WASCAL West African Science Service Centre on Climate Change and Adapted Land Use

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POLICY BRIEF

Hotter, Drier, Deadlier: Saving Lives and Livelihoods from Compound Drought-Heatwaves in West Africa

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Key Messages

- ✔ Heatwaves or "Silent/Invisible Killer", increasingly (frequency and duration) occur in West Africa; 2015 alone exposed 175 million additional people
- ✔ The Drought-Heatwave combined events becoming more frequent and severe in West Africa, threatening the lives and livelihoods. There are humid and dry heatwaves
- ✔ Health (Human, Animals, Plants and Crops) and infrastructures are very exposed, especially in West African cities by vulnerable groups, including women, children, and the elderly
- ✔ Urgent attention and actions are needed to monitor and manage the heat-related risks and fore-prepare towards increasingly higher heatwaves in the near future.

Policy Implications

1

Mitigation of climate change: Improving health now and in the future through rapid reduction of GHGs and a just transition to clean, renewable energy

→ Rapidly reduce Green House Gaz (GHG) emissions

→ Commit to decarbonization

→ Enable healthier lifestyles to reduce carbon emissions

2

Adaptation to climate change: Protecting health and making healthcare systems resilient

→ Invest in evidence-based adaptation and improved surveillance

→ Increase resilience by strengthening health systems:

Executive Summary

The 2003 European heatwave was responsible for more than 70,000 excess deaths and the Russian 2010 heatwave killed over 55,000 people. In Africa, statistics are uncertain.

"*When people are exposed to extreme heat, they can suffer from potentially deadly illnesses, such as heat exhaustion and heat stroke. Heatwaves can also contribute to deaths from heart attacks, strokes, and other forms of cardiovascular disease.*"

Heat fatigue, heat cramps, heat syncope, heat exhaustion and heat stroke are classical heat-related illnesses. It is particularly dangerous for the elderly and people with preexisting health conditions.

Global warming is evidence today, and it affects the whole world. Developing countries, particularly West Africa, are very vulnerable. Not only they have the highest temperatures, but they are unprepared to face heat extremes. The region is prone to extreme heat and this fact is certain with serious impacts on health in general (human-beings and animals), infrastructures and crop production. Heatwaves account for some of the deadliest disasters on record.

Heat is one of the leading weather-related killer in West Africa. But dramatic increases in heat-related deaths are closely associated with the occurrence of hot temperatures and heatwaves, these deaths may not be reported as "heat-related" on death certificates. In West Africa the lack of attention by decision-makers makes it worse, it goes totally unnoticed (death cause could even be attributed to something else). In fact, the Emergency Events Database (EM-DAT) lists no more than two heatwaves in sub-Saharan Africa since the beginning of the 20th century.

Box 1. Collected testimony

"*Some people call heatwaves the 'silent killer' because we can't see the impacts. It is easy to see flooding and people drowning and to record their deaths. But when it's a heatwave and we don't see the impact with our eyes, it's difficult to record" ... the people responsible for recording the deaths do not make the association with high temperatures.*", Pinto says.

Box 2. Facts in West Africa, the roaring danger ...

Heatwaves in Africa are not reported by governments, weather services or public health agencies, though they are obviously happening. Exposure and vulnerability to extreme weather is also more pronounced in many sub-Saharan African countries when compared with European countries. This is mainly due to higher poverty levels, informal settlements and the need for outdoor work. Hence, there's likely to be an even larger number of premature deaths from severe heats. But they have never been registered, so the number is unknown (*Harrington and Otto, 2020*).

Box 3. Indices for Assessing Drought and Heatwaves

The study investigated the coincidental occurrence of these phenomena and their intensity from 1981 to 2020 over three (3) climate zones in West Africa. The Cumulative (excess) Heat (CumHeat) and the Universal Thermal Climate Index (UTCI) are considered. For drought, the Standardized Precipitation (Evapotranspiration) Index SPI (SPEI) are used. Both heatwaves and drought characteristics are investigated. Results show increase in the number of events, the duration and intensity of the events. Another part of the work revealed that temperature tendencies from dynamics, turbulent diffusion and radiation contribute to HWs in West Africa and soil moisture plays an important role too.

