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Water in food security assessment and drought early warning systems: overview of experience from sub-Saharan Africa

This draft summary is based on Working Paper 21 Water in food security assessment and drought early morning systems available for download at: **www.rippleethiopia.org**

Research-inspired Policy and Practice Learning in Ethiopia and the Nile Region (RiPPLE) is a Research Programme Consortium funded by UKaid from the Department for International Development and led by the Overseas Development Institute (ODI) in partnership with IRC, Addis Ababa University, WaterAid Ethiopia and Hararghe Catholic Secretariat

Abstract

This paper is based on a literature review on the role of water in drought preparedness, early warning systems and responses, and interviews conducted in Ethiopia.

Food security is intimately linked to water availability and access, especially in sub-Saharan Africa where rural livelihoods centre on agriculture and livestock production. Food security is an outcome of people's ability to securely access and utilise adequate quantities of food from either their own production or purchase, and these opportunities are influenced by access to water. Water has an impact on food security through three main pathways:

1. Lack of access to an adequate quantity and quality of water for hygiene is a leading cause of water-related disease, which in turn causes malnutrition as it reduces the body's absorption of nutrients.
2. Lack of access to adequate water for livestock watering, irrigation and small-scale productive purposes reduces the opportunities for household food production and/or income generation.
3. Lack of adequate nearby water sources results in a long time being spent in daily water collection, principally by women and girls, which reduces the time available for work or education, and can also negatively affect health.

These effects are commonplace in much of rural Africa where water access is low, and lack of adequate water supply is closely correlated with the incidence of malnutrition. They are further intensified by drought, as prolonged dry weather causes many water sources to decline or dry up. Lack of water has been shown to undermine efforts to protect health and livelihoods in drought situations. Drought is a frequent occurrence in many parts of sub-Saharan Africa (including the Horn) and may intensify or become even more frequent under climate change. Historically drought responses have centred on food aid, and calculated needs based

on a national food balance. These responses helped to save lives but usually did not prevent asset losses resulting from either drought impacts (e.g. on animal health) or the adoption of last resort coping strategies. In recent years more and more agencies and governments have therefore sought to adopt livelihoods-based approaches. These aim to understand the sources of vulnerability of different groups, and target appropriate interventions to prevent the worst impacts of drought on their livelihood. As part of this trend there has been increasing attention to understanding how non-food aspects, such as agriculture, markets, health and – critically – water supply, contribute to food insecurity, and identifying non-food responses.

Information on water supply and access is now collected as part of vulnerability assessments and food security monitoring in some countries in Africa, but the picture is patchy and there is no agreed method for assessing water needs. The link between water shortage and food security is seldom analysed. Evaluations of drought responses in sub-Saharan Africa over the last decade show that most involve water sector responses (typically, rehabilitation of schemes and emergency supply) and that these are very important components of the response. However, non-food responses are often late and poorly coordinated with food aid. Delays are due to lingering scepticism about the importance of non-food responses, and also difficulties in analysing non-food needs and targeting interventions. The food security community is in need of robust and practical tools and indicators for non-food needs.

There are a number of promising developments and innovations which should be learned from. Water for Economy for Livelihoods (WELS) assessment is one – a methodology for obtaining detailed information on water access and linking this quantitatively with food security. Remote sensing also offers new possibilities such as near-real time monitoring of livestock water sources in remote areas. New tools should build on these, but focus on identifying critical questions and thresholds, to avoid overloading systems for data collection, processing and analysis.

A change in practice is also required if water and other non-food responses are to be fully integrated into historically food-centric systems. This means the establishment of better links between those responsible for service delivery and those working in disaster risk management and emergency response. Where droughts and food insecurity are chronic occurrences, and underlying levels of service delivery are low, there is huge overlap between these areas but they often operate entirely separately. Better sharing of information and skills, with the ultimate goal of joint programming, will improve the targeting of both development and emergency-oriented investments in water, ultimately generating a more effective response to food insecurity.

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