



## FLOOD & DROUGHT MANAGEMENT TOOLS

### Technical Training: Volta Basin Report (Burkina Faso)

27-28 November 2018

Bravia Hotel

Ouagadougou, Burkina Faso



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## 1. Executive summary

There is a growing sense of urgency around the need to improve resilience within river basins, and for this to become a critical part of water management plans. The increased frequency and unpredictability of floods and droughts is a priority concern across scales from transboundary to local, along with the other multiple drivers that cause depletion and degradation of shared water resources.

The Flood and Drought Management Tools (FDMT) project (<http://fdmt.iwlearn.org/>) 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 online technical applications which can be applied individually or together at the basin or local level to facilitate the inclusion of information about floods, droughts and future scenarios into Integrated Water Resources Management (IWRM) planning, Transboundary Diagnostic Analyses (TDA) and Strategic Action Plans (SAP), and Water Safety Planning (WSP). The project is being implemented from 2014 - 2018, and 3 pilot basins (Volta, Lake Victoria and Chao Phraya) are participating in development and testing.

The Flood and Drought (FD) Portal ([www.flooddroughtmonitor.com](http://www.flooddroughtmonitor.com)) is the main output of the project and has a series of technical applications supporting stakeholders to carry out baseline assessments using readily available satellite data, impact assessments through the analysis of the data, planning options and a means for disseminating information to relevant groups or individuals. Understanding how to use these tools is an important aspect of the future operational use and sustainability of the FDMT project, therefore, capacity on the use and application of the flood and drought portal, as well as giving stakeholders an opportunity to provide feedback on the functionality of the portal will go a long way to achieving this.

The project therefore held a final technical training targeted at technical staff and junior to senior level water resource professionals of ONEA Water Company as they are one of the key stakeholders identified in the Volta Basin for testing the tools and methodology developed.

The purpose of the training was to follow up on an earlier training held in April 2018 with the common goal of bringing technical staffs together around a common planning tool with a special focus on Water Safety Planning, while being able to test and validate the technical applications (tools) available on the FD portal.

The objectives of the technical trainings are to:

- Enhance stakeholders understanding of the methodology and tools developed under the FDMT project
- Develop awareness and knowledge of the tools available through the Flood and Drought project
- Facilitate application of the tools to water utilities

The training in the Volta Basin held in Burkina Faso was a 2 day training from 27-28 November 2018 with representatives from different departments in ONEA such as regional directors, plant managers, lab manager, station managers, WSP focal representatives, maintenance officers, and production and distribution managers.

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Il est de plus en plus urgent d'améliorer la résilience dans les bassins hydrographiques et de faire en sorte que cela devienne un élément essentiel des plans de gestion de l'eau. La fréquence et l'imprévisibilité croissantes des inondations et des sécheresses sont une préoccupation prioritaire à toutes les échelles, du niveau transfrontalier au niveau local, ainsi que les nombreux autres facteurs responsables de l'épuisement et de la dégradation des ressources en eau partagées.

Le projet d'Outils de Gestion des Inondations et de la Sécheresse (FDMT) (<http://fdmt.iwlearn.org/>) est financé par Global Environment Facility (GEF) International Waters (IW) et mis en œuvre par le par le PNUE avec l'International Water Association (IWA) et DHI en tant qu'agences d'exécution. Le

projet développe des applications techniques en ligne qui peuvent être appliquées individuellement ou ensemble au niveau du bassin ou au niveau local afin de faciliter l'inclusion d'informations sur les inondations, les sécheresses et les scénarios futurs dans la planification de la Gestion Intégrée des Ressources en Eau (GIRE), les Analyses de Diagnostic Transfrontières, les Plans d'Action Stratégiques (PAS) et le Plan de Gestion de la Sécurité Sanitaire de l'Eau (PGSSE). Le projet est mis en œuvre de 2014 à 2018 et trois bassins pilotes (Volta, Lac Victoria et Chao Phraya) participent au développement et aux essais.

