, are also affected. A recent study by the Food and Agriculture Organization of the United Nations also demonstrates that disasters can cause drastic changes to agricultural trade flows (FAO, 2015). According to the study, in disaster-affected countries analysed, the value of agricultural imports increased by $18.9 billion between 2003 and 2013, and the value of exports decreased by $14.9 billion. The countries most reliant on agriculture are most susceptible to adverse consequences. Reviving the agricultural sector, therefore, could contribute to economic growth, poverty alleviation and food security.

Agriculture, the lifeline of the economies of Guinea, Liberia and Sierra Leona, has been hit hard as a result of the Ebola epidemic. In Guinea, for example, rice production is estimated to have fallen by 20 percent in 2014, coffee by half, cocoa by a third and corn by a quarter.

In an attempt to revive this sector, the World Bank mobilized up to $15 million in emergency financing to provide a record 10,500 tons of maize and rice seed to more than 200,000 farmers in the worst affected countries in time for the April 2015 planting season. The project was part of an ongoing West Africa Agricultural Productivity Program spanning 13 west African countries, including the three Ebola-hit countries.

Arrangements had to be made to ensure the timely delivery of the seeds from seed suppliers in neighbouring countries. To enable free movement of seed-laden trucks, travel routes were pre-arranged and the Economic Community of West African States requested customs and border control authorities let the trucks pass without difficulty.

Depending on the nature of the disaster, providing inputs such as seeds and fertilizer can stimulate recovery of agricultural production systems following a disaster. The basic rationale is that in emergency situations, many affected farming households have lost their seeds and thus their capacity for production. By supplying good quality seed of appropriate varieties, the households can resume and increase agricultural production.

This case study also highlights the importance of trade facilitation to ensure timely delivery of agricultural inputs to disaster-affected regions, including coordination among border authorities. Similarly, it is important to ensure that non-tariff measures do not obstruct this movement. Indeed, a recent World Bank study indicated that sanitary and phytosanitary measures could prevent seeds from moving quickly across borders when a seed deficit occurs due to a disaster (World Bank, 2014).

Source: World Bank.

Appendix 3. Definitions of indicators

Indicator	Definition
Gross domestic product (GDP) (constant 2010 $)	GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in constant 2010 US dollars. Dollar figures for GDP are converted from domestic currencies using 2010 official exchange rates. For a few countries where the official exchange rate does not reflect the rate effectively applied to actual foreign exchange transactions, an alternative conversion factor is used.
Exports of goods and services (constant 2010 $)	Exports of goods and services represent the value of all goods and other market services provided to the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees and other services, such as communication, construction, financial, information, business, personal and government services. They exclude compensation of employees and investment income (formerly called factor services) and transfer payments. Data are in constant 2010 US dollars.
Imports of goods and services (constant 2010 $)	Imports of goods and services represent the value of all goods and other market services received from the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees and other services, such as communication, construction, financial, information, business, personal and government services. They exclude compensation of employees and investment income (formerly called factor services) and transfer payments. Data are in constant 2010 US dollars.
Trade (per cent of GDP)	Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product.
Population, total	Total population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship. The values shown are midyear estimates.
Internally displaced persons, new displacement associated with conflict and violence (number of cases)	Internally displaced persons associated with conflict and violence are defined according to the 1998 Guiding Principles (OCHA, 2004) as people or groups of people who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of armed conflict, or to avoid the effects of armed conflict, situations of generalized violence or violations of human rights and who have not crossed an international border. *New displacement* refers to the number of new cases or incidents of displacement recorded over the specified year rather than the number of people displaced. This is done because people may have been displaced more than once.
Internally displaced persons, new displacement associated with disasters (number of cases)	Internally displaced persons associated with disasters are defined according to the 1998 Guiding Principles (OCHA, 2004) as people or groups of people who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of natural or human-made disasters and who have not crossed an international border. *New displacement* refers to the number of new cases or incidents of displacement recorded over the specified year, rather than the number of people displaced. This is done because people may have been displaced more than once.

Source: World Bank World Development Indicators database.

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