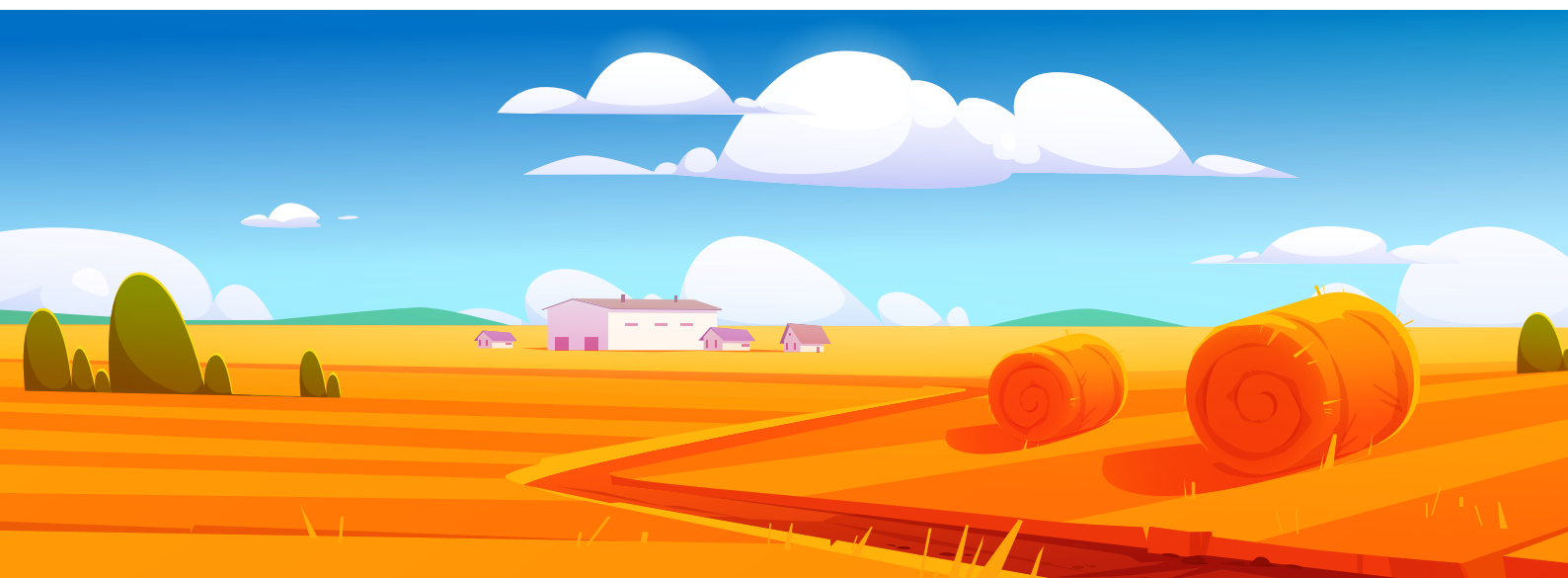


## COUNTRY OVERVIEW

The Democratic Republic of Congo (DRC) has suffered the impacts of serious natural hazards including drought. While the country is cooler and drier in the southern highlands and cool but wetter in the eastern highlands, it has experienced dry spells in the past years resulting from below-average seasonal rainfall. Climate simulations of future conditions indicate that rainfall will become more intense and destructive in future years. The Congolese economy depends heavily on rain-fed agriculture and is thus vulnerable to drought impacts. Droughts result in low agricultural production and poor harvests affecting cash crop revenues, and intensifying food insecurity and poverty. Droughts are also found to bring a surge in crop diseases and water shortages. More than 21.8 million people in the DRC are facing high levels of acute food insecurity due to drought and other natural disasters. These bring sharp increases in food prices and unemployment in the agricultural sector. Increased temperatures and variable rainfall will also impact the DRC's forests, which are already under threat from land use change and growing demand for charcoal and tropical forest products. It is estimated that DRC's primary forest may be cleared by 2100. Finally, an observed increase in the frequency of intense rainfall after prolonged dry spells has led to erosion and flash flooding, damaged roads and infrastructure, wiped out crops and put additional lives at risk.



The Integrated Drought Risk Management Framework highlights a three-pillar approach centered around interconnected, multi-disciplinary, multi-institutional activities. These are 1) Vulnerability and impact assessment; 2) Monitoring and early warning systems (EWS); and 3) Mitigation, preparedness and response. This country Drought Resilience Profile contains drought information based on these three pillars.