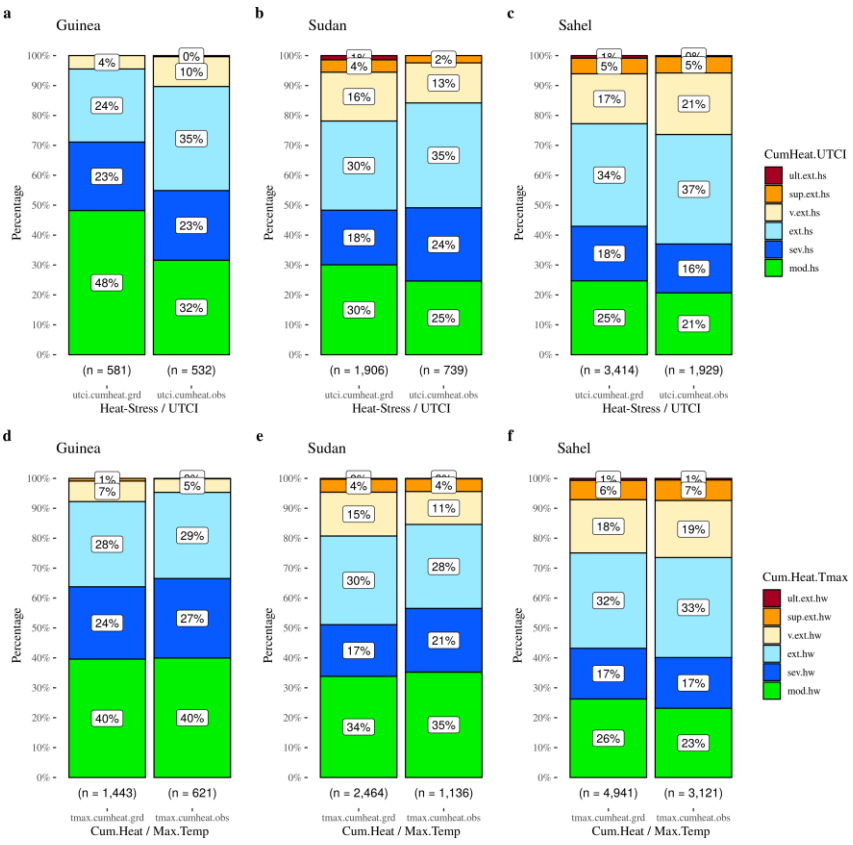


Figure 1: Heatwave and Heat-stress proportions of occurrence in the different climate zones of West Africa

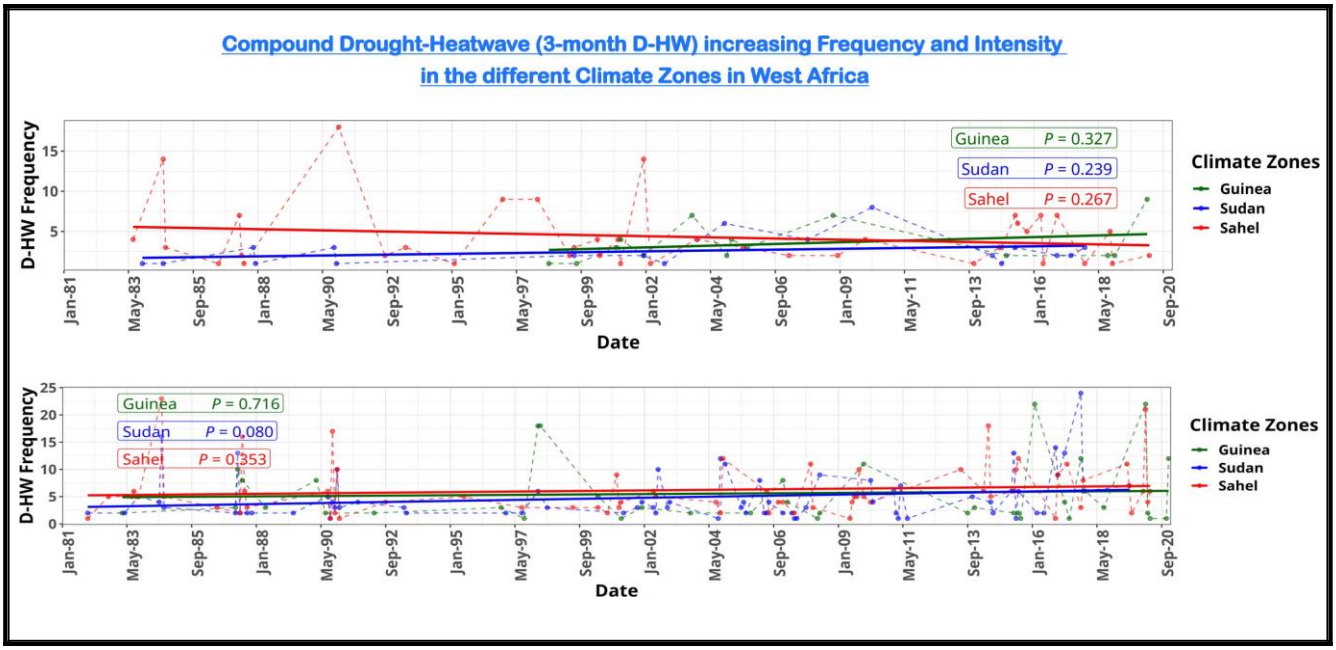
Figure 1. Heatwave and Heat-stress proportions in West Africa; Upper panel (a-c) presents the heat-stress in the different climate zones and the down panel (d-e) shows the actual heat in the same climate zones.

The percentages of occurrence are pasted. Mostly, extreme heatwave and heat-stress occur in all climate zones.

The combined droughts-heatwave effect is more intense as it affects food production. In fact, 308 drought events since 1900 led to the death of at least 700,000 people (EM-DAT).

Conclusion

Heatwaves are killers. But relatively simple measures such as opening public buildings to provide cool rooms, distributing free drinking water, informing people about the dangers of heat and early warning can reduce the danger dramatically. Combining data with local expertise, the effects of heatwaves can be understood, and future risks minimised even though the hazard itself is increasing. The absence of past heatwave impacts appearing in natural disaster databases hinders the perceived urgency for policymakers to prepare for these changes.



Recommendations

- A multi-sectoral approach is needed by scientist and decision-makers, involving agriculture, water management, health, and disaster risk reduction to tackle the issue
- Strong collaborations between local researchers, hospitals and epidemiologists to identify direct health impacts of extreme heat,
- Investing in early warning systems, preparedness, and response measures can help reduce the impact of drought and heatwaves on vulnerable communities in West Africa
- Develop a heatwave action plan considering outdoor working people and other categories. Innovative financing mechanisms, such as weather index insurance can help

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