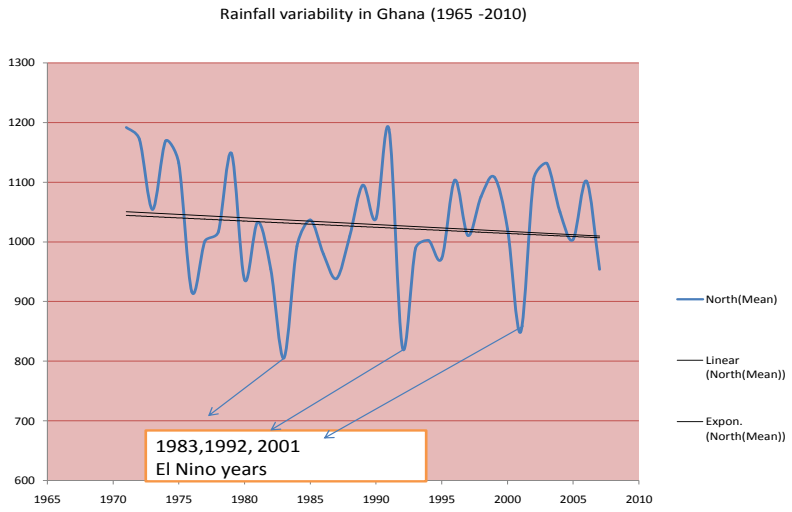
Drought conditions and management strategies in Ghana

Ghana lies within the Inter-Tropical Convergence Zone (ITCZ). The variability of seasonal rainfall can be as high as 400mm. The Southern portions experience two rainfall peaks, a major season occurring from May –July, and a minor season occurring from September to November. The Northern parts experience one peak from June –September. Based on the rainfall pattern there are defined six agro-climatic zones in the country, namely the Sudan and Guinea Savanna in the three northern regions which account for nearly a third of the country. The south eastern coastal areas are also characterized by guinea Savanna which record annual rainfall of less than 900mm. Occurrence of drought in the country is defined by two main features: Reduction in the amount and frequency of precipitation and reduction in stream flow. Meteorological drought occurred country-wide in the 1983, 1992 and 2001 (figure 1), when mean monthly precipitation generally fell below 900mm.

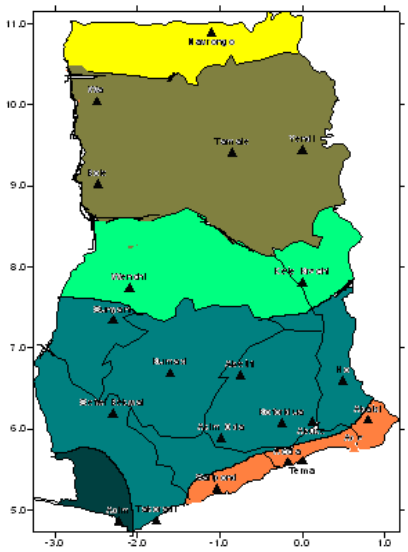


In hydrological terms, stream flow in the Volta River System depend heavily on flow of the rainfall and discharge situations within the neighbours of Burkina Faso, Cote D'ivoire, Benin, Togo and Mali with which it shares the Volta Basin. Inflows into the Volta in Ghana in 2001, 2007 and 2013-2014 have reduced significantly resulting in low level of water in the Akosombo and Kpong reservoirs, and recently the Bui dam. This has lead to reduction in power generating capacity by close to 1000 mega watts of power. The low power generation has affected literally every sector of the economy with grave consequences for industry, health and tourism sectors.

Drought Monitoring and Early Warning Systems

The Meteorological Authority has over 30 major weather monitoring stations spread across the country (Fig. 2).

Fig. 2: Distribution of Monitoring Stations



A number of bodies are responsible for monitoring stream flow of major river bodies. These include the Hydrological Services Division and the Water Research institute of the CSIR which also monitor ground water. The Volta River Authority has a continuous monitoring programme for all the reservoirs housing their power generation installations. However, there is little integration of the various monitoring systems. Daily weather forecasts by the Meteorological Authority are issued regularly on regional scale. However the institution would need to have the infrastructure at many of the location upgraded to enhance service delivery. A major setback is that there is no integrated early warning system that serves the need of all sectors. There are also no reports of systematic soil moisture and carbon monitoring programs

Vulnerability Assessment

Drought situations in the country have always affected several sectors. Agricultural activities have been usually most affected by low precipitation as most food production systems are generally rain fed. The food production systems in northern parts of the country tend to be most vulnerable to occurrence of meteorological drought. The south eastern coastal areas which depend heavily on ground water resources tend to be seriously affected by sea water intrusion into ground, during the periods of low precipitation, and this affects both agriculture and drinking water supplies. Recent low level of water inflows into the Volta River System and the impact on Hydro-power generation has affected all sectors of the economy, particularly manufacturing, mining and health sectors.

Emergency Relief and Drought Response

The National Disaster Management Organization (NADMO) is the line institution for disaster response in Ghana. In all the occasions that drought conditions had affected the northern sector, NADMO supplied food relief to individuals within severely affected communities. The World Food Programme also participated to providing food relief.

Practices to Alleviate Drought Impacts

Drought alleviation measures have focused overwhelmingly on mitigation. It is only in recent times that the EPA collaborating with the Ministry of Agriculture with funding from the Canadian government has develop initiatives to build resilience in food production systems through enhancing the capacity of rural farmers to improve soil fertility and moisture. The government has established a food buffer stock company to support measures towards food security in the event of crop failure.

A riparian buffer zone policy was also formulated to protect watersheds in 2013. Additionally, the capacity of vulnerable communities to prepare micro watershed plans was being undertaken under a world bank funded initiative through a Sustainable Land and Water Management Project for the Northern Guinea and Sudan Savanna areas.

The need for Knowledge and Skills for drought Management

Lessons learned in the implementation of sustainable land and water management initiative have demonstrated that community members require drought risk reduction knowledge and skills in order to proactively address the risk of drought. The National Action Plan to combat drought and desertification does not provide for an elaborate drought risk reduction strategies.