RESEARCH PROGRAM ON Climate Change, Agriculture and Food Security

CGIAR CCAFS

Info Note

Improving early warning systems for agricultural resilience in Africa

Findings from CCAFS submission to the UNFCCC SBSTA

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Key messages

- Establish rules for early response to early warning information, based on determined triggers, contingency plans and finance mechanisms.
- Broaden the range of users of early warning information and integrate into development activities.
- Incorporate systematic feedback from users of early warning information, and adapt to the needs of stakeholders and new technology.
- Invest in the quality, accessibility and integration of data, which determine confidence in early warning information.
- Take greater advantage of seasonal prediction to increase the lead-time for action.
- Factor uncertainty into risk analysis, communication and decision processes.

Introduction

Extreme climate events can undermine agriculture and rural development. Even in years when extreme events do not occur, the uncertainty that results from climate-related risk is an impediment to sustainable intensification of agriculture and adoption of climate-smart agricultural production practices. In an era of more frequent and more extreme weather events and climate shocks, enhanced early warning systems provide a key opportunity to curb erosion of development progress in rural sectors. This Info Note sets out recommendations to African policy makers for strengthening existing early warning systems and developing new systems in Africa.

Establish rules for early response to early warning information, based on determined triggers, contingency plans, and finance mechanisms.

To address delays involved in responding to slow-onset climate stress such as drought, early response rules should be developed. These rules should be based on objective threshold values of early warning information, and should be accompanied by sets of early actions which can be taken in response. Contingency finance should be made available when threshold values are surpassed. This can be in the form of insurance, a government-run risk pool, or at the continental scale, such as the Africa Risk Capacity program.

Africa Risk Capacity Program

Developed by the African Union, the African Risk Capacity (ARC) is a new program that takes an innovative approach to financing response. By transferring risk from African governments and vulnerable smallholder farmers to the ARC insurance risk pool, funding and resources can be mobilized to respond quickly to impending disasters. Capital comes from participating countries' insurance premiums, which are based on the level of risk and financial coverage for the severity of the climate event.

Presently, ARC only covers droughts but will expand to floods and other hazards later on. ARC uses "Africa RiskView," satellite weather surveillance technology to ensure that the data are accurate and up-to-date, allowing analysts and decision-makers to respond rapidly to climate warnings. When rainfall amounts are below a determined threshold, ARC member countries receive a payout within 2-4 weeks of the end of the rainy seasons, allowing sufficient lead-time for early intervention programs to get underway before economies and livelihoods take a significant hit.

Broaden the range of users of early warning information and integrate into development activities.

The potential use of early warning systems is extremely diverse, depending on the nature of the warning (e.g. drought, flash flood) and the range of responses for all the potential users of early warning information. Broadening the range of users appears to be one of the most promising ways to expand the contribution of early warning to climate-resilient agricultural development in Africa. Providing information at longer lead times would expand the range of decisions that EWS could inform. However, enabling decision-makers operating at local to sub-national levels, to benefit from early warning information may also require investment in training and communication, in addition implications to system design.

Ethiopia Climate Resilience Planning Pilot Project

The Climate Resilient Planning Pilot Project integrates traditional early warning information with broader data to provide tailored inputs to national and sub-national decision-processes that (1) focuses on decision-maker needs through a thorough survey process, (2) develops improved information systems within current decision contexts, (3) creates a social learning platform where decision-makers and subject experts can collectively learn and build new tools, and (4) incorporates a clear monitoring and evaluation framework where outcomes of project initiatives can quickly be measured and incorporated into collective learning. The goal is to create a locally sustainable and internationally connected system of analysis relevant to decision-makers.

Incorporate systematic feedback from users, and change with the needs of stakeholders and new technology.

Providing actionable information to diverse groups is impossible without feedback mechanisms that are incorporated into early warning systems. An effective early warning system is flexible and adapts over time to meet the changing needs of its users. This is especially true for early warning systems that contribute to an expanded set of climate-resilient development goals.

Invest in the quality, accessibility and integration of data.

Confidence in early warning information is influenced by the quality of data. Quality is often compromised because EWS is based on multiple streams of information. Investments in quality and streamlining help increase confidence. In the case of meteorological data, this may include efforts at data recovery, digitalization, and cleaning to assure that countries are forecasting weather and climate risks based on the best available historic datasets. A longer historic dataset allows for a more thorough analysis of trends and improves the skill of seasonal prediction.

Take full advantage of seasonal prediction to increase the lead-time.

Good methods are available to integrate seasonal climate forecast information into established agrometeorological monitoring tools, such as crop water satisfaction indexes or crop simulation models. Countries should endeavour to adopt these methods rather than relying on subjective long-lead assessments which are inaccurate.

Factor uncertainty into risk analysis, communication, and decision processes.

Users of EWS will lose faith in the information provided if uncertainty is not effectively communicated. For information at a long lead-time, e.g., near the start of the growing season, uncertainty of early warning information should be factored into communication, in probabilistic terms. For determining appropriate responses, cost-benefit analysis can incorporate uncertainty and be used to set thresholds for action.

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Further Reading

Coffey K, Haile M, Halperin M, Wamukoya G, Hansen J, Kinyangi J, Tesfaye Fantaye K. 2015. Expanding the contribution of early warning to climate-resilient agricultural development in Africa. CCAFS Working Paper No. 115. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

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