This profile provides an overview of the DRC's drought resilience capacity in the three pillars. DRC's vulnerability and impact assessment capacity is categorized as low, as more systematic and integrated information monitoring and analysis efforts are needed that can inform regular vulnerability and risk assessments of hazards including droughts. The monitoring and EWS capacity of the DRC is limited in providing the information needed to support decision-making on drought events or risk mitigation. It is therefore also classified as low. Systematic assessment of capacity needs, including compilation of inventories of EWS, covering institutional and social factors, system performance, research and supporting mechanisms still need attention. Conducting self-assessments of EWS, their resource bases and roles also need to be considered and revised.

DRC lacks the strong legal, institutional, and regulatory frameworks necessary to implement, coordinate and support drought response and preparedness. The DRC's drought mitigation, preparedness and response capacity is similarly categorized as low. Institutions in place to assist with mitigation, preparedness and response are limited, and lack coordination and empowerment to manage drought impacts effectively.



**Vulnerability and Impact Assessment**



**Monitoring and Early Warning Systems**



**Mitigation, Preparedness and Response**



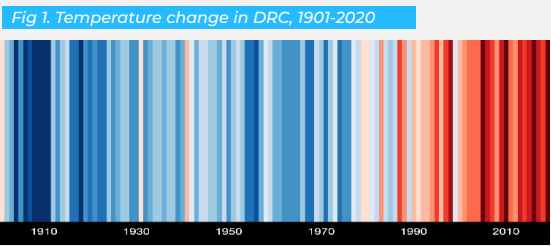
Low Medium High



This document provides a brief overview of drought risk issues. The key resources at the end of the document provide more in-depth country and sectoral analyses. The contents of this report do not necessarily reflect the views of the World Bank, CIWA, SADRI, NDMC or IWMI.

Historical climate

- The #ShowYourStripes 'warming stripe' graphic in Fig.1 show that the DRC stripes turn from blue to red, indicating the rise in average temperature since 1901.
- Average annual temperature is 24°C from 1901 to 2016. The trend for mean annual temperature indicates a 1°C increase from 1951-1999.
- Mean annual precipitation is 1508.29mm from 1901 to 2016. Average precipitation across the DRC consistently decreased since 1951. The trend indicates a decrease of up to 40.79 mm/month per century (World Bank, 2020).



Source: Berkley Earth/#ShowYourStripes

Future climate

- Future climate projections estimate that the average annual temperature increase ranges between 1.72°C and 2.08°C by the 2060's, and between 2.69 and 3.22°C by the 2090's.
- Projected rates of warming are greatest in the coolest season; and June-August temperature is projected to increase by 1.5 to 5.4°C by the 2090's.
- All projections indicate an increase in consecutive dry days by 4 days in the southeast, and by 1 day in the central parts of the country by 2030-2049.
- The heat wave index is projected to increase throughout the country with a 1-day increase projected in the northeast, two days in the central part, and the maximum projected for the southeast parts of the country by 4 days.
- Projections of rainfall are broadly consistent in indicating increases in mean annual rainfall. The ensemble range spans changes of -4% to +8% by 2030's (ibid.)

Table 1. Major droughts in the DRC (Source: EM-DAT, 2020)

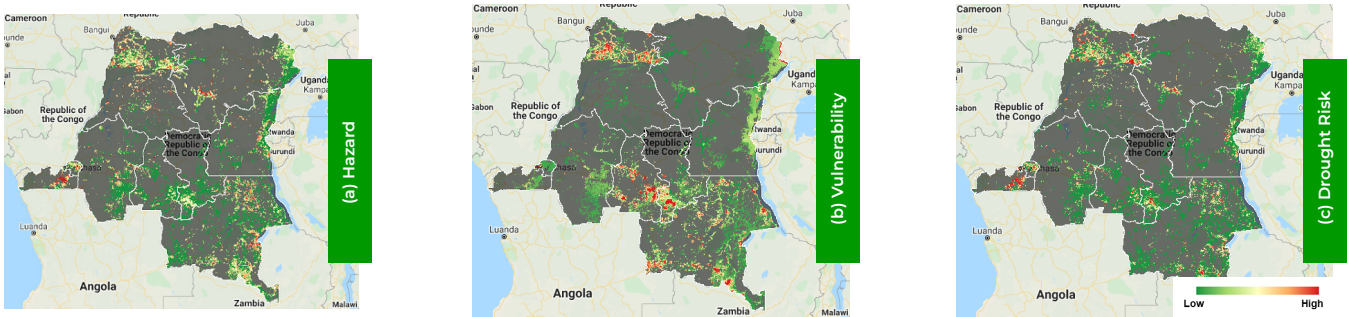
Year	Location	Affected Population
1983	Northern parts	No data*
2016-17	Northern and southern parts of the country	18,000
2019	Northern and southern parts of the country	No data*

\* No data provided from source

Vulnerability and Impact Assessment



Fig 2a-c. Drought hazard, vulnerability and risk maps for the DRC



The above maps (Fig 2a-c) depict drought hazard areas (a), areas of vulnerability (b) and drought risk (c). Drought risk is defined by characterizing hazard and exposure to vulnerability and the lack of adaptive capacity, using multisource information from satellite-derived drought indices and socio-economic conditions. In terms of components, hazard is defined through meteorological and agricultural drought i.e. Integrated Drought Severity Index (IDSi); and exposure and vulnerability expressed through population density, human modification index, water risk and irrigated systems.