Le portail sur les inondations et la sécheresse ([www.flooddroughtmonitor.com](http://www.flooddroughtmonitor.com)) est le principal produit du projet. Il comporte une série d'applications techniques permettant aux parties prenantes d'effectuer des évaluations de base à l'aide de données satellitaires facilement disponibles, ainsi que des évaluations d'impact via l'analyse des données, des options de planification et un moyen de diffuser l'information aux groupes ou aux individus concernés. Comprendre comment utiliser ces outils est un aspect important de l'utilisation opérationnelle future et de la durabilité du projet FDMT. Par conséquent, la capacité d'utilisation et d'application du portail contre les inondations et la sécheresse, ainsi que la possibilité pour les parties prenantes de fournir des informations en retour sur les fonctionnalités nécessitera des efforts sur une longue période.

Le projet a donc organisé une formation technique finale à l'intention du personnel technique et des professionnels des ressources en eau de niveau inférieur à supérieur de la compagnie d'eau ONEA (Office National de l'Eau et de l'Assainissement) du Burkina Faso, car ils sont l'un des acteurs clés identifiés dans le bassin de la Volta pour tester les outils et la méthodologie développés.

Le but de la formation était de faire le suivi d'une formation précédente tenue en avril 2018 à Ouagadougou dans le but commun de rassembler les équipes techniques autour d'un outil de planification commun centré sur la planification de la sécurité des eaux, tout en permettant de tester et de valider les applications techniques (outils) disponibles sur le portail FDMT.

Les objectifs des formations techniques sont les suivants :

- Améliorer la compréhension des parties prenantes de la méthodologie et des outils développés dans le cadre du projet FDMT
- Développer la connaissance et la connaissance des outils disponibles dans le cadre du projet sur les inondations et la sécheresse
- Faciliter l'application des outils aux services d'eau

La formation dans le bassin de la Volta au Burkina Faso s'est déroulée sur deux jours, du 27 au 28 novembre 2018, avec des représentants de différents départements de l'ONEA, tels que directeurs régionaux, directeur d'usine, responsables de laboratoire, gestionnaires de station, responsables de points focaux PGSSE, agents de maintenance, production et gestionnaires de la distribution.

## 2. Project background

There is a growing sense of urgency around the need to improve resilience within river basins, and for this to become a critical part of water management plans. The increased frequency and unpredictability of floods and droughts is a priority concern across scales from transboundary to local, along with the other multiple drivers that cause depletion and degradation of shared water resources.

The Flood and Drought Management Tools (FDMT) project (<http://fdmt.iwlearn.org/>) 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 online technical applications<sup>1</sup> which can be applied individually or together at the basin or local level to facilitate the inclusion of information about floods, droughts and future scenarios into Integrated Water Resources Management (IWRM) planning, Transboundary Diagnostic Analyses (TDA) and Strategic Action Plans (SAP), and Water Safety Planning (WSP). The project is being implemented from 2014 - 2018, and 3 pilot basins (Volta, Lake Victoria and Chao Phraya) are participating in development and testing.

Understanding how to use the technical applications is an important aspect of the future operational use and sustainability of the FDMT project, therefore, capacity on the use and interpretation of the tool and their outputs, as well as giving stakeholders an opportunity to provide feedback on the functionality of the tools will go a long way to achieving this.

The project has been holding a series of technical trainings targeting technical staff and junior to senior level water resource professionals from key project stakeholder. Trainings intend to provide a basis for bringing the basin organisations and relevant basin level authorities, and water utilities together around a planning tool, while being able to test and validate the technical content of tools. Feedbacks from the trainings are integrated into the development and refinement of the tools.

