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# News from the Field

# Climate information use implications for climate risk mitigation in West Africa

## The necessity for climate information services in West Africa

With projections of a 70 percent increase in demand for staple cereals by 2050 in order to feed the growing human population (FAO, 2010), combined with the current declining per capita food production and a dwindling natural resource base, 'feeding West Africa' and increasing the resilience of livelihood systems may be well beyond reach. This has been attributed to multiple factors such as land tenure challenges, declining soil fertility, poor markets, climate hazards and variability, inadequate funding and poor infrastructural development (Ouedraogo *et al*, 2016; Partey *et al*, 2016). The current state of food insecurity and poor rural livelihoods are expected to be further exacerbated by climate change and variability which has emerged as one of the major threats to development in West Africa (Zougmoré *et al*, 2016).

While the Paris Agreement places great emphasis on reducing greenhouse gas emissions and creating carbon sinks, the impact on climate change mitigation will not be seen immediately even if the most effective mitigation measures are implemented.

As vulnerable farmers in West Africa experience greater climate variability (Cooper *et al*, 2008) it is important that climate-smart agricultural (CSA) technologies that reduce vulnerability to climate risks are prioritised. The establishment of the *Global Framework for Climate Services* (WMO, 2013) by the World Meteorological Organisation (WMO) clearly confirms climate information services (CIS) as one opportunity for managing climate change and variability risks. With increased drought, unpredictable rainfall patterns, destructive flooding and the growing evidence of climate change negatively impacting farm production systems, access and use of climate information should help farmers make crucial decisions that enable them

to adopt strategies that have the potential to reduce crop failure, improve efficient use of farm resources, and ensure profit (Roudier *et al*, 2014).

## CIS initiatives and impact in West Africa

In the quest to improve the capacity of farmers to better manage climate-related risks and build more resilient livelihoods in West Africa, there have been several initiatives focusing on: (i) designing tailored climate information services and (ii) communicating the results appropriately to farmers for their farm management decision-making (CCAFS, 2015).

Since 2011, substantial successes have been achieved, particularly in Senegal and Ghana. In Senegal a collaboration between scientists, the national meteorological agencies and 82 rural community-based radio stations, resulted in the promotion of economic development through communication and local information exchange, and seasonal forecasting, which is now reaching about 750,000 rural households across 14 administrative regions (CCAFS, 2015). Climate information has benefited fisher-folks, pastoralists and crop producers in managing farm-related, and other livelihood, activities.

In Ghana, through a private ICT-based platform, market price alerts, climate-smart agricultural advice, weather forecasts and voice messages on CSA practices are sent out to farmers in Northern Ghana in the local language. This platform has so far trained about 1,000 farmers (of whom 33 percent are females) (ICRISAT, 2015). A recent survey (Zougmoré *et al*, 2016) showed how access to and use of climate information resulted in increased yield of crops as farmers used seasonal forecasts to make strategic decisions such as when to start land preparation, when to plant, selection of crop varieties, and when to apply manure or chemical fertilisers.

Furthermore, *ROPPA*, the West Africa farmers' organisations network, and the agricultural value chain programmes initiated by CCAFS in Burkina Faso *(PROFIL)* and Senegal *(PAFA)*, also disseminated seasonal forecast information and climate-smart agricultural options to farmers from various agricultural sectors as well as throughout their national constituencies (Ouédraogo *et al*, 2015). A cost-benefit analysis in Burkina Faso showed that farmers exposed to climate information used less local seed and more improved seed for cowpea and sesame production (Ouédraogo *et al*, 2015). They also used less organic manure and more fertilisers for sesame production. Cowpea producers exposed to climate information obtained higher yields and, at the same time, lower input costs. Their gross margins were therefore found to be higher compared to non-exposed farmers.

A *Participatory Integrated Climate Services for Agriculture (PICSA)* approach – designed by the University of Reading – is also being tested in Burkina Faso, Ghana, Mali and Senegal to equip agricultural extension staff, and other intermediaries, to work with groups of farmers to understand climate information and incorporate it into their planning. The *PICSA* approach involves agriculture extension staff working with groups of farmers ahead of the agricultural season to analyse historical climate information and use participatory tools to develop and choose crop, livestock and livelihood options best suited to individual farmers' circumstances. Then, before and during the season, extension staff and farmers consider the practical implications of seasonal and short-term forecasts on farmers' plans.

## Conclusions

Farmers and policy-makers have long sought reliable regional and local climate projections to provide a solid basis for guiding their actions. With climate information services in West Africa, farmers are able to plan their planting dates and make projections about rainfall distribution patterns. These guide farm decision-making and have helped farmers increase yield, reduce costs of production and improve the use of farm inputs (such as manure and inorganic fertilisers).

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