

KEY POINTS

- Over the next 50 years, the dryland areas of West Africa are expected to become hotter.
- These climate changes will compound existing food and water security pressures.
- More extreme events – including increased frequency and intensity of droughts and floods – are predicted to negatively impact food security, economic growth, infrastructure and human health.

Why focus on dryland areas of West Africa?

The semi-arid and dry sub-humid areas of West Africa experience strong inter-annual and inter-decadal climate variability. The region also has a high exposure to dry spells and drought and over the past 50 years there has been significant land degradation, which exacerbates impacts of extreme climate events.

High levels of poverty, poor governance structures, a lack of social safety nets, climate-dependent livelihoods, gender inequalities and low asset bases accentuate vulnerability to the drought, flooding and heavy rainfall events that are increasingly impacting the region.

Changes in land use caused by population pressures, degradation of forests and rangelands, and top-down policy directives on resource management have exacerbated vulnerability to drought. Herder-farmer conflict is also increasing as pastoralists and farmers compete for land and water.

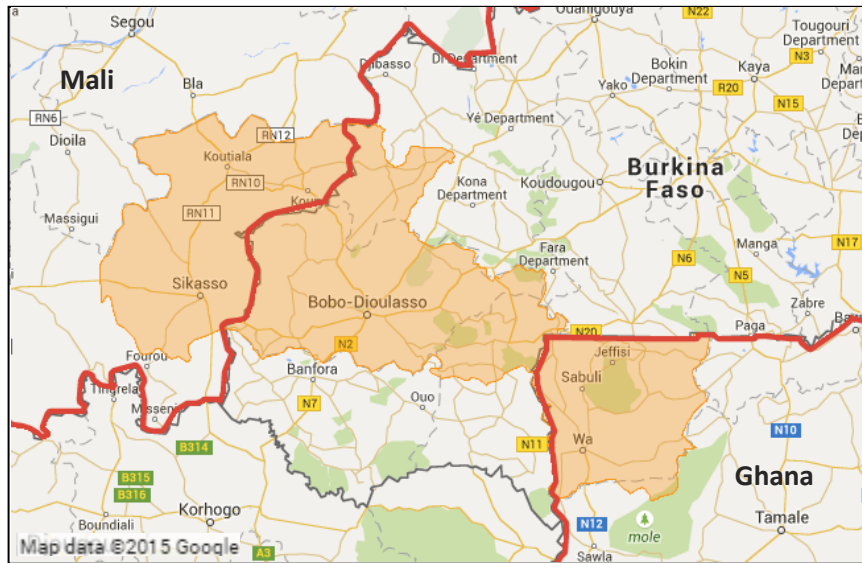
What are the key climate patterns of the past and projected trends for the future?

- ❖ For the past 50 years temperatures across West Africa have been increasing, particularly in dryland areas.
- ❖ This warming trend is set to continue in the coming decades, with the number of very hot days each year projected to be 17-20 times greater than in preceding decades.
- ❖ Projections for changes in rainfall are much more uncertain, and more research needs to be undertaken to understand how rainfall may change in the future.

What are the expected impacts of future climate on dryland areas?

- ❖ The challenges of meeting the increasing demands for land, food, water and forage for livestock will be made more difficult because of increasing frequency and intensity of drought and flood risks.
- ❖ These climatic changes will compound the existing challenges stemming from a lack of integrated water resource planning and sustainable land management which has resulted in extensification of agriculture onto drought-prone lands, reduced access to pastoral corridors, increased encroachment of farming onto rangelands, and under-investment in dryland areas.
- ❖ Climate change will result in thresholds being reached sooner, and heat-stress related impacts on livestock, crops, buildings and infrastructure will be more severe.

ASSAR is a research project being undertaken in the semi-arid regions of Africa and Asia, examining the dynamics and drivers of vulnerability, while exploring ways to enhance the resilience of people, local organisations and governments. ASSAR aims to promote climate adaptation policies and practices that are effective, widespread and sustained. In West Africa, ASSAR focuses on the dry sub-humid band that extends from the Upper West Region of northern Ghana through to southern Mali, referred to as the Wa-Bobo-Sikasso transect.



DRYLAND STUDY AREAS OF WEST AFRICA

- ASSAR countries
- Wa-Bobo-Sikasso transect

Understanding the past and future climate of dryland West Africa

Temperature

- ❖ Over the past 50 years, temperature trends in dryland West Africa have increased by an average of 0.22°C per decade, which is 3.3 times higher than the decadal warming trends observed from 1901 to 2013. This warming trend is also greater than what was observed for the surrounding areas of West Africa.
- ❖ These temperature increases are different in various locations, with the Sahara experiencing the greatest extent of warming.
- ❖ Future projections of temperature change show significant increases across the region.
- ❖ Climate models project that in the coming decades there will be 17-20 times the number of extreme hot days per year than observed in preceding decades.
- ❖ These projection of changes in temperature mean that in future, heat-stress related impacts and thresholds, on livestock, crops, and infrastructure will be reached sooner, and be more severe.

Rainfall

- ❖ The rainfall patterns of the last 50 years have been erratic and variable across the region, increasing in some areas and decreasing in others. In general, obvious trends are difficult to detect.
- ❖ There is evidence that the rainy season has shifted to later in the year in some areas.
- ❖ Projections of rainfall patterns for the future have this same variability and show both potential increases and decreases of total annual rainfall and rainfall extremes across the region.
- ❖ For this reason, there is not yet enough evidence to support statements suggesting a shift to drier or wetter conditions in the future.
- ❖ However, water resources are highly sensitive to warming temperatures and rainfall variability. Pressure on these water resources will have knock-on effects on other water-dependent sectors, including agriculture, energy and industrial production.

Way Forward

- ❖ Climate change exacerbates many risks to human livelihoods and wellbeing in the dryland areas of West Africa. These include risks associated with rainfall variability, drought, flood hazards that negatively impact on resource degradation, resource conflict, food insecurity, human health, and plant and animal diseases.
- ❖ In order to address these risks, climate change information needs to be better understood by decision makers and appropriately integrated into national and sectoral policies and plans. Greater integration of climate information would help to support more responsive mechanisms, prioritization of financial resources, and strengthening of institutional capacities to effectively implement adaptation frameworks.
- ❖ A multi-sectoral approach to addressing climate risks is recommended. Governments are encouraged to engage across institutional levels and with the private sector to innovatively address climate risks and promote climate finance mechanisms.
- ❖ Better integration of adaptation planning into development priorities coupled with resources for implementing adaptation practices can help to support local communities to adapt to the current and future effects of climate change in dryland areas. The needs of the most vulnerable members of society should be identified and prioritised.