The objectives of the technical trainings are to:

- Enhance stakeholders understanding of the methodology and tools developed under the FDMT project
- Develop awareness and knowledge of the tools available through the Flood and Drought project
- Facilitate application of the tools to water utilities

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<sup>1</sup> The term tools and technical applications are used interchangeably. Tools in this context are defined as the technical applications being developed by the project and are available at <http://www.flooddroughtmonitor.com/home>

## 3. Technical training

### 3.1 Overview of training

Technical trainings on the use of the tools are scheduled on a yearly basis throughout the project phase within each of the pilot basins. The technical training provides capacity building as well as an opportunity for different stakeholder groups (e.g. water utilities and basin organisations/water agencies) to give feedback on the functionality and use of the developed tools to date. The feedback is included in the further development and refinement of technical content of the tools.

The technical training provides a basis for bringing water utilities around a common tool which can assist in planning considering information on floods, droughts and future scenarios. The training in Burkina Faso was a 2 day training from 27-28 November 2018 with representatives from ONEA.

See Annex 1 for the agenda.

The training sessions reflected the developed functionality to date, using real data from the Volta Basin. Later trainings will include the functionality of additional tools available in the Flood and Drought portal (<http://www.flooddroughtmonitor.com>).

#### Objective

The objective of the technical training was to:

- Enhance stakeholders understanding of the methodology and tools developed under the FDMT project
- Develop awareness and knowledge of the tools available through the Flood and Drought project
- Facilitate application of the tools to water utilities

#### Expected outcome of the workshop

The expected outcome of the technical training is for key stakeholders to understand the functionality, how to use the tools, and how the output from the tools could be used in decision making around flood and drought management and planning.

#### Target group

The target group of the technical training is the technical staff within ONEA, junior to senior level professionals as recommended by key stakeholders. The 2 day trainings focused on staff with the following designation, Regional directors, Plant Manager, Lab Manager, Station Managers, WSP focal representatives, Maintenance officers, Production and Distribution Managers. (See Annex 2 for full participant list).

### 3.2 Technical training

From 27-28 November, 2018, the FDMT project held a 2 day technical training at the Bravia Hotel with technical staff of ONEA. The training gave participants an overview of the latest developments of the methodology and associated technical applications and also the opportunity to try out the applications.

The following section will provide a brief overview of each day.

#### 3.2.1 Training Materials

All presentations, step-by step guides and additional material were made available for the training. The material was used to assist participants on the use of the portal and relevant technical applications.

\*all material (presentations, step-by step guides, etc.) can be accessed [here](#).

## Day 1. Overview of workshop, FDMT project, WSP application

Tuesday, 27 November, 2018

The first day started with a welcome address and an overview of the workshop and FDMT project. A brief presentation on the status of WSP implementation considering climate change scenarios was presented by ONEA. This was followed by a presentation on the general functionality of the Flood and Drought Portal with an exercise on registering to the portal and setting up working groups. The working groups concept seeks to ensure that information is kept confidential or only shared with a specific group of users.

