

# 8<sup>th</sup> Annual International Training

## Integrated Watershed Management and Flood-based Farming Systems

In ASAL Areas, Horn of Africa



Institute of Water and Environment, Mekelle University, Ethiopia, 11 – 22 November 2019

### Background and Relevance

The majority of land mass at the Horn of Africa is arid and semi-arid (ASAL) with limited water sources and a (agro-) pastoral population of 30 Million. Due to climate change, droughts, floods and degradation of nature are increasing leading to recurrent food crises and vulnerability. ASAL areas are endowed with numerous seasonal rivers that bring huge seasonal, short and heavy floods. These floods are often unpredictable and can be destructive, if not managed properly, leading to eroded and degraded river valleys, loss in arable and pasture land, and depletion of soils.



Flood-based farming systems (FBFS) are the only option to transform such seasonal floods from forces of destruction to sources of livelihood for the most vulnerable ASAL community. FBFS are for multiple uses: crop, rangeland and agro-forest production, domestic and livestock water supply, recharging groundwater, soil conservation and rehabilitation of degraded land as well as climate change adaptation. The techniques are (1) spate irrigation, (2) flood recession and inundation, (3) flood-spreading weirs (FSW). FBFS already covers 15 Million hectare in Sub-Saharan Africa, supporting 75 Million people, are the quintessential adaptation to climate change, strengthen resilience and support food security in ASAL areas. However, capacities for FBFS are limited and for successful introduction and modernization, the watershed perspective is essential.

### The Short Course

This short course was launched in 2013 following extensive field research to ASAL lowlands of Ethiopia. It is designed to:

- ▶ reduce the acute shortage of FBFS planners, designers, managers and researchers
- ▶ support participatory planning, implementation and maintenance of FBFS
- ▶ develop capacities in watershed approaches for the development of FBFS

The training is happening for 8<sup>th</sup> time, annually, graduating more than 220 professionals from East and West Africa. The short course has been under constant upgrade to include recent developments in the field and accommodate the comments of participants. Accordingly, the following new contents have been included into the modules:

- ▶ Hybrid spate irrigation systems & flood spreading weirs
- ▶ Application of CROPWAT 8 software in the design and management of FBFS
- ▶ Microclimate and ecosystem services of WSM and FBFS

### Course Objective

To qualify professionals with comprehensive understanding & technical skills in participatory approaches, integrated watershed development in ASAL areas as well as FBFS and techniques to enable them to better plan, design and manage FBFS.

### Target Participants/Expected applicants:

- ▶ working in public institutions, private companies, development organizations, or research and academics in ASAL areas of Africa
- ▶ mid-career professionals in water, agriculture, NRM, rural development
- ▶ good English proficiency and have at least a BSc degree



Courtesy: GIZ, Afar (Ethiopia)

## Course Modules

Module 1	Module 2	Module 3	Module 4	Module 5	Module 6	Module 7
<b>Introduction to FBFS</b>	<b>Watershed Management</b>	<b>Participatory Planning, Implementation</b>	<b>Water and Land Management</b>	<b>Participatory Design of FBFS</b>	<b>Ecosystem services of watershed management and FBF systems</b>	<b>Field Visit</b>
<i>Provides a comprehensive overview of FBFS</i>	<i>Provides the bigger picture by placing FBFS as part of river basin water management</i>	<i>Provides concrete awareness and skills</i>	<i>Provides skills for determination of crop and irrigation water requirement; and soil moisture conservation</i>	<i>Provides technical skills for the design</i>	<i>Provides the interactions between watershed management, microclimate and FBFS</i>	<i>Provides practical experience and learning in the field</i>
<ul style="list-style-type: none"> <li>- History, status and potential</li> <li>- Differences with conventional irrigation systems</li> <li>- International and regional examples (Sudan, Yemen, Pakistan, Kenya and Ethiopia)</li> </ul>	<ul style="list-style-type: none"> <li>- The need, principles and concepts of IWRM in river basin</li> <li>- Participatory allocation of flood water</li> <li>- Integrated watershed management and FBFS</li> <li>- Impact of watershed management on sustainability of FBFS</li> <li>- Identification and implementation of best WSM practices</li> </ul>	<ul style="list-style-type: none"> <li>- Target group participation – concepts and resourcing</li> <li>- Setting up and resourcing participatory management process</li> <li>- Techniques and methods (stakeholder mapping, PRA and triangulation)</li> </ul>	<ul style="list-style-type: none"> <li>- Application of CROPWAT 8 software for design and management of FBFS</li> <li>- Calculation of potential evapotranspiration</li> <li>- Determination of CWR</li> <li>- Determination of irrigation water requirement and design duty</li> <li>- Soil moisture conservation and management in FBFS</li> </ul>	<ul style="list-style-type: none"> <li>- Spate irrigation design approach and principles</li> <li>- Hydrology</li> <li>- Flood analyses</li> <li>- Sediment control and management</li> <li>- Design for intake, operation, maintenance</li> <li>- Design of Hybrid spate irrigation &amp; FSW</li> <li>- Impacts of FSW (groundwater recharge, rangeland and agricultural productivity)</li> </ul>	<ul style="list-style-type: none"> <li>- Watershed management, microclimate and ecosystem services</li> <li>- Comparative ecosystem benefits between upstream and downstream</li> <li>- Comparative microclimate and ecosystem benefits between watersheds</li> </ul>	<ul style="list-style-type: none"> <li>- Good examples and failed systems</li> <li>- Practical knowhow through discussions with experts, farmers, (agro-) pastoralists, engineers, development planners and extension workers</li> <li>- Practical group exercise</li> </ul>

## Course delivery

The course

- ▶ covers seven modules in 12 days
- ▶ is conducted by national and international experts assuring high quality of content, delivery and organization
- ▶ uses a broad variety of interactive and modern teaching methods, formats and instruments
- ▶ supports regional experience, knowledge and technology sharing
- ▶ includes a field trip with practical field work



## Further practical information

- ▶ Maximum number of participants is 45
- ▶ Application procedure: Apply by sending an email to [tesfa-alem.gebreegziabher@mu.edu.et](mailto:tesfa-alem.gebreegziabher@mu.edu.et). You will receive a confirmation and more information within a week.
- ▶ Registration fee includes course related costs: teaching, lunch, tea breaks and excursion.
- ▶ Not covered are DSA, accommodation and travel costs.
- ▶ Participants will be granted a certificate.

## Location and Contact

Mekelle University, Endayesus Campus  
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<b>Organized by</b>	<b>Mekelle University</b>
<b>Date</b>	<b>11 – 22 November 2019</b>
<b>Price</b>	<b>900 Euro</b>
<b>Application deadline</b>	<b>25<sup>th</sup> October 2019</b>



**Flood-Based Livelihoods Network** Ethiopia

