CURRENT AND FUTURE TRENDS FOR CLIMATE RESILIENT AND SECURE LIVELIHOODS AND LANDSCAPES IN THE SAHEL

Achieving resilient livelihoods and landscapes in the Sahel, like drylands elsewhere, is made more complex by high levels of livelihood differentiation amongst people who live in rural areas. Farmers, pastoralists, agro-pastoralists, fisherfolk, hunters and foragers, amongst others, compete over access to land and other natural resources and, at the same time, provide each other with a range of mutually beneficial services.

With this as a backdrop, the first ALFA Sahel webinar brought together practitioners, researchers and policymakers from 30 organisations working in 9 West African countries to discuss:

- The ways in which climate change impacts on different livelihood groups and the ecosystems they depend on in the Sahel.
- The most important issues / challenges for long term climate resilience that practitioners, researchers and policy makers should be considering in the Sahel.

SETTING THE SCENE

The discussions were inspired by two presentations on the current evidence of trends and drivers of change in livelihoods, natural resource availability and current and future climate scenarios.

PRESENTATION 1. THE CHANGING NATURAL RESOURCE BASE AND IT'S USE IN THE SAHEL

The presentation outlined broad trends in the Sahel between 1975 – 2016 which show expanding land used for crop farming and irrigated or dry-season farming, a significant increase in number of livestock, and a reduction in the surface area covered by water across the region. Water resources recovered well in some countries after the extreme droughts of the 1970s and 1980s, however since 2000 water has been on the decline and is now at pre-1975 levels. Over the last 30 years there has been a high increase in cross border pastoralist mobility, and a reduction in mobility within countries. These changes, driven by population growth, land degradation, climatic changes, economic and other factors, are also seen to be related to significant increases in the incidents of conflict (particularly 2015 to 2019). In terms of adaptive capacity, agro-pastoralists are most likely to experience climate shocks, yet they are also most likely to fully recover compared to either farmers or pastoralists.

FIGURE 1. EXPANSION OF CROPLAND 2000 TO 2013. (SOURCE: USAID)

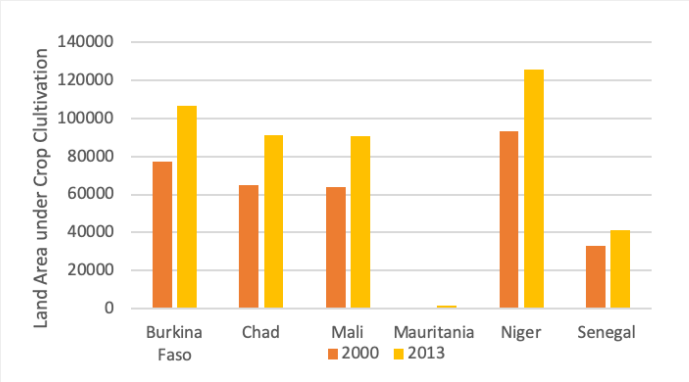
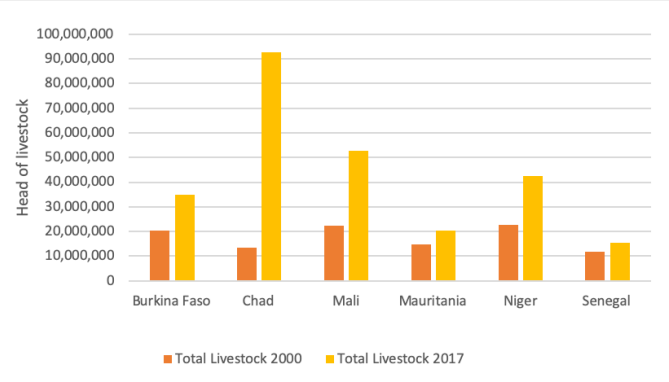


FIGURE 2. INCREASE IN LIVESTOCK 2000 TO 2017 (SOURCE: FAO)



PRESENTATION 2. CLIMATE CHANGE IN THE SAHEL REGION OF WEST AFRICA

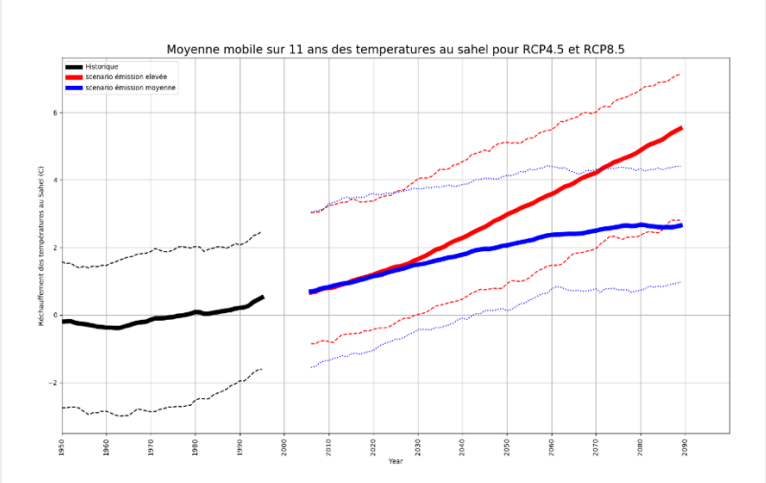
Climate science shows that temperature has risen across the region since 1850 when records began with a high likelihood this will continue including more incidences of extreme temperatures. Compared to the pre-industrial period, the Sahel will likely be 1.5-4 ° C warmer by 2050 (Figure 3). Rainfall patterns moved from a 20 year period of relatively high rainfall (1950 to 1970) to a 20 year period of below average rainfall (1970 to 1990) with historic droughts which have impacted livelihoods and landscapes up to today. Since 1990 year on year rainfall patterns have become more variable and erratic. Future rainfall is uncertain and shows different patterns in the east and west of the Sahel region, while the already experienced increase in storms, dry spells and intense rainfall events are predicted to continue. Future projections show a Sahel-wide intensification of extreme rain events, as shown in Figure 4.

