Evaluating agricultural weather and climate services in Africa: Evidence, methods, and a learning agenda

Philippe Roudier (1), Catherine Vaughan (2), James Hansen (2), Edward Carr (3), and Paul Watkiss (4)

(1) French Development Agency (AFD), Innovation & Research, France (roudierp@afd.fr), (2) International Research Institute for Climate & Society, Earth Institute, Columbia University, (3) Humanitarian Response and Development Lab, Clark University, (4) Paul Watkiss Associates

Weather and climate services (WCS) are expected to improve the capacity of Africa's agricultural sector to manage the risks of climate variability and change. Despite this, a lack of evidence regarding WCS prevents a realistic analysis of whether services are delivering on their potential. This paper reviews 65 studies that have evaluated outcomes and/or impacts of agricultural WCS in Africa, highlighting areas that have received relatively more attention, as well as persistent gaps. While the evaluation of WCS outcomes is relatively straightforward, estimates of the number of people who access and use of these services are uneven (covering a small number of communities in 23 of 54 African countries) and highly variable (with access ranges from ∼2-86%, depending on the service and the population). Meanwhile, 22 documents estimate the impact of WCS with respect to yields and/or income. Developed with a variety of methods, these estimates are also wide ranging (some users lose, while others experience up to 66% marginal gains) and illustrate how impact is conditioned on a number of characteristics of the service, the user, and the context in which both operate. This study uses lessons developed through this review to develop a "learning agenda," or evidence-building roadmap, to establish priorities that can guide future work to generate evidence that can improve the design, delivery, and impact of agricultural WCS in Africa. Priorities learning areas include: broadening our view of potential users and uses of WCS; filling of geographic and demographic gaps; and quantifying the extent to which "good practice" leads to improved outcomes and impacts.