Agricultural production (agricultural practices i.e. irrigated area, food production as provided on HarvestChoice) was used to define levels of vulnerability which were finally combined with all three components to define levels of drought risk at the country level, referred to as the National Drought Risk Index (NDRI). The drought risk profile is therefore based on the probabilistic estimation of hazard and vulnerability to assess the drought risk in the exposed areas.

Among the drought-prone areas in the DRC, the NDRI shows that some regions in the southern and northern parts of the country are more vulnerable and have a higher drought risk than other parts (maps generated by IWMI). Despite the fact that drought may not be as big a concern for the DRC, as it is for other Southern African Development Community (SADC) member states, it is still at risk of experiencing drought episodes that may result in water shortage and food insecurity. The impacts of drought are not uniform across regions in DRC as shown by the change of color from green to red.



## Water resources

The DRC is Africa's most "water-rich" country yet faces an acute drinking water supply crisis. The DRC has one of the highest volumes of freshwater in Africa, and surface water and groundwater sources are critical for the achievement of food security in the country. Yet only 26% of Congolese have access to safe drinking water, well below the 60% average for Sub-Saharan Africa. This is attributed to the deteriorated state of its water infrastructure – undermined by years of underinvestment and conflict, and limited management. The projection of high intensity rainfall events in the future will alter water resource risks, availability and quality at a localized scale (USAID, 2018).

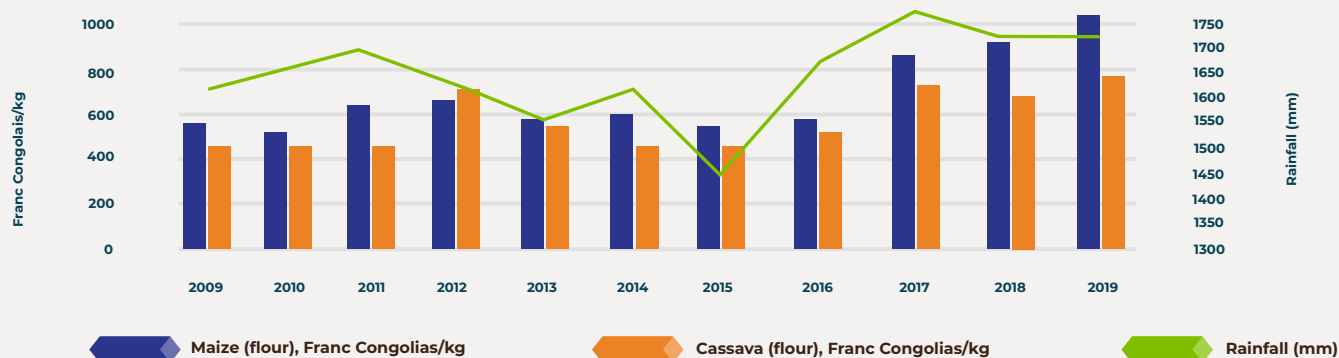
Additionally, most of the population depends on groundwater (shallow wells) and springs (located in dense forests and equatorial forests) for their primary household water source. Almost 47 % of DRC's internal renewable water resources consists of groundwater (USAID, 2018). In rural areas, most people collect water from shallow groundwater sources and carry it back to their homes (USAID, 2017). However, the quantity and quality of water in shallow wells and springs may be compromised due to increased rates of evaporation and increased damage to water infrastructure (USAID, 2017). The DRC, having 60% of Africa's total hydropower potential has a huge untapped development potential.

## Agricultural sector impacts and vulnerabilities

Agriculture is central to the DRC's economy, contributing 40% to the national GDP, employing 70% of the country's population. It is also the primary source of livelihood for the majority of people. The sector is mainly subsistence in nature, combining farming, hunting, small animal husbandry and some fishing in communities close to lakes. Crop production varies by region, but maize and cassava, both of which are sensitive to rainfall variability, are major staples, and most areas support livestock. The major challenge to the DRC's agriculture sector is the relative lack of financial resources, institutions and infrastructure to support agricultural growth. Only 10% of the DRC's arable land, concentrated in the plateaus of the Katanga region, is currently cultivated. Promoting agricultural development is the cornerstone of the country's national economic development plan, which aims to improve productivity, access, and technical and organizational capacities of producers and private institutions to support production.