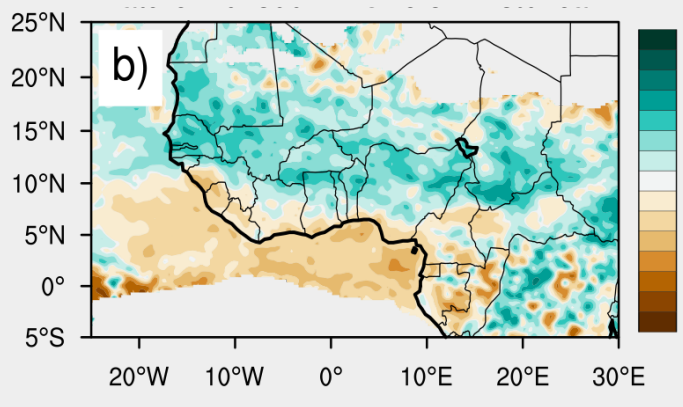
FIGURE 3. FUTURE SAHEL-WIDE ANNUAL TEMPERATURE PROJECTIONS FROM CMIP5 ENSEMBLE, ANACIM.

Figure 3 shows the simulated changes in temperature (compared to the mid 20th Century) in the Sahel for the period to 2005, using historical emissions estimates (black), and using intermediate (blue) and high (red) future emissions scenarios out to the end of the 21st Century. The thick lines indicate the average warming, and the dashed lines illustrate the range of warming found in different models.

FIGURE 4. PROJECTED CHANGE IN FRACTION OF SEASONAL RAINFALL THAT FALLS IN INTENSE STORMS

Figure 4 show mean changes (RCP8.5 minus historical as percentage of historical values) in seasonal R95ptot over West Africa for the mature monsoon. It projects a picture of increasing intensity of heavy precipitation events, especially during the monsoon phases and over the Sahel, where the changes are most pronounced.





Source: Analysis of an average of 3 regional climate model simulations in Sylla et al., J. Climate, 2015.

OUTCOME OF PARTICIPANT DISCUSSIONS

Participants shared their experiences of trends and challenges affecting resilience. The discussion revealed the diversity and complexity of the changing situation and how it is understood by different actors and across the Sahel.

1. INCREASING CONFLICT

Observed increases in conflict across the Sahel were attributed to a decrease in access to productive natural resources through drought, land degradation, appropriation of land by public and private interests in particular extractive industries and increasing numbers of people depending on natural resources for their livelihoods.

Classical conflict between crop farmers encroaching into pastoralists grazing lands and vice versa are shifting towards a more complex and less polarised farmer/pastoralist picture with differing drivers, new claims on resources and politicisation. As young people lose their traditional livelihoods and resources become scarce, the opportunity grows for radicalisation and terrorism, incited through politics or climate change crises or both. For instance, in the north east of Nigeria (Lake Chad) where the Boko Haram has a strong base. However, whilst conflicts are less defined as being strictly between farmers and pastoralists, this divide combined with ethnic identities and ethnic grievance (Fulani, Tuareg) are still used as an organising mechanism in conflicts that appear not to be directly driven by access to natural resources.

2. CHALLENGES FOR PASTORALISM

Smallholder and large-scale farming is expanding, taking over more land for crops and irrigation. At the same time for many reasons, and exacerbated by climate change, land in the Sahel is becoming more degraded. Pastoralists are facing difficult choices. To be viable today, transhumant pastoralism means moving further over longer distances to find pasture, with more need for cross-border transhumance.

Diversifying into sedentary agro-pastoralist livelihood systems is increasing. This is one strategy for people who have not yet managed to recover their livestock capital since the droughts in the 1970s and 1980s. As a result of more pastoralist mobility and more permanent irrigated crop land, traditional systems of opening crop fields for cattle to eat the crop residues and fertilise the land are breaking down. This removes both vital fodder resources from livestock systems and important soil fertility services from crop land.

