

Security implications of climate change in the Sahel

Building on a network of climate science experts and specialised technical agencies, the Sahel and West Africa Club Secretariat (SWAC/OECD) is co-ordinating a regional analysis on how climate change and climate variability are affecting one of Africa's most vulnerable regions, the Sahel, and under what conditions and which interactions they can impact security. It employs multiple analytical methods analysing a large set of climate and non-climate variables which help identify the region's main long-term trends and structural transformations. Based on past observations, current characteristics and climate projections, a series of vulnerability and risks maps are being developed as well as three scenarios for possible climate evolutions in the Sahel by 2040. Outcomes will contribute to raise awareness among key policy-makers on the potential security implications of climate change in the Sahel, identify mitigating policy actions, and define a regional road-map for action.

Over recent years climate change and its impacts on development and security have become a key concern for policy makers around the world. After decades in which technological innovation, human ingenuity and adaptation and international trade appeared to have overcome many traditional scarcities, the effects of climate change are posing new threats to sustainable growth and development. Africa is considered to be "one of the most vulnerable continents to climate change and climate variability, a situation aggravated by the interaction of 'multiple stresses', occurring at various levels, and low adaptive capacity." (Intergovernmental Panel on Climate Change - IPCC 2007).

> Possible impacts of climate change

Current climate projections are predicting increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global average sea level. IPCC findings suggest that these developments are likely to provoke the following environmental and socio-economic consequences on the African continent:

- Reduction in agricultural production and increased food insecurity;
- Additional pressure on water availability, water accessibility and water demand;
- Inundation of low-lying lands;
- Alteration of the ecology of disease vectors negatively impacting human health.

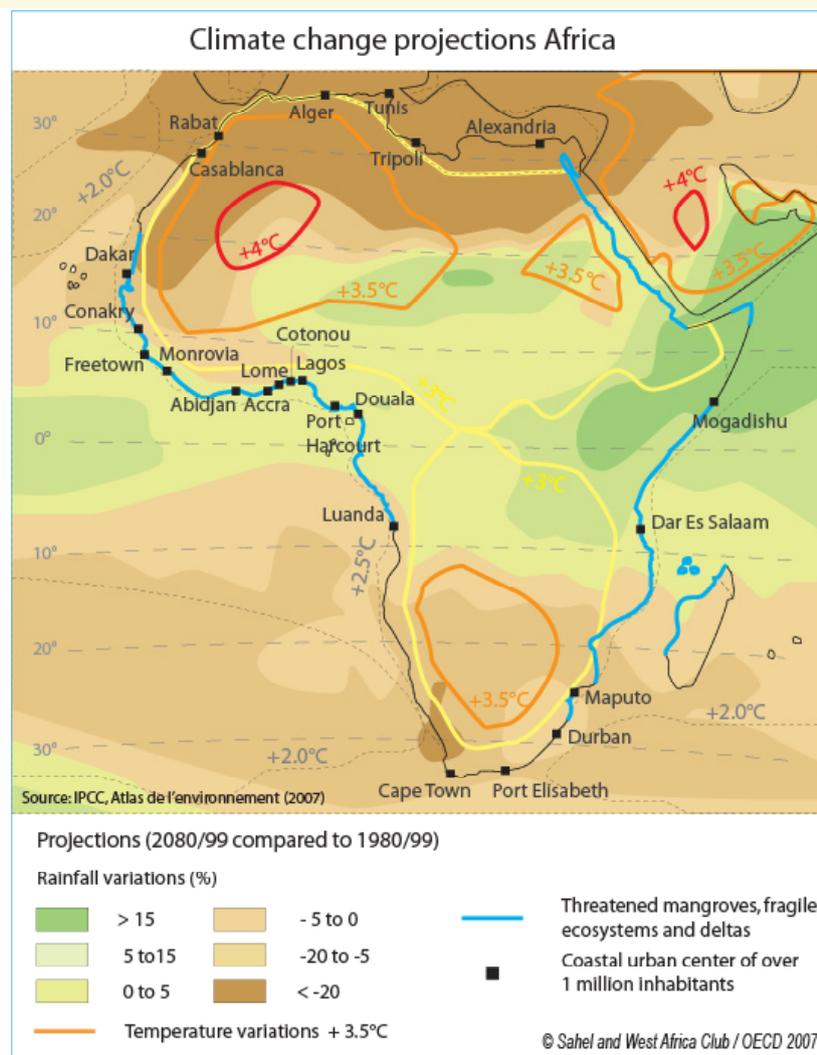
Africa is particularly vulnerable to the effects of climate change, due to its high dependence on rain-fed agriculture, widespread poverty and weak mitigation and response capacity.

> Potential security threats

Researchers and security analysts increasingly stress the link between climate change and security. The causal mechanisms promoted to connect climate change to insecurity range from:

- Conflict over resources;
- Economic damage and risk to coastal cities and critical infrastructure;
- Loss of territory and border disputes;
- Environmentally induced migration;
- Situation of fragility and radicalization;
- Tension over energy supply;
- Pressure on international governance.

See: "Climate change and international security", Paper from the High Representative and the European Commission to the European Council, March 2008.



In the wake of the UN Climate Change Conference (COP15), African Union countries are working on a common position for the global climate change negotiations and aiming at better integrating climate change risks and approaches in African development policies, programmes and activities.