Climate variability and change, through increased rainfall intensity and rising temperatures can affect these goals by impacting crop productivity and altering farming practices. Addressing climate change is thus critical if the DRC is to meet its development goals, including food distribution in drought response. From Fig. 3, it is evident that the DRC is abundant in rainfall with the lowest received rainfall in 2015 (at 1400mm) and highest received rainfall in 2017 (above 1800mm). From the figure, it shows that maize and cassava prices increase with the increase in rainfall. This could be attributed to ground saturation or challenges with harvesting as well as several other factors. In summary, potential climate risks for agricultural development in the DRC include: yield changes, including potential increases, reductions; crop failure/loss increased post-harvest losses; soil nutrient leaching; increased fungal attacks due to high levels of humidity; and reduced fruit and seed development.

Fig 3. Commodity prices and rainfall patterns, 2009-2019



Source: Own compilation from FAOSTAT & CHIRPS (2020)

## Impacts on forests

Forests are a valuable natural resource for the DRC, not only for the products extracted (timber, charcoal, palm oil), but also as habitat for wildlife that draws tourists and for the services they provide (carbon sinks, erosion control, water filtering and flow regulation). DRC's forests are part of the greater Congo Basin, which makes up 18% of the world's tropical forests. Deforestation within the Congo Basin has been linked to drier weather patterns over the basin itself as well as changes in precipitation over the Sahel, Ethiopian highlands and Guinean coast.

Climate change will have a range of impacts on forest ecosystems. When considering solely climatic conditions (i.e., excluding population growth, land use change and deforestation), models suggest a north- and southward expansion of tropical evergreen forests, an eastern shift in seasonal forest through the end of the 21st century, and a decline in grassland in the northeast. These changes could also put at risk wildlife such as critically endangered mountain gorillas in Virunga National Park (USAID, 2018).

# Vulnerability and Impact Assessment



## Vulnerability and impact assessment capacity

The DRC's vulnerability to drought is considered low in terms of physical factors (climate hazards and environment) but high in terms of household and community vulnerability. Its capacity to conduct vulnerability and impact assessments to inform disaster risk reduction and drought management is low, due in part to drought being less of a concern for the country.

The country has experienced average temperatures ranging from 24–25°C with limited variability throughout the year, and temperatures are projected to increase slightly by 0.25°C per decade (USAID, 2017). However, political instability and conflict as well as high population density are said to be the biggest drivers of increased vulnerability in the Great Lakes region along the country's eastern border (Ministry of Foreign Affairs of the Netherlands, 2018).



Since many Congolese livelihoods depend on sectors which are highly interlinked with climate processes, climate change is predicted to impact on these communities as well. For example, changes in temperatures and rainfall may affect crop production and alter biodiversity and ecosystem resources.

Women are more severely affected by drought than men; they are more vulnerable to climate change due to stronger dependency on climate-related resources (through their responsibility to provide or produce water and food). Concurrently, their adaptive capacity to drought is low because of limited mobility and restricted access to resources (Ministry of Foreign Affairs of the Netherlands, 2018).

In conclusion, the DRC lacks a stronger legal, institutional and regulatory framework necessary to encourage and support the adaptation to climate change (USAID (2012). As much as the country has begun to collect data on changes in critical sectors over time, the country needs more systematic and integrated information monitoring and analysis efforts that can inform regular vulnerability and risk assessments of hazards including droughts.

This will be important for further research on the relationships between basic climate stressors (e.g., increased temperature, rainfall) and important sectors. Lastly, the country requires increased effort towards sustainable and consistent financing models to identify and implement required adaptation options (USAID, 2012).

# Monitoring and Early Warning Systems



## Monitoring and early warning systems capacity

Table 2 represents a d traffic light checklist to illustrate the state of monitoring and early warning system capacity in DRC. It summarizes key aspects needed for a strong monitoring and early warning systems (EWS) framework, most notably, whether there is an official definition of drought used in country; whether drought indicators are used, and if so, which ones; whether there is a drought early warning system (DEWS) in place, and if so, how functional it is; and whether the country makes use of seasonal forecasting.

Table 2. Summarized checklist of monitoring and EWS capacity

Official definition of drought	●
Drought indicators used	●
Existence of a DEWS	●
Capacity to tailor EWS messages to end-user needs	●
Effective communication of early warnings with built-in feedback mechanisms	●
Use of most salient communication channels to reach women/youth/disenfranchised communities	●
Use of community relays, extensions services, local media to communicate EWS and reach at risk communities promptly	●
Seasonal forecasting	●

● Yes    ● No    ● Limited

In DRC, emergency responses are not as rapid as intended, with the humanitarian community hampered by delays in receiving news on local crises. This limited available information generation and dissemination brings late responses and not always with the resources needed given the extent of the impacts. The lack of an EWS or mitigation strategy in high-risk areas has left affected communities in a cyclical state of extreme poverty (Moumane, Huynh, Kashoshi & Kabiona, 2012).

