

Drought conditions and management strategies in The Gambia

Lamin Mai Touray¹ and Kebba Jammeh²

¹Department of Water Resources, Banjul, The Gambia. Email: touraylm@yahoo.co.uk

²Department of Forestry, Banjul, The Gambia

Background

The Gambia, lying between latitudes 13 and 14 degrees North and longitudes 17 and 12 degrees West, is the smallest country on the African continent. It has a total area of about 11,300 km² of which 10,000 km² is land and 1,300 km² is water.

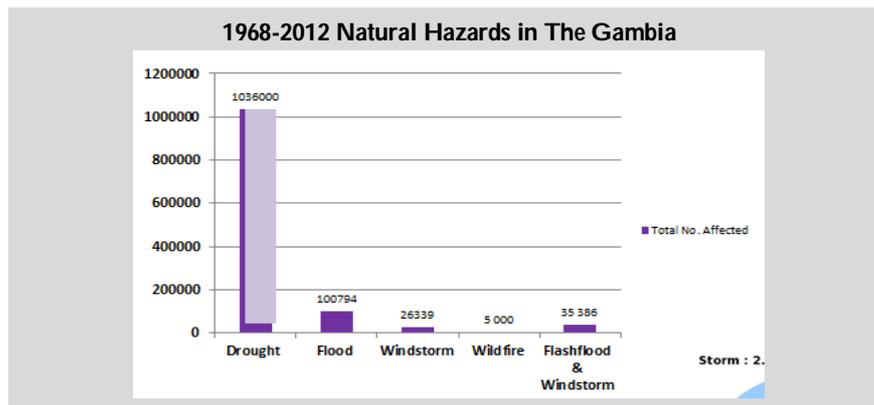
The country has a Sahelian climate, characterised by a long dry season (November to May the following year) and a short wet season (June to October). Average temperatures of The Gambia range from 18° to 30°C during the dry season and 23° to 33°C during the wet season. Mean annual temperature has noticeably increased since the 1940s. In effect, the lowest mean temperature of 25.8°C was recorded in 1947 whilst the highest mean temperature of 28.2°C was recorded in the year 2000.

Average relative humidity (RH) is about 68% in coastal areas and 41% in the hinterland during the dry season, and generally above 77% throughout the country during the wet season. However, RH has also been decreasing since the 1940s, with annual average of over 75% in 1945 dropping to a little over 55% in 2002.

Drought is a deficiency in precipitation over an extended period, usually a season or more, resulting in a water shortage causing adverse impacts on vegetation, animals, and for domestic use/ people. It is a normal, recurrent feature of climate that occurs virtually in all climate zones. Drought is a slow onset phenomenon that temporarily deviates from normal climatic conditions and varies significantly from one region to another.

The consequences of droughts (failed rains), can be devastating in The Gambia due to our low resilience and that large sectors of the population especially farmers rely on rain-fed agriculture for their livelihood and forest for livestock grazing.

In The Gambia, the majority of the population relies on rain fed agriculture, with over 60% of the population dependent on agriculture for their livelihoods and 78% of the active working population employed in the sector. As such, the livelihoods of millions of Gambians are vulnerable to natural hazards, including droughts. In The Gambia, droughts are the key hazard affecting most vulnerable households. Although they do not occur as frequently as floods, the number of people affected by droughts far exceeds that of any other hazard as can be seen in the diagram below.



Source: National Disaster Management Agency

Droughts significantly threaten the livelihoods of Gambia's most vulnerable population, as there is only one rainy season, June – October, there is little chance for recovery if the rainy season is poor. For example, following the 2011 harvest failure, the post-harvest assessment found that farmers' food stocks from their own production could only cover 3-4 months after the harvest compared with the usual 6-7 months. In these circumstances poor households and communities turn to negative coping strategies such as reducing food intake, selling productive assets (such as livestock) at low prices, and using seeds for household consumption. To respond to this, the government is required to mobilize funds, either internally or from its partners, this has in the past put a strain on government resources and when reliant on mobilization of international funds, appeals have been largely underfunded.

The Government of the Gambia has prioritized the development of more effective disaster risk management policies, these are evident in the passing of the National Disaster Management Bill and Policy in 2008 which led to the establishment of the National Disaster Governing Council and its secretariat the National Disaster Management Agency that same year. The bill emphasizes the importance of developing effective strategies to address disaster risk management. The National Disaster Management Strategic Action Plan further sets out the priorities for implementing the bill and policy.