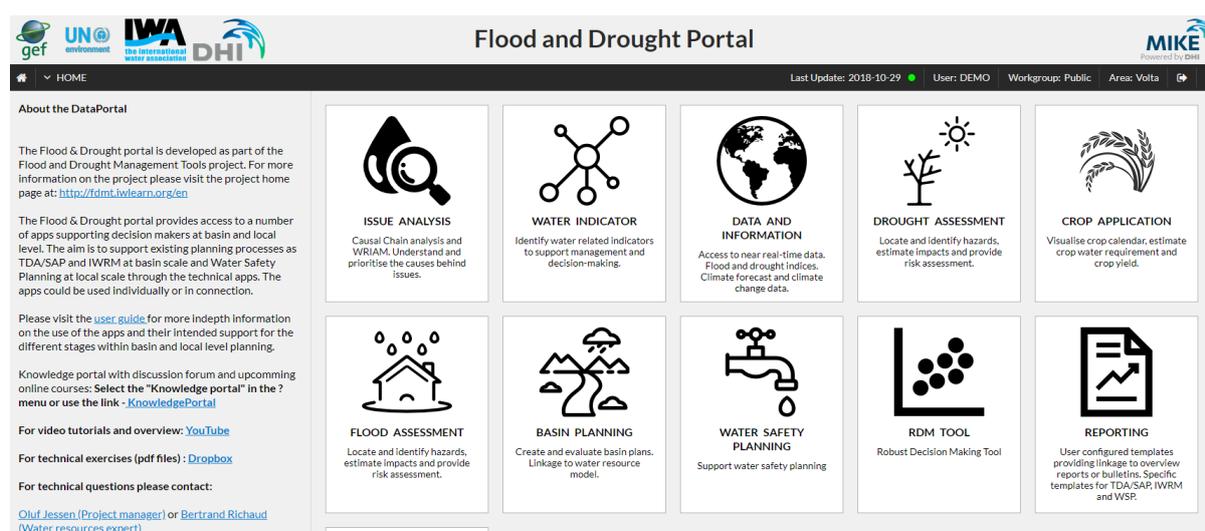


Figure 1. Flood and Drought Portal

The presentation on the technical tools began with the Water Safety Planning (WSP) application. Participants were informed how the project is supporting utilities with their development and implementation of water safety plans (WSP), ensuring systemic documentation of the process, through the WSP supporting application available as part of the Flood and Drought Portal. The application is the main entry point for water utilities. Through the application, water utilities are prompted to think about climate change impacts (hazards and risk) on their water supply system in order to improve their resilience and capacity to address climate impacts.

The application supports the 11 modules (steps) identified in the WSP manual (<http://www.wspportal.org/what-are-water-safety-plans/>), each representing a key step in the WSP development and implementation process. Each module contains a brief overview and provides assistant for each key step on the development of the WSP.

Modules 1-4 of the WSP application were presented on the first day of the training. Participants formed working groups and exercises were done under each module after each presentation. The outcome from the group exercises were presented and discussed.

## Day 2. Issue analysis, Indicator application and Data and Information

Wednesday, 28 November, 2018

The morning of Day 2 was spent on exploring the remaining modules (6-11) of WSP. Through presentations and group assignments further understanding of how the WSP application supports the WSP process was realised.

The WSP application session was followed by a presentation on the Issue Analysis application. The application aims to analyse environmental issues and the causes behind the impacts from the environmental issues. The application is based on the Causal Chain Analysis (CCA) method to identify the immediate, underlying and root causes behind the impact and the Water Resource Issues Assessment Method (WRIAM) is used to evaluate the key issues and prioritise the environmental impacts based on the a rapid assessment. Participants used the application to identify environmental issues faced in their utility and assessed their impacts using the CCA and WRIAM methods. Some common issues identified by participants were water shortage, eutrophication and water quality degradation.

The Water Indicator application was demonstrated to participants in the afternoon. The Water Indicator application is a library of indicators providing information about the indicators, the relevance of the indicator and how it can be used for planning and decision making. Default frameworks have been developed which users can use as a starting point when developing their own framework for their respective organisations; user are also able to develop frameworks from scratch. A link between the Issue Analysis and Water Indicator allows users select appropriate indicators to measure the environmental issues previously identified. An opportunity was given to participants to test and explore the link between the two applications as well as provide an impression of how to add and remove indicators.

Towards the end of the day, the Data and Information application was presented to participants. This application provides users with access to near real-time satellite data (freely available). The application provides climate information such as rainfall, temperature, information about flood and drought indices, climate hazard, climate forecast and climate change. With the onset of climate change, historical weather patterns which most utilities largely depend on to gauge future water supplies is expected to be disrupted bringing about uncertainty. For this reason, utilities need to understand how climate change affects water supply to ensure continued water supply to consumers. The information from this application can be used to inform long-term planning in which climate change impacts can be considered. There were demonstrations on the Flood and Drought Portal to demonstrate how the climate information can be viewed and discussions were held on how interpret such data together with how it can be applied by the utility.