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This regional study is composed of three analytical modules:

> Dynamic analysis

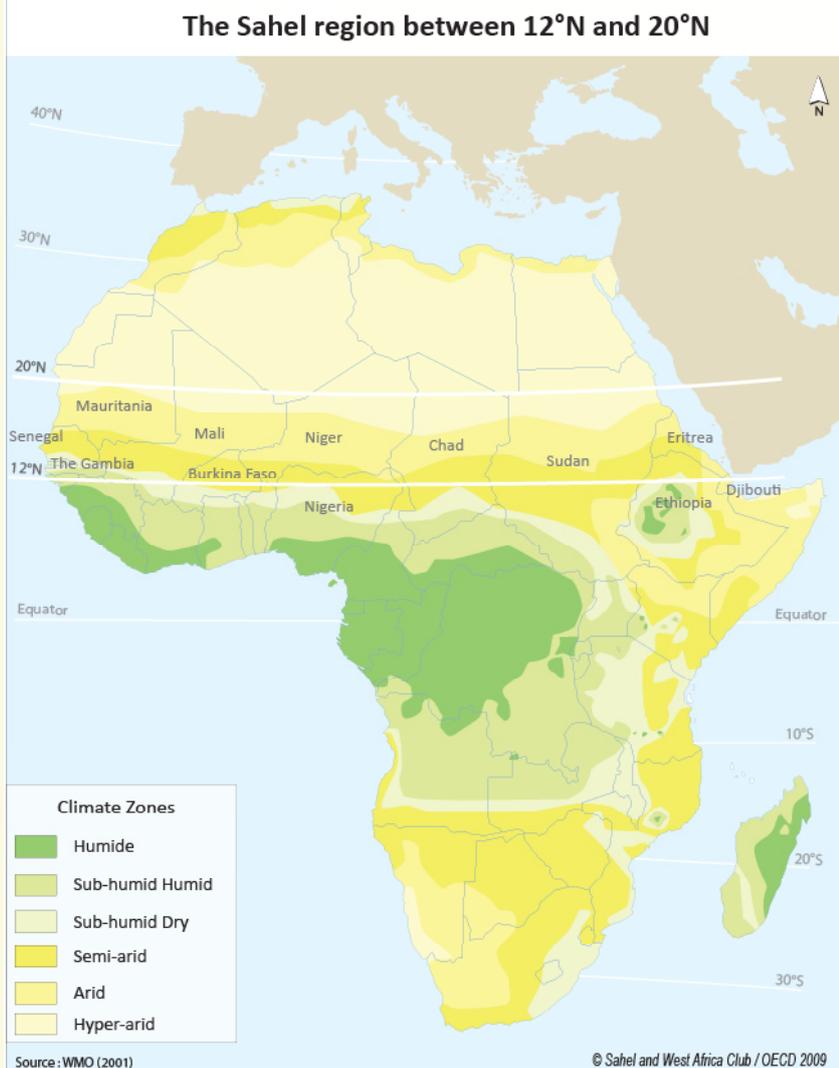
Retrospective analyses of climate and non-climate variables will help identify the region's main long-term trends and structural transformations (climate and non-climate) and show where and how these changes have taken place, at what rate they occurred, their consequences, and how the region adapted. This will lead to a detailed spatial description of the region today, localising and explaining current features and stakes. An analysis of past security events (occurred between 1969 and 2007) will provide a short description of triggers, aggravating factors, general contexts and timeline of past security events.

> Cross-analysis and climate projections

A cross-analysis of climate and non-climate variables will identify linkages between climate structural changes and structural trends of demo-economic variables on the one hand, and climate change/variability and security events on the other hand. Qualitative and quantitative methods will be used to adequately capture the multidimensional nature of security. Based on past observations and current characteristics, vulnerability and risks maps will be produced. The aim is to define, characterise and localise zones of increased vulnerability.

> Medium-term scenarios

Using existing climate projections and vulnerability maps for the Sahel region, three scenarios for possible climate evolutions by 2040 will be developed, outlining different impact scenarios on non-climate variables and their conflict-linkages.



Team

The SWAC Secretariat's work is supported by a multidisciplinary team of experts. The climate science analysis is provided by the UK Meteorological Office Hadley Centre. The regional analysis also involves a network of stakeholders from Africa and OECD member countries, international and regional organisations, specialised technical agencies and broader interested public and private actors.

Partners

- African Union, Peace and Security Department (AU);
- Bureau of Geological and Mining Research (BRGM);
- CILSS/AGRHYMET Regional Centre;
- Economic Community of West African States (ECOWAS);
- Food and Agricultural Organization (FAO);
- Famine and Early Warning Systems Network (FEWSNET);
- Intergovernmental Authority on Development (IGAD);
 - IGAD Climate Prediction and Applications Centre (ICPAC);
 - IGAD Conflict Early Warning & Response Mechanism (CEWARN)

with the special financial support of:



For this analysis the Sahel has been defined as the region lying between 12°N and 20°N longitude, covering the semi-arid and arid climate zones. It covers all or parts of 12 countries from the Atlantic Ocean to the Red Sea: Senegal, the Gambia, Mauritania, Mali, Burkina Faso, Niger, Nigeria, Chad, Sudan, Ethiopia, Eritrea and Djibouti.

Forthcoming events

Technical workshop

Dakar (Senegal), 17 November 2009

Presentation of draft vulnerability maps to a group of 25-30 experts; feedback on analyses and methodology; definition of operational modalities of scenario-building (scheduled for January 2010).

Side-event at the UN Climate Change Conference (COP15)

Copenhagen (Denmark), 14 December 2009, 6-8pm, EU pavillon

Presentation of vulnerability maps and analytical components to raise awareness among policy makers on the Sahel region's vulnerability, potential security threats and other policy implications.

For further reading

- Climate and climate change, Regional Atlas on West Africa, chapter 14, SWAC/OECD, West African Studies, January 2008.
- Climate change in West Africa, Sahelian adaptation strategies, SWAC Briefing note, January 2009.
- Climate change and Africa, Briefing note, African Partnership Forum Support Unit, September 2007.