Drought Monitoring and Early Warning Systems

In order to mitigate the effects of drought, it is important that farmers are aware of risks that they are exposed to. They can contribute to reduction of losses by choosing less sensitive crops in case the drought is developing already.

The Gambia's Seasonal Outlook- long-range forecasts: indicates predicted trends for an upcoming rainy season (July- August - September). In collaboration with WMO, ACMAD, AGRHYMET, CILLS, NOAA, UK MET OFFICE, IRI and METEO FRANCE a consensus seasonal prediction is issued for West Africa particularly, the western and central Sahel region. This is obtained from the Regional Climate outlook forum by using regionalization products such as Rainfall, Sea Surface Temperatures, Pressure and Wind. Assessments of decades up to a century of Atmospheric – Oceanic observations are use. In this regard, Statistical packages aid to provide Averages and Trends; hence, enables experts to determine the Departures from Normal of some vital elements. A West African Map is then produced which is color-coded

for four categories of rainfall amount/ intensity i.e. Areas marked in Blue – indicates Above Normal which is associated with wetness, Green/ Yellow - Normal, Brown/ Red Below Normal category which is associated with Dryness/ Drought, and white indeterminate. This precipitation product is issued and updated monthly.

The DWR issues a general summary of current Meteorological/ Climatological conditions including an extended outlook (Medium-range weather Forecast) every 10 days during the Rainy season (1st May – 31st October) each and every year. In collaboration with the Department of Agriculture, the Fisheries Department, Department of Livestock, the National Disaster Management Agency and the National Environment Agency. This dekadal product which is released at the end of every 10 days depicts drought indicators such as cumulative rainfall amounts/ totals for the dekad and season respectively, various meteorological/ climate indices, weather outlooks, field reports (agricultural situation/ indices) etc. In addition, experts from other department, agencies and offices across the country are consulted for their inputs. The result is the consensus assessment presented on the *Early Warning Bulletin for Food Security in The Gambia*.

To complement the above a *Weather Monitor* (Short- range weather Forecast) is issued and updated on a daily bases using Synoptic data, Satellite imagery and other numerous data including Numerical model variables and products.

The precise calculations (using more meteorological stations and data base of agricultural plots with data on soil type and planted crops) are not performed in real time due to lack of data. Such calculations (which can be used also for assessment of damages) are performed post-festum in case in-depth analysis of drought is needed.

Vulnerability assessment:

According to records of past drought impacts, it is generally accepted that agriculture is by far most vulnerable sector. Other possible vulnerabilities (tourism, water resources etc.) were not yet studied since in most cases they mitigate impacts by themselves. This situation might change, mainly in light of climate change and will need future attention. However, at present situation, vulnerability to drought is mainly attributed to farmers.

Agriculture, the second largest sector in the economy, accounts for about 30.0% of the country's GDP. It employs 44% of the work force, provides an estimated two-thirds of households' income, and dominates exports of domestically produced goods. Therefore damages which do not seem catastrophic in terms of GDP can be devastating for agricultural economy.

When the rain fails, the most devastating and visible impact are manifested on the agricultural sector. Lack or insufficient rainfall results in failed or poor harvest on one hand and poor pasture on the other leading to loss of livestock or leaving farmers with emaciated animals that they are not able to sell. When households cannot produce enough food to sustain them into the next harvest or can't get proceeds from both livestock and crop produce, then they will need food from an external source.

Emergency relief and drought response

In 2011, late, erratic and unevenly distributed rainfall resulted in a significant decline in the agricultural production in The Gambia. A joint post-harvest assessment led by the Ministry of Agriculture and WFP, conducted in 2011, estimated that 520,000 people were affected by the drought. Overall the crop production was estimated to have dropped by 62% compared to 2010 and by 50% compared to the five year average. As a result of the poor harvest, the period that subsistence farmers could source food from their own production was reduced from six-seven months to an average three-four months. In the areas worst affected, food availability was below two months. Child malnourishment was up to 11.4% in rural areas, reaching the highest record since 2006. In March 2012, the Government issued a Crop Failure Emergency Declaration.

