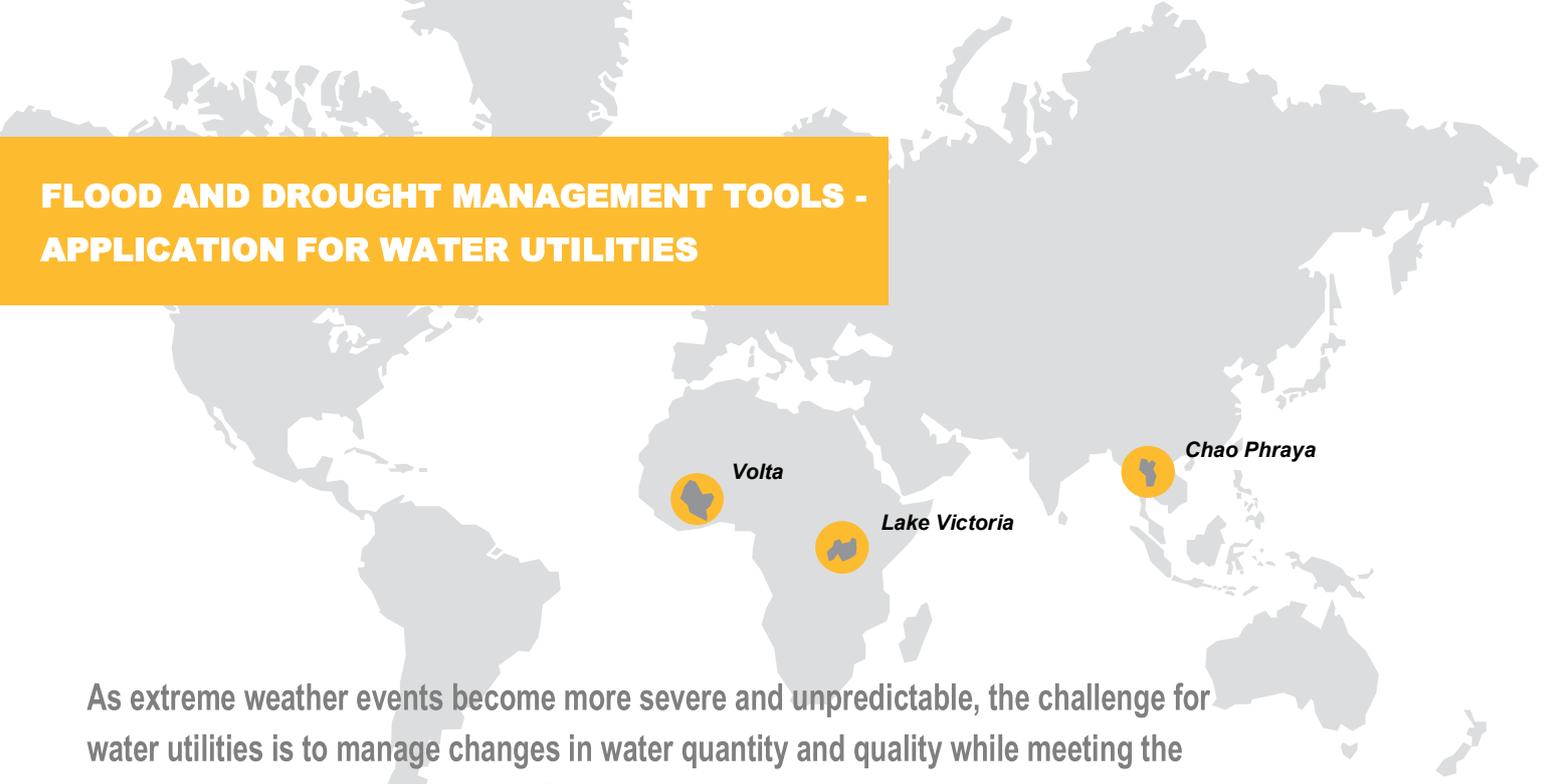
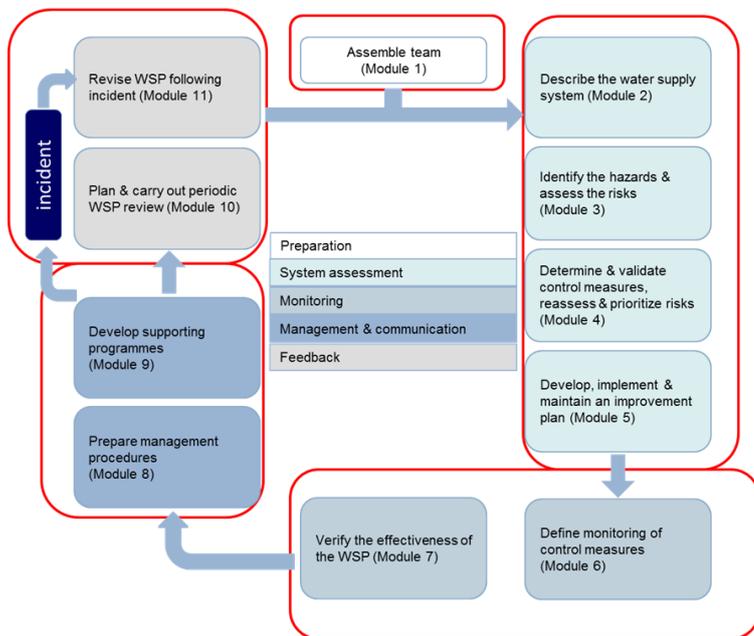


