VFDM Project: "Integrating Flood and Drought Management and Early Warning for Climate Change Adaptation in the Volta Basin"

WMO MCH Database national training workshop in Ghana

Concept note

March 2023

Project Executing partners

1. Context and rationale

The World Meteorological Organization (WMO), a specialized agency of the United Nations, the Volta Basin Authority (ABV) and the Global Water Partnership in West Africa (GWP-WA) are implementing in consortium the project titled "Integrating Flood and Drought Management and Early Warning for Climate Change Adaptation in the Volta Basin (VFDM)".The VFDM project activities, started in June 2019, are continuing and will be completed at the end of June 2024. The VFDM project is funded by the Adaptation Fund.

The implementation of the VFDM project involves the active participation of national agencies (in charge of meteorology, hydrology, water resources management, water protection, civil protection, etc.), regional institutions and WMO partners, such as the CIMA Research Foundation, the Italian Civil Protection Department, UNITAR / UNOSAT, IUCN and Knowledge & Innovation etc.

Under the implementation of the VFDM project, it is planned to carry out procurement, installation and operationalization of the national centralized database (WMO Meteorology Hydrology and Climatology (MCH) database management system) in each of the Volta Basin countries hosting the main driving hydro-meteorological parameters for floods and drought events (e.g. precipitation, water levels, temperature, soil moisture, soil type, etc.). Following series of consultation and discussion, it was agreed to host the national database at the following agencies of the Volta Basin countries.

Agency Name	Official Address
1. Ghana Meteorological Agency (GMet)	P.O. Box LG 87, Legon, Accra, GR. Ghana
2. Agence Nationale de la Météorologie (ANAM)	PO Box 54378 4321 Ave de la Paix, Ouagadougou, BURKINA FASO
3. Societe d'exploitation de Developpement Aeroportuaire Aeronautique Meteo (SODEXAM)	15 bp 990 Abidjan 15, Côte d'Ivoire
4. Agence Nationale de la Météorologie du Bénin (METEO-BENIN)	Avenue Jean Paul II, Route de l'aéroport, BP 379 Cotonou Bénin.
5. Direction Nationale de L'hydraulique (DNH)	Square Patrice Lumumba, BP 66 · Bamako · Mali
6. Méteo Togo	Rue 35 HDN, Lomé, Togo

Once MCH database management system is established and operational, the processed data and information from the MCH database will be visualized under the MyDewetra VOLTALARM Early Warning System (EWS) for the National Agencies involved in flood and drought monitoring, forecasting, and warning services. For this purpose, the VFDM project team in support of Ghana Meteorological Agency (GMet) is organizing the 5-day national training on WMO MCH with the Information Technology and Database experts of the participating agencies of Ghana. The training will be delivered in two parts: 1 for the national agencies of

Ghana (English speaking) and 2) a regional workshop for the 5 French speaking countries (later in May 2023)

This concept note is prepared to provide details on the objectives, the expected results, methodology etc.

2. Objectives

The MCH training will provide necessary theoretical knowledge and hands-on experience to both Hydrological, meteorological and climatological data providers and users.

Ultimately, the training will also enable different types of institutions and actors to collaborate and work together to collect, share and co-monitor, co-produce hydro-meteorological data and information for warning services to general citizens.

Two specific objectives are pursued through this activity:
1) To deliver theoretical knowledge, technical guidance and demonstration of the WMO MCH system.
2) Ensure the trained participants use the knowledge and skills and use the MCH database for storing and utilizing meteorological, climatological and hydrological parameters in their day-to-day services.

3. Expected outputs
1) Trained participants have increased theoretical and practical knowledge and understanding of various features and functionalities of the MCH and its usage,
2) Trained participants can apply the gained knowledge and skills in their day-to-day activities related to MCH database management,
3) New staff joining respective National services will be able to get the required knowledge and skills (from the Trained participants) for the usage of the MCH.
4) National agency (GMet) hosting the MCH database present the existing data sharing agreement between different national agencies of Ghana and possible enhancement

4. Mode of training

The face-to-face training of the MCH database will take place from 24 April 2023- 28 April 2023 at the office of Ghana Meteorological Agency, Accra.

