

DROUGHT MANAGEMENT



Droughts are a key issue in water related planning. Understanding of the impacts and severity of droughts is critical for decision making and responding.

Current drought tools assist decision makers with drought-related planning. Drought planning tools allow the evaluation of drought impact (assessed against indicators), provide early warning of drought onset, determine drought severity and spatial extent, and convey consolidated information to decision-makers. The aim of the Flood and Drought Management Tools (FDMT) project is to develop an integrated approach covering the process from drought status, impact assessment, planning for implementation and evaluation.

The understanding of droughts in the planning context is related to water scarcity which corresponds to the socio-economic drought definition (the difference between water availability and water demand).

The FDMT project deals with planning for drought at the operational and strategic levels taking climate variability and change into account. Operational planning, or management, is planning that ranges from within weeks to a few years, to evaluate and reduce impacts without investing in new infrastructure. Strategic planning is planning based on a vision over a longer time period, and will typically include investments in infrastructure to cope with changes in climate, land-use, water demand, etc.

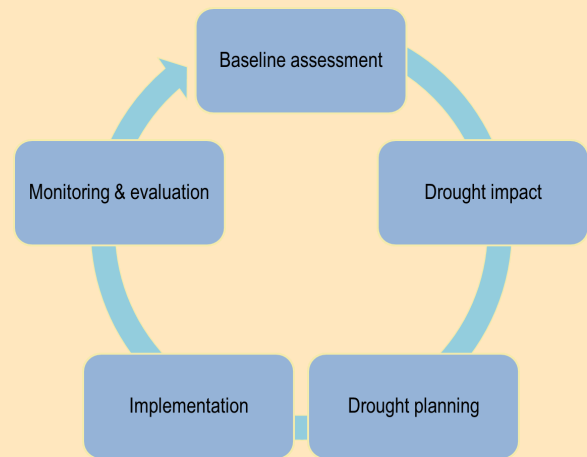


The **Flood and Drought Management Tools (FDMT) project** is funded by the Global Environment Facility (GEF) International Waters (IW) and implemented by UNEP, with the International Water Association (IWA) and DHI as the executing agencies. The project is developing a computer software-based decision support system (DSS) which has tools to support planning from the transboundary basin to water utility level by including better information on floods and droughts. The project is being implemented from 2014 - 2018, and 3 pilot basins (Volta, Lake Victoria and Chao Phraya) have been identified for development and testing of the DSS.

Drought concept

The drought concept is developed for seasonal and long-term drought planning and is based on 5 stages:

1. *Baseline assessment* of system and drought status
2. *Drought impact* evaluation
3. *Drought planning* development and dissemination
4. *Implementation* of a drought plan
5. *Monitoring and evaluation* of a drought plan

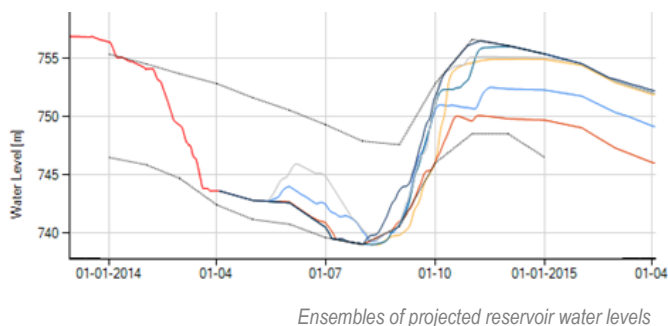


Key features

Drought indices are used for identifying the start and severity of a drought. Different indices will be supported, including SPI, SPEI and DEV_{NDVI} . The framework will allow users to add and edit indices.

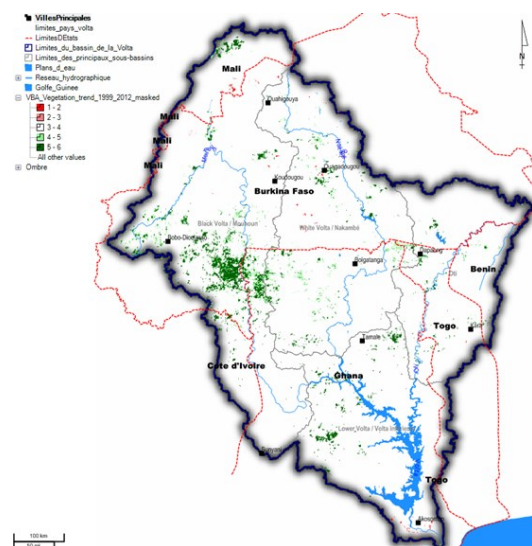
Remote sensing data is an important data source and the project will provide an automated approach for using selected data sources in drought planning, such as Normalized Difference Vegetation Index (NDVI), soil moisture and Tropical Rainfall Measuring Mission (TRMM) data).

Seasonal forecast is a critical part of drought management as it links early detection with response and actions, providing the link between the drought plan and the observations. The NCEP CFSv2 model will be supported, enabling the user to produce climate forecast for the coming nine months, publish forecasted drought indices and connect the forecast with available hydrological models.



Drought impact assessment (current or future situation) will be based on two approaches: i) calculation and dissemination of indices, ii) a model based approach where models will be used to provide the linkage to environmental and socio-economic impact.

Drought dissemination is the most important part of drought planning as this provides the link between the drought plan and the stakeholders affected by the implementation. Tools will be developed to provide reports and visualise drought information. This can then be used to communicate to various stakeholders what is happening, and what planning is required.



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