While governance capacity is low, there are a number of ongoing projects and programs addressing various aspects of climate and disaster risks that have helped strengthen the DRC's EWS. An analysis led by UNICEF and Catholic Relief Services (CRS) in 2010 revealed that information dissemination was limited by a lack of communications technology, the absence of structured circuits for emergency information transmission to policy-makers and the lack of local involvement in managing humanitarian crises (ibid.).

To respond to the lack of provision of timely and effective information, UNICEF, diocesan Caritas partners and CRS implemented an Early Warning System (EWS) to increase information flow from vulnerable communities in three provinces with high-risk populations.



## Monitoring and early warning systems capacity

Steps taken by these partners to establish an EWS for all disasters included linking the major stakeholders to a humanitarian system for effective coordination of information and to facilitate appropriate, coordinated and timely emergency interventions supported by trained volunteers or community leaders and transmit timely emergency information to humanitarian stakeholders. These stakeholders included the NGO community, local, provincial, regional and national governments, and all affected communities, as well as private sector players (ibid.). In addition, trainings with community leaders were conducted, with participants taught to alert the humanitarian community to local emergencies through the EWS and assist in adapting the EWS to the cultural context of localities. The trainings grew the network of trained EWS volunteers countrywide and the communication tool was improved, but still needs major efforts to strengthen.

Once the information is received by EWS volunteers, they are expected to translate raw data into usable information at the next level so that action can be quickly taken. Further, the EWS members work with community, regional, and national contacts as well as decision-makers who can act on the information received and ensure information flow is maximized. In short, the EWS has been proven to be a viable information-disseminating tool in man-made and natural disaster preparedness and the response in the DRC to drought, can be part of this. As a result of these EWS developments, the country has better structured intervention plans and response times have also been significantly shortened.

In addition, in response to the national observation network being in a generally degraded condition, the World Bank, Global Facility for Disaster Reduction and Recovery (GFDRR), the European Union and other partners funded an on-going effort in the country to improve the quality of hydro-meteorological and climate (hydromet) services provided by the Government by strengthening the capacity of the Government's hydro-met services, MettelSat (2016-2020). In the early 1960s, MettelSat had a network of 125 synoptic stations, 700 rainfall stations, six upper air stations and other infrastructure. By 2017 however, MettelSat had 22 manual synoptic stations and 27 automatic weather stations (AWS). All other essential elements of the observation system, such as upper air, meteorological radars, wind profilers lightning detection are non-existent or were shut down many years ago, due in part to theft and vandalism in conflict-affected areas. Moreover, the communications system, based on high frequency radio signals, emails and regular post office delivery, was very outdated, unreliable and not intended to work in real time. In terms of media, MettelSat had a studio to prepare radio and TV broadcasts but the maintenance and calibration facilities were obsolete, with only thermometer and humidity chambers still functioning. In addition, 10 hydrological stations were functioning – five on the Congo River and five on the Kasai River.

The mandate for hydromet services resides in the Ministry of Transportation and Communication Channels (MTVC) at the National Agency for Meteorology and Remote Sensing (MettelSat), a publicly funded technical and scientific service with legal status and financial autonomy under the Ministry of Transportation and Communication Channels and supported by the State Subsidiary Budget. The Government of the DRC is in the process of proposing a new legislation on meteorology.

When approved, the law will provide a legal framework that will allow the coordination and harmonization of hydromet activities in accordance with the practices and standard procedures. The proposed legislation defines missions, mandates and responsibilities of the various entities involved in provision of meteorological and hydrological services, with MettelSat as the leading agency. Major contributions to observation and forecasting comes from the Waterways Authority (RVF), the Airways Authority (RVA) and the Maritime Authority (CVM).

While still largely uncoordinated, a Memorandum of Understanding (MoU) has recently been signed between the hydromet service and civil protection to allow for an operational and coordinated EWS. The Committee for the Prevention and Management of Disaster Risk chaired by the Minister of the Interior is in charge to launch warnings. The interdepartmental committee chaired by the Deputy Prime Minister can decide to issue public warnings. This system is decentralized with provincial security committees chaired by provincial governors, and municipal committees chaired by the mayors.

Civil Defense has competence to move populations out of dangerous areas. At present, the forecasting bulletins are issued by MettelSat for 24 hours, 7 days a week and are disseminated by email. Twelve-hour forecasts and extreme weather bulletins for the next 72 hours are also being tested. In a continued effort, through a World Bank/WMO/GFDRR funded program – Climate Risk and Early Warning Systems (CREWS) – partners will work to improve weather forecasts for dissemination through different media; strengthen agro-meteorological information services; and provide extreme-weather warnings and services to urban flood-prone municipalities, aviation and fluvial navigation services.