Out of the thirty-nine districts of The Gambia, twenty-five were affected by crop failure; nineteen were classified as most affected indicating that their incomes are dependent on agricultural activities and that they did not have sufficient income from other sources. Six districts were classified as borderline affected implying that they were indirectly affected by the drought. These districts were characteristically poor urban areas at risk of food insecurity due to high food prices, ongoing recovery from previous shocks and faced with additional economic pressures caused by borrowing and migration from the most-affected rural areas.

Food/Cash Distribution

- The following total tonnage of food and cash were distributed to 229,955 beneficiaries from April to December, 2012 - 12,166 MT - D10.6 Million
- The total number of beneficiaries reached by October 2012 surpassed the initial target of 206,000 (229,955)
- The first round of food distribution by WFP started in Central River Region begun on 16 April 2012 under an Immediate Response Emergency Operation (IR-EMOP). At least 62,500 beneficiaries were targeted.
- The Emergency Response (EMOP) targeting all other regions started by the end of May 2012. It targeted to 206,000 beneficiaries in the 19 most affected districts.
- Under the food distributions of the EMOP 38,000 children ages 5-59 were also targeted for Blanket Supplementary Feeding (BSF)
- The borderline affected population of 75,000 were targeted by the Gambia Red Cross Society, Action aid and other NGOs. Different actors including FAO, provided seed and fertilizer support, cash vouchers or even direct funds/food contribution directly to the Government.

Nutrition, Water Sanitation and Hygiene

- The Central Emergency Relief Funds (CERF) contributed USD \$135,649 for activities in nutrition and WASH response. In collaboration with the National Nutrition Agency and the MoHSW, UNICEF had procured 600 cartons of Plumpy Nuts and 1051 cartons of BP 100. A total of 399 Plumpy Nut cartons and 335 BP 100 cartons were distributed in all regions reaching a total of 764 children.
- UNICEF procured Vitamin A (80,000 doses for children 6 – 11 months old), 800,000 doses for 12 – 59 months old and 800,000 doses of de-worming tables for 12 – 59 month

olds. They were provided to the Ministry of Health through NaNA to supplement and de-worm children, prevent micronutrient deficiency and anaemia amongst vulnerable groups of children•

- In terms of WASH interventions, UNICEF procured 10 drums of calcium hypochlorite to treat water points in 19 affected districts and supported the Department of Water Resources (DWR) to conduct water quality monitoring and treatment in affected areas. ,
- 703 water points disinfected.
- 2600 water containers (1300 of 10l and 1300 of 20l collapsible containers), 2043 cartons of vortex bleach, 2527 packets of soap and 1200 packets of water purification tablets were prepositioned and distributed in all of the 6 regions.

Within the context of coordinating drought response, the National Disaster Management Governing Council (NDGC) is the overarching body for emergency response and preparedness activities. The Secretariat of the NDGC is the National Disaster Management Agency, which also serves as the technical arm of the National Platform for Disaster Risk Management. The NDMA coordinates and monitors the implementation of drought response. The NDMA is supported in this process by the Ministry of Agriculture, FAO, WFP Ministry of Finance, International NGOs, including as Concern Universal Gambia, and Gambia Red Cross Society in their formation as the national al, Action Aid The technical working group. There is a Regional Disaster Management Committee (RDMC) which is composed of key partners in disaster management at the regional level. Key institutions such as NDMA, GRCS, MOA, DWR, FAO, NaNA, and Forestry Department have Regional Offices. The RDMC is accountable to the NDMA and is supported by a Regional Disaster Coordinator. The work of the RDMC is decentralised in every district through a District Disaster Management Committee (DDMC).

Practices to alleviate drought impacts

Mainly advanced agricultural practices – promotion of irrigation. Promotion actions to establish irrigation infrastructure have been successful in some communities and less successful in others. Apart from irrigation, other practices (mainly optimization of selected cultures including diversification and optimization of other practices such as optimal ploughing, application of shade nets etc.).

The need for knowledge and skills on drought management

The need for knowledge and skills in drought management is informed by challenges encountered and lessons learned mostly during drought response planning and implementation.

Firstly, drought management is guided by the National Disaster Management Bill and Policy in 2008. However this document needs to be review, a process that has been ongoing for years, clearly there is a shortfall in the redevelopment of the policy document.

There is a need to enhance the national capacity in the area of early warning especially in the highly technical field of meteorology which faces a critical shortage of skilled and experienced staffs. The other areas that also require more capacity are logistics, information management and water provision.