# FLOOD AND DROUGHT MANAGEMENT TOOLS - APPLICATION FOR WATER UTILITIES



As extreme weather events become more severe and unpredictable, the challenge for water utilities is to manage changes in water quantity and quality while meeting the increasing demand for safe water. Tools for forecasting, as well as responding to these changes, are crucial to reduce the economic, social and environmental impacts.



WSP implementation procedure

## Improved planning in a changing climate

Water Safety Plans (WSP) can help utilities to establish strategies to limit the impact of climate change on water resources. WSPs are a comprehensive, catchment to consumer, risk assessment and risk management approach. This helps to consistently ensure a utility's capacity to supply safe water to its consumers. The procedure of development and implementation of a WSP is composed of 12 modules (steps), the 12<sup>th</sup> being the evaluation of the entire development and implementation procedure.

Climate change is a growing concern for water utilities, adding a level of complexity to their long-term planning and demand management. Changes in rainfall patterns, which can lead to flood and drought events, jeopardise utilities' ability to draw, treat and provide water to customers. The health and environmental consequences of an extreme weather event can be severe; the ability of water utilities to respond is dependent upon their level of preparedness using approaches for risk management such as WSPs.

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.

## Utility partners



Office National de l'Eau et de l'Assainissement (ONEA), Burkina Faso



Ghana Water Company Limited (GW), Ghana



National Water & Sewerage Cooperation (NWSC) - Jinja, Uganda



Kisumu Water & Sewerage Company Limited (KIWASCO), Kenya



Mwanza Urban Water & Sewerage Authority (MWAUWASA), Tanzania



Provincial Waterworks Authority (PWA), Thailand



Metropolitan Waterworks Authority (MWA), Thailand

## WSP supported by the DSS

The FDMT project is developing a computer software-based decision support system (DSS), which contains tools to support improved operational (short-term) and strategic (long-term) planning from the transboundary basin to water utility level by providing better information about floods and droughts. The tools are used to gather and analyse information which can be used in decision making.

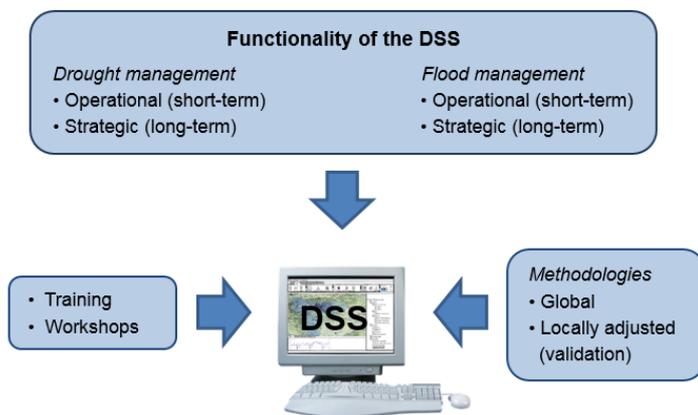
The DSS and accompanying tools will be developed, tested and validated with basin and utility stakeholders using their data and planning approaches. In the case of water utilities, the entry point is Water Safety Planning (WSP). Technical tools supporting WSP modules will be developed to support the risk management process in utilities as well as to address climate impacts. The DSS will complement the WSP framework and assist water utilities to ensure a safe water supply in the face of climatic variability.

## Engaging utilities in the project

There is a strong need to engage utilities as they have a clear operational stake in basin resources management. This can mean that the utility is actively required to manage the catchment area directly, or the utility works directly with catchment organisations to secure water resources.

The FDMT is working with utilities across the three pilot basins, as well as engaging a wider group of utilities through the African Water Safety Planning Network and Asia-Pacific Water Planning Network. Utilities have provided inputs on the gaps and needs for improved flood and drought planning. They are also taking an active part in annual technical trainings in the use of the DSS. The training builds capacity among stakeholders while also providing an opportunity for feedback on the functionality of the tools. Continued follow up with the utilities between trainings will provide support on the application of the DSS. In addition, the project will work with utilities and basin organisations to promote and incorporate the use of information from the DSS in planning and decision making.

The project is engaging with the World Health Organization (WHO), which has been leading on WSP dissemination and support to utilities. This collaboration will ensure the tools can be used by utilities beyond the project pilot areas.



DSS development scheme

The WSP procedure can be easily adapted to carry out risk assessment and risk management with a specific focus on floods and droughts. This includes targeted actions such as mapping of flood and drought prone areas, identification of hazards typically associated with extreme weather events, and the evaluation of the reliability of water resources during flood and drought events.

Project website: <http://fdmt.iwlearn.org/>

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