## Combined Drought Indicator (CDI)

Using a combined drought indicator (CDI) approach, the National Drought Mitigation Center (NDMC) at the University of Nebraska-Lincoln, in partnership with the World Bank, has developed a Drought Monitor that represents a consolidation of indices and indicators into one comprehensive drought map.

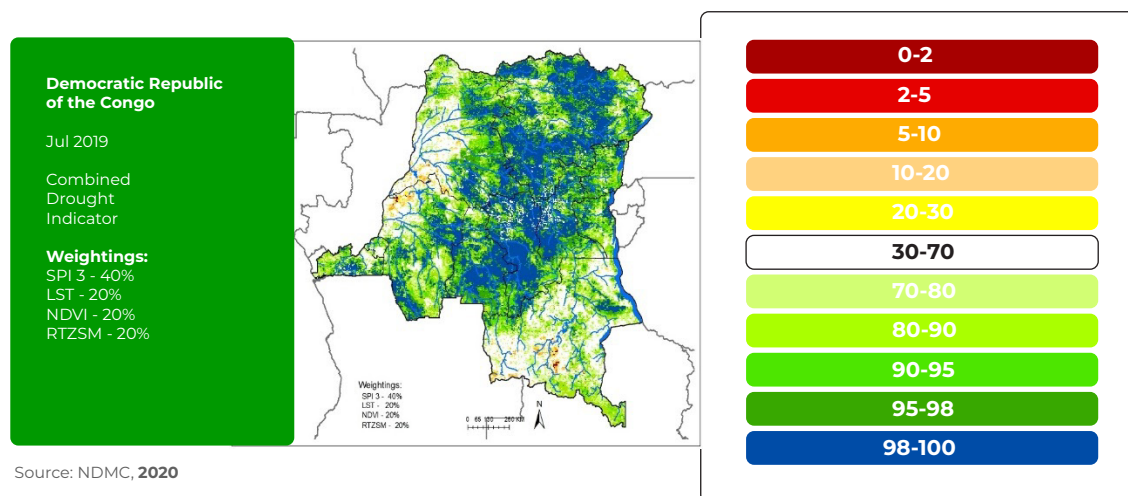
The CDI map for the DRC was created using a weighted combination of four indicators of drought: precipitation, vegetation stress, land-surface temperature and soil moisture. July 2019 was selected to depict the severity of the recent 2018/19 drought. June to August being the peak of the dry season, called 'Congolese Winter, provides an assessment of the drought's magnitude (duration and intensity), spatial extent, probability of occurrence, and impacts. The July 2019 CDI map shows very few parts of the country only minimally impacted by some degree of drought.

Without an effective drought monitoring and EWS to deliver timely information for early action, such as the CDI, effective impact assessment procedures, proactive risk management measures, preparedness plans aimed at increasing the coping capacity and effective emergency response programs directed at reducing the impacts of drought, the country will continue to respond to drought in a reactive, crisis management mode.



## Combined Drought Indicator (CDI)

Fig 4. Combined Drought Indicator for DRC, July 2019



## Mitigation, Preparedness and Response



### Drought policy framework

The DRC has no legislation directly dealing with drought, but related policy include: 1996 Decree creating the Conseil de la Protection Civile (Civil Protection Council) [This body changed its name in 1999 to the Comité National de Crise or National Crisis Committee]; 2002 Decree on the Programme National des Urgences et Action Humanitaire (National Program on Emergencies and Humanitarian Action); 2003 Decree on the Transitional Government (2003), which included a disaster management framework; the National Strategic Development Plan (PNSD); the Disaster Relief Organization Plan (ORSEC) (2010); the National Agriculture Investment Plan (2013); UN Framework Convention on Climate Change; National Adaptation Program of Action (NAPA) (2006); the Water Law of 2015 and efforts to unify the water portfolio and a national multi-sectoral Nutrition Plan for 2016–2020.

The main document concerning climate adaptation in the DRC is the NAPA, which aims to “provide a process for Least Developed Countries (LDCs) to identify priority activities that respond to their urgent and immediate needs to adapt to climate change – those for which further delay would increase vulnerability and/or costs at a later stage”. It calls for a multi-disciplinary approach combining expert opinion with consultations with civil society and NGOs. It covers adaptation in both rural and urban areas. The priorities are strongly focused on basic service provision and ensuring fundamental service provision such as the electrification of urban areas and the provision of water supplies.