Figure 1. Participants in a group photo at the end of the training



Figure 2. Demonstrating use of tools to participants

### 3.3 Next steps

All learning materials and guidance documents will be provided to users through the Flood and Drought Portal and project website. Tutorials, videos and a user guide will provide the required information to enable users to build their capacity around the use of the technical applications.

The knowledge portal (<http://www.flooddroughtmonitor.com/knowledgeportal/>) is expected to serve as a platform for users to interact with other users through online discussion boards and also provide relevant material and information about all the available applications through the online courses.

## Annex 1 – Agenda

Day 1 – 27 November 2018

Time	Title
09.00 – 09.30	Registration
09.30 – 09.45	Welcome and presentation of the objective of the technical training
09.45 – 10.00	Presentation of participants
10.00 – 10.30	Overview of the Workshop and introduction to FDMT project and CR WSP project
10.30 – 10.45	Status of WSP in ONEA
10.45 – 11.00	General Functionality of the Flood and Drought Portal
11.00-11.30	<i>Snack break</i>
11.30-12.45	Introduction to water safety plans Module 1: Assemble the WSP Team Module 1 activity using the WSP application
12.45-13.00	Discussion on of group work
13.00 – 14.00	<i>Lunch</i>
14.00 – 15.00	Module 2: Describe the water supply system Module 2 activity using the WSP application
15.00 – 15.30	Module 3: Identify hazards and hazardous events and identify the risks Module 3 activity using the WSP application
15.30 – 16.00	<i>Snack break</i>
16.00 – 17.00	Module 4: Determine and validate control measures, reassess and prioritize the risks Module 4 activity using the WSP application  Module 5: Develop, implement and maintain an improvement plan Module 5 activity using the WSP application
17.00	Wrap up

Day 2 – 28 November 2018

Time	Title
08.30 – 08.45	Recap of Day 1
08.45– 09.00	Module 6: Define monitoring of the control measures Module 6 activity using the WSP application
09.00 – 09.15	Module 7: Verify the effectiveness of the WSP Verification Exercise Module 7 Activity using the WSP application

09.15 – 09.30	Module 8: Prepare management procedures
09.30 – 09.45	Module 9: Develop supporting programmes
09.15 – 09.30	Module 10: Plan and carry out periodic review of the WSP
09.30 – 09.45	Module 11: revise the WSP following an incident
09.45 – 10.00	Discussions
10.00-10.30	<i>Snack break</i>
10.30-11.45	<p><b>Flood and Drought – impact and causes</b></p> <p><i>Identify and prioritize the key environmental impacts from drought and flood using a Chain Causal Analysis and WRIAM approach</i></p> <ul style="list-style-type: none"> <li>• Group work based on the Issue Analysis app.</li> </ul> <p>Outcome: Identification of prioritized impacts and the underlying causes of flood and drought events the Volta Basin region</p>
11.45-12.00	Discussion on the identified and prioritized causes
12.00 – 13.00	<p><b>Indicators – assessing the state through indicators</b></p> <p><i>Identify relevant indicators for measuring the state of the causes for flood and drought in the Volta Basin region.</i></p> <ul style="list-style-type: none"> <li>• Group work based on the Water Indicator app.</li> <li>• Identification of relevant indicators for the key underlying causes behind flood and drought.</li> </ul> <p>Outcome: Identification of indicators and the required data for assessing the state of flood and drought.</p>
13.00 – 14.00	<i>Lunch</i>
14.00 – 14.30	Discussion on the identified indicators
14.30 – 15.30	Introduction to the Data and Information Tool
15.30 – 16.00	<i>Snack break</i>
16.00 – 17.00	Discussion and Wrap up
17.00	Closure

## Annex 2 – Participants

First Name	Organisation	Email
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