Climate change is further degrading pasture quality and causing silting and drying of water points. This shrinking and degradation of land and water sources is in turn creating pressure on space, reducing production/ productivity and incomes from milk and meat, and increasing the risks of conflict and clashes between actors. A vicious cycle emerges where this decrease in ecosystem services results in food insecurity, malnutrition and loss of cattle. Pastoralists convert to other forms of livestock, sedentary agro-pastoralism and agriculture, yet agriculture is also suffering from chronic deficits due to increasingly dry weather conditions.

One challenge identified for supporting pastoral livelihoods in the context of climate change is that there is little research which forecasts the impacts of climate change on the relationship between different livelihood groups of farmers and pastoralists and how they interact.

3. CHALLENGES FOR CROP AGRICULTURE

Uncertainty over the timing and onset of rainfall seasons and patterns is a growing challenge to farmers decisions. Declines in yields of crops and fodder and water availability are evident, as well as the increase in the number of animal deaths for small holder farmers. Increase in temperatures has already reduced crop yields by 10%-20% in some places and for some crops and will affect nutritional value as well.

Decreases in yields are also caused by degradation, with soils stripped bare and degraded, reducing cereal productivity and increasing risk of food insecurity. Less water, land erosion, drought and higher temperatures also increases pests and shifts the location of diseases into new areas. Farmers who are continuously managing crises cannot easily transform their lives or innovate. Dry season farming using water harvested from the rainy season, rivers and ground water to irrigate small areas of land are increasing in popularity. However drying up of water sources is occurring, which not only results in irrigation challenges, but also increasing unpaid domestic workload (water-drawing in a context of resource drying up), and lower productivity in agricultural activities occupied by women. The depletion of soils, and decreased productivity is a driver of increased urbanisation.

Extreme events like Sahelian storms are affecting not only the production side, but also distribution and consumption in the food systems and value chains. For instance, attention is equally needed to address damage to roads, poor storage facilities, and health problems.

Dependence on income from specific value chains increases vulnerability where these are more vulnerable to changes in climate and farmers are not able to diversify and spread risks. This makes it difficult to change and transform food systems in the long term; as the farmers do not have investment resources, time, labour etc to invest. It was also noted that at the grass roots level, there is little technical and financial capacity to uptake new agricultural technologies or practices.

4. CLIMATE CHANGE IMPACTS

Ongoing impacts, uncertainty and limited understanding relating to climate change and future scenarios are adding an extra layer of challenges to farmers and pastoralists in the Sahel. The impacts of climate change as documented in the above sections are also affecting social relations, resulting in gender-related differences with increased inequality and higher vulnerability among women and youth. Traditional practices and governance for resource management and regeneration are no longer working.

Opportunities to adapt to climate change are challenged by lack of access to climate information and where access is possible, difficulty in understanding language used by scientists in communication with technical services and communities. At the same time traditional climate knowledge is becoming less reliable. Communication between climate science and policymakers is also a challenge because the timescales of climate scientists (short term and seasonal to over 10 years) do not match with the annual to five-year planning and political cycles of policymakers.

A need was identified to strengthen the evidence base for policies, for a more granular understanding of how climate differently impacts different social groups across different contexts. Not enough is known about how changes in climate (historical and future) impact on different marginalised groups. Good policy requires understanding of the variability in vulnerability of a population as a function of exposures to the weather or climate related hazards. Funding for such needed research is also problematic, and there are difficulties in identifying the most important research questions which will answer policymaker's needs.

WHERE NEXT?

The outcome of the first ALFA Sahel webinar paints a complex and not fully understood picture of increasing productivity to support livelihoods in the Sahel with more land under irrigation, dry season and rainfed crops, and livestock production, both settled and mobile. This is in turn increasing pressure on resources, in particular water and pasture, increasing the range of pastoralist mobility (but with more constraints and insecurities) and heightening competition and conflict in the Sahel.

Climate change impacts (droughts, floods and extreme storms) are compounding the problem by reducing crop yields, livestock health and fragmenting existing social and governance norms, yet access to climate information is a challenge.

There is an underlying need to build capacity and create awareness in communities with more thinking and information about diversification, resilient livelihood options and technologies tailored to the context of multiple resource uses, natural resource management, land restoration and rural urban relations.

Linking local, endogenous and external knowledge and innovations to support climate change adaptation such as climate information services and drought tolerant crop varieties and strengthening social cohesion and policies linked to decision making and planning all could have potential.

Insights emerging in the webinar raised more challenges and questions than answers, but open the way for further discussions into specific aspects based on participant interest with exploration of what is and can be done by coordinated efforts among practitioners in the webinars to follow.

USEFUL RESOURCES

The webinar presentations, source papers and recording, are available on the ALFA Sahel website here: https://alfasahel.org/outcomes/

IIED Briefing papers June 2020: Farmer–herder conflict in Africa: re-thinking the phenomenon?

Africa's Pastoralists: A New Battleground for Terrorism: https://africacenter.org/spotlight/africa-pastoralists-battleground-terrorism/

The ALFA Sahel 2020 webinar series is a forum for joint learning among practitioners, decision-makers and researchers on the challenges and opportunities for climate resilience in the Sahel. Go to alfasahel.org to learn more.