In addition, the UNDP financed a Climate Adaptation Program 2010–2012 which mainly aimed at strengthening the administrative capacity of adaptation management and enabled development of long-term planning mechanisms to cope with uncertainties related to climate change impacts. Furthermore, DRC’s Second Communication to UNFCCC lists a number of priority adaptation options and measures in different sectors vulnerable to climate change (water resources, agriculture, sanitation, wealth and energy).

The DRC’s Disaster Relief Organization Plan (ORSEC) defines the roles and responsibilities of the government during a disaster and outlines the concrete actions the government plans to take. In order to do this, it appoints the National Commission for the Rehabilitation of the disaster-affected area to be the main coordinating body for disaster management.

### Institutions and coordination

Similar to its policy framework, the DRC does not have a dedicated institutional framework to coordinate drought response. In terms of DRR, the Comité National de Crise (CNC) (National Crisis Committee), chaired by the Ministry of the Interior, is the national platform for engagement. Its members include representatives of various ministries, UN agencies, multi-lateral agencies, donor representatives, and national and international NGOs. Its mission is to focus on prevention and management of emergencies i.e. natural disasters and humanitarian crises.

The main institution is the Council for Civil Protection (CCP) in the Ministry of Interior; however, it has not been operational since its creation in 1996. Sectoral ministries in charge of DRR including the Ministry of Environment, Nature Conservation and Tourism (MENCT) and the Ministry of Energy (MoE) coordinate most of the activities relating to disaster management.

Management of water as a natural resource falls under MENCT’s Water Resources Directorate. Its regulatory duties include protecting aquatic ecosystems from all types of polluting activities, development of watershed management plans and handling international and regional water cooperation. The Ministry of Rural Development is responsible for national rural waterworks service (SNHR) and the development of rural and peri-urban drinking water supply services. The Ministry of Public Health is responsible for supervising the supply of potable drinking water, but its capacity to monitor water quality is deficient. For operational purposes, the Ministry of Public Health has divided the country into 515 rural health centres. Despite their limited capacity and resources, the health centres represent one of the few remaining state structures with an active presence at the local level throughout the DRC.



As there is no central water ministry (even though the MENCT holds a generic mandate for the water sector), the sector is in effect led by the National Committee for Water and Sanitation (CNAEA). Operating under the auspices of the Ministry of Planning, the CNAEA provides a high-level inter-ministerial coordination mechanism and acts as a gateway for development partners. The CNAEA is specifically focused on programming and monitoring of the drinking water supply and sanitation subsectors and does not address water resources management in an integrated way. Operating at a policy and strategic level, the CNAEA sets planning goals and oversees resource mobilization and donor facilitation. With limited resources, however, the CNAEA has functioned largely in a spontaneous and an ad-hoc manner and has not been able to effectively coordinate the sector. Moreover, its activities have been largely restricted to the national level, as most of its provincial committees are no longer operational.

In order to coordinate multiple stakeholders, the CNAEA will soon be replaced by a National Water Council whose line of work will be broadened to handle the whole water sector based on an IWRM approach. Under a decentralization process, Provincial Water Councils will be created as well as local Water Committees and Water User Associations. The agencies will be established to manage water resources at the drainage basin and sub-basin levels, including aquifer systems. In addition, organizational reform is also expected to open a window of opportunity for private enterprise and social economy organisations.

### Drought, preparedness and response capacity

Despite the numerous activities of the donor community to strengthen EWS, disaster response in the DRC is still largely reactive and relief-oriented. The Government of the DRC has an action plan for the implementation of United Nations Security Council Resolution 1325 and a national strategy for combating Gender Based Violence (GBV), which is fundamental to achieving gender equality and the empowerment of women and girls, needed as part of effective drought management. The government is also committed to reaching the nutrition targets of the World Health Organization through its national multi-sectoral Nutrition Plan for 2016-2020. This is the first multi-sectoral nutrition plan adopted since the country joined the Scaling Up Nutrition movement in 2013.

The government also provides direct and immediate access to food during drought, and this is through providing food aid in kind and in the form of cash transfers. The World Food Programme (WFP) also assists with food aid distribution. The bulk of humanitarian interventions in eastern DRC consists of direct food distribution. During the first years of the DRC crisis, WFP activities were undertaken as an emergency operation (EMOP). Between 2000 and 2003, WFP mobilized about 260 000 MT of food which mainly targeted displaced people in the eastern parts of the country.

Government also provides seed/input relief through asset redistribution, restocking livestock capital through social relief/rehabilitation programs, enabling market revival by nutrition intervention programs. After food distribution, the distribution of free seeds of food crops and tools is one of the main strategies of food security intervention especially in the most affected eastern region of the country. The purpose of these interventions is to support the agricultural production of the most vulnerable groups. The seeds and tools are also distributed to support nutrition centers and community-based associations to support victims.

