



UNESCO-IHE
Institute for Water Education



Flood-based Farming Systems From Subsistence to Significant Contributors for Food Security and Enhanced Ecosystem Services

The Journey we have travelled and the road ahead



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Launch Workshop: Harnessing Floods for Enhanced Livelihoods and Ecosystem Services
Mekelle, Ethiopia, 17 March, 2015

Phase I: 2002 to 2006

The Challenge

Spate Irrigation
“largely”
dismissed as
unreliable
systems merely
supporting
subsistence
farming

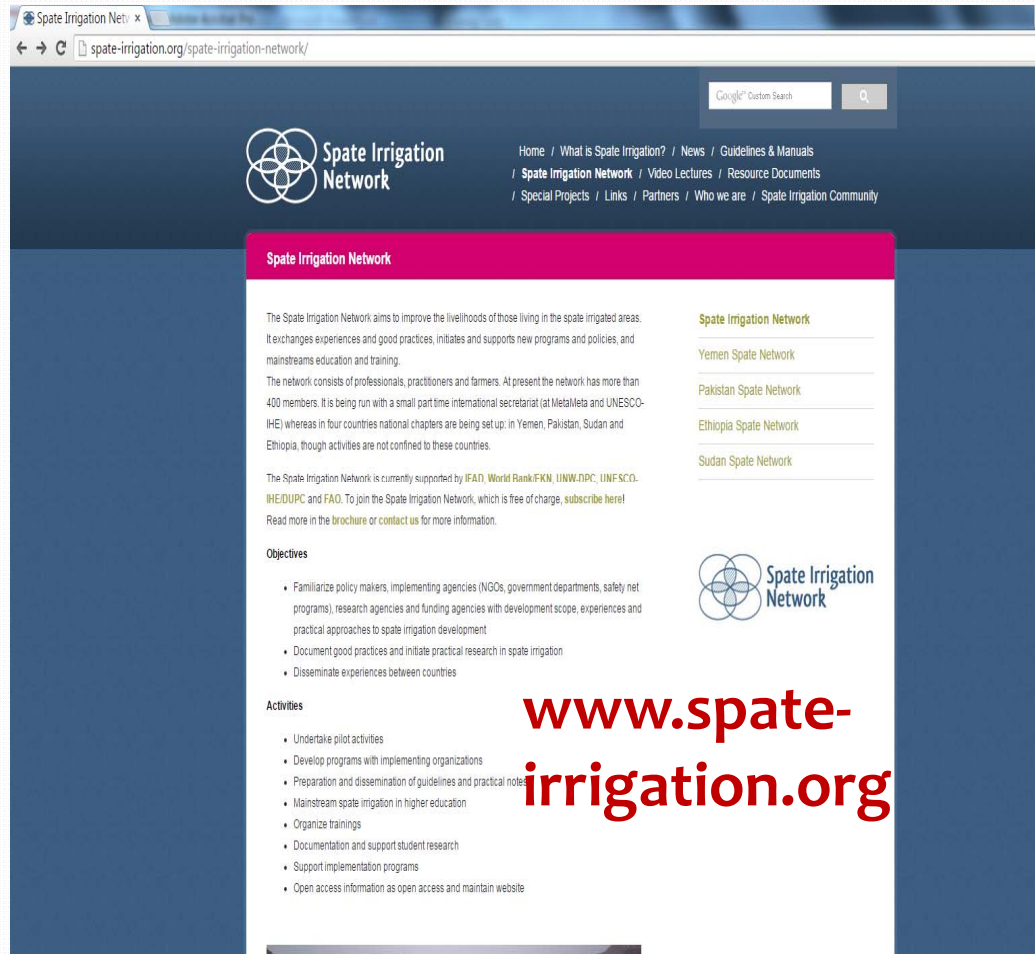
The Approach

Establishing a
network
create platform for
knowledge and
experience sharing
Document bright
spots – success
stories

The Overarching approach

Working in
partnership with
varied
stakeholders
“Agents of
Change”

Spate Irrigation Network Born in 2002



Familiarize policy makers, implementing agencies, research and educational institutions, donors with development scope, experiences & practical approaches to spate irrigation development