5. Candidate's requirement and names

The training is organized mainly for the professionals working as the IT/Database experts in the National agencies of Ghana mandated in collecting, storing and using of the meteorological, hydrological and climatological data and information in the field of flood and drought monitoring and forecasting services

Please provide below participant names from your agencies who will be attending the training session

Agency Name (Ghana)	Participant names/ Agency Name	Designation/Position	Email address

6. **For additional information please write to:**
   maureenahiataku@gmail.com, ansahsamuelowusu2014@gmail.com, support@vfdm.info, and rtripathi@wmo.int

7. **Provision Agenda**

Topics	Activities	Participants	Estimated time (minutes)
Monday 24.04.2023 starting at 09:00			
Welcome & Round table	Round table to introduce the participants and the trainers	Trainers /Trainees/IT specialists/database manager	10
Background	Training background and adoption of the workshop agenda	WMO	15
Installation of MCH on the server	- Provide and go through installation steps instructions - Verification of the current installation on the server - Update MCH version on the server (if needed) - Installation of the latest version of the database (including pre-filled list of stations and variables used in Ghana) - Installation of Teamviewer/AnyDesk on the server	IT specialists / database manager	60
Coffee break			20
Installation of MCH as Client	- Installation of MCH on clients (participants laptop and/or desktops) - connect the clients to the database	IT specialists / database manager / trainees	75
Lunch Break			**180**
Question and answer session on the installation steps/process	Discussions and questions about installation process	IT specialists / database manager / trainees	30

Introduction	Short presentation of MCH	Trainers /Trainees/database manager		15
Interactive Discussion Session	Discussion on what are the needs and expectation from the database management system, what are the main problems regarding data management	Trainers /Trainees/database manager		45
Coffee break				20
User level	Configuration of user access levels (security)	Trainers /Trainees/database manager		20
Definition of stations interface	Definition of stations Stations metadata Definition of station groups Instruments by stations metadata	Trainers /Trainees/database manager		50
				180
Tuesday 25-04-2023				
Finalize work from Monday (if needed)				
Definition of variables interface	Definition of variables	Trainers /Trainees/database manager		30
Manual data input	Defining validation rules Manual data input interface	Trainers /Trainees/database manager		30
Coffee break				20
Data importation	Data importation interface Customization of importation files (Excel and/or txt) Data importation using EXCEL and/or LibreOffice	Trainers /Trainees/database manager		100
Lunch Break				**180**
Hands-on session	Trainees will prepare importation files and/or input data manually	Trainees/database manager		145
Interactive Discussion Session	Comments, feedback, concerns, suggestions and discussion	Trainers /Trainees/database manager		15
				160
Wednesday 26-04-2023				
Finalize work from Tuesday (if needed)				
Graphic interfaces	Presentation of the different graphic interfaces Comparative graphs	Trainers /Trainees/database manager		30
Quality control	Identification of gaps/missing data & outliers Data correction	Trainers /Trainees/database manager		30

Data conversion	Detailed data to daily data Generate weekly, ten days, monthly and yearly data	Trainers /Trainees/database manager	40
Coffee break			20
Derived variables	Generate/calculate derived variables (Create variables from existing variables)	Trainers /Trainees/database manager	40
Data exportation	Exportation interfaces and format Main export interface Export data from different interfaces (graphics, table/data…)	Trainers /Trainees/database manager	20
Lunch Break			**180**
AWS data importation	- Short introduction of the concept of how data from AWS will be imported into MCH - Presentation of the files that need to be configured to import data from AWS	Trainers /Trainees/database manager/ MCH Developer	40
Hydrological modules	Introduction to the hydrological modules	Trainers /Trainees/database manager	30
Coffee break			20
Calculation module (hydrology)	- Presentation of the calculation module interface - Presentation of importation files for calculation	Trainers /Trainees/database manager	40
Rating Curve module	- General presentation of the rating curve module - Importing gauging measurements data	Trainers /Trainees/database manager	40
Interactive Discussion Session	Comments, feedback, concerns, suggestions and discussion	Trainers /Trainees/database manager	10
			180
Thursday 27-04-2023			
Finalize work of Wednesday (if needed)			
Hands-on session on hydrological modules	Use of hydrological modules	Trainers /Trainees	80
Coffee break			20
Hands-on session on hydrological modules	Use of hydrological modules	Trainers /Trainees	80
Lunch Break			**180**
Transformation tables	-how to use transformation tables -importing values in	Trainers /Trainees/database manager	70

	transformation tables using Excel/LibreOffice		
Coffee break			20
Maps	Create georeferenced maps using pictures	Trainers /Trainees/database manager	60
Interactive Discussion Session	Comments, feedback, concerns, suggestions and discussion	Trainers /Trainees/database manager	30
			180
Friday 28-04-2023			
Finalize work of Thursday (if needed)			
Q & A / Hands-on session	Time allocated to repeat/train and/or answer questions on specific functionalities	Trainers /Trainees/database manager	80
Coffee break			20
Q & A / Hands-on session	Time allocated to repeat/train and/or answer questions on specific functionalities	Trainers /Trainees/database manager	80
Lunch Break			
Q & A / Hands-on session	Time allocated to repeat/train and/or answer questions on specific functionalities	Trainers /Trainees/database manager	60
Coffee break			20
Data sharing agreement	National MCH host agency present data sharing agreement	GMet	20
Round table	Feedback and way forward	Trainers /Trainees/database manager	20
Closure of the training			10