The Government of the DRC also works with the Humanitarian Aid Department of the European Commission (ECHO). Through EuropeAid, help to affected families and government is through long-term development projects in the areas of health, food security and rehabilitation. ECHO support is mainly provided through NGOs and targets "red zones" which are regarded as unstable regions still suffering from conflict. In times of disaster, the Government, in collaboration with ECHO, supports public health services in communities directly affected; support integration of nutrition and food security programs targeting most vulnerable groups and supports the provision of emergency assistance to internally displaced people and the funding of the protection and coordination activities of international organizations with a specific mandate.

The United States Agency for International Development (USAID) is another important donor in the DRC during disaster or crisis times. It helps with short-term emergency responses and long-term development support. In 2004, a new five-year Integrated Strategic Plan was adopted with the intention to assist the DRC in its transition to democracy with a healthier, better-educated population benefiting from improved livelihoods. The strategic objectives of the plan include: the use of key health services and practices; the promotion of a successful transition towards peace and democratic governance; the improvement of livelihoods in targeted areas; the improvement of basic education and the fostering of re-integration of ex-combatants into civilian life.

In the past, many international agencies complained about a lack of information flow and weak coordination. Basic data about the food security situation of populations living in more remote areas were not available, and most interventions were not based on assessments of available livelihoods. A lack of coordination between humanitarian actors was also an issue. With over a million displaced people in the eastern parts of the country, humanitarian intervention required a firm coordination on the part of national and international development agencies.

The country may consider integrating DEWS into policies and institutional mandates on disaster management and humanitarian assistance. The government may also consider strengthening its humanitarian response system alongside development efforts in eastern DRC as local institutions and actors have played a limited role in humanitarian responses. Most interventions were planned according to a top-down decision-making process and were not based on local responses to food insecurity. The government may also consider revising water policy and improve coordination among all relevant stakeholder for better flow of information.

Finally, it is critical that donors act in a coordinated manner, in order to maximize opportunities and synergize activities. In the area of hydro-meteorological information and warning systems support, coordination is particularly important to ensure end to end connectivity, starting from building capacity at the national level to providing end user services. Finally, donor coordination is further needed in areas of operation to avoid duplication of effort to provide required information for warning systems essential to reduce the vulnerability of communities.



## Recent drought resilience efforts by the international community

Table 3. Selected projects focused on drought, or some aspect of it, in the DRC.

<p><b>EU, FAO</b></p> <p>Partnership to Develop Early Warning Action Against Food Crisis and Promote Resilience  <b>Budget (USD): 41.1M</b>  <b>Time Period: 2015–2019</b></p> <p><b>UNICEF, DFID, JICA, USAID</b></p> <p>Sanitized villages programme: rural and peri-urban water and sanitation sector  <b>Budget (USD): 40M</b>  <b>Time Period: 2008–2009</b></p> <p><b>USAID</b></p> <p>Food for Peace (FFP)  <b>Budget (USD): 569.6M</b>  <b>Time Period: 2018–2020</b></p>	<p><b>World Bank, GFDRR, WMO</b></p> <p>CREWS - DRC Strengthening Hydro-Meteorological and Early Warning Services  <b>Budget (USD): 8M</b>  <b>Time Period: 2017–2022</b></p> <p><b>World Bank</b></p> <p>Forest Dependent Communities Support Project  <b>Budget (USD): 8M</b>  <b>Time Period: 2016–2021</b></p>	<p><b>World Bank</b></p> <p>Improved Forested Landscape Management Project  <b>Budget (USD): 61M</b>  <b>Time Period: 2014–2022</b></p> <p><b>USAID</b></p> <p>Feed the Future Strengthening Kivu Value Chains Activity  <b>Budget (USD): 23M</b>  <b>Time Period: 2017–2020</b></p>	<p><b>GIZ</b></p> <p>Integrating Climate Change in Water Resources Monitoring and Planning  <b>Budget (USD): 3.3M</b>  <b>Time Period: 2012–2017</b></p>
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### Data Sources:

Climate Data: CHIRPS  
Drought Risk: International Water Management Institute (IWMI)  
CDI: National Drought Mitigation Center at the University of Nebraska-Lincoln  
Population Data: WorldPop  
Livestock, GDP: FAO, World Bank

## About the Southern Africa Drought Resilience Initiative (SADRI)

SADRI is a World Bank initiative supported by the Cooperation in International Waters in Africa Program (CIWA) that integrates across the energy-water-food-environment nexus to help lay the foundations for making southern African countries more resilient to the multi-sectoral impacts of drought. Its main objectives are to generate tools and dialogue for enhancing partnerships and capacity across Member States and to inform future national and regional investments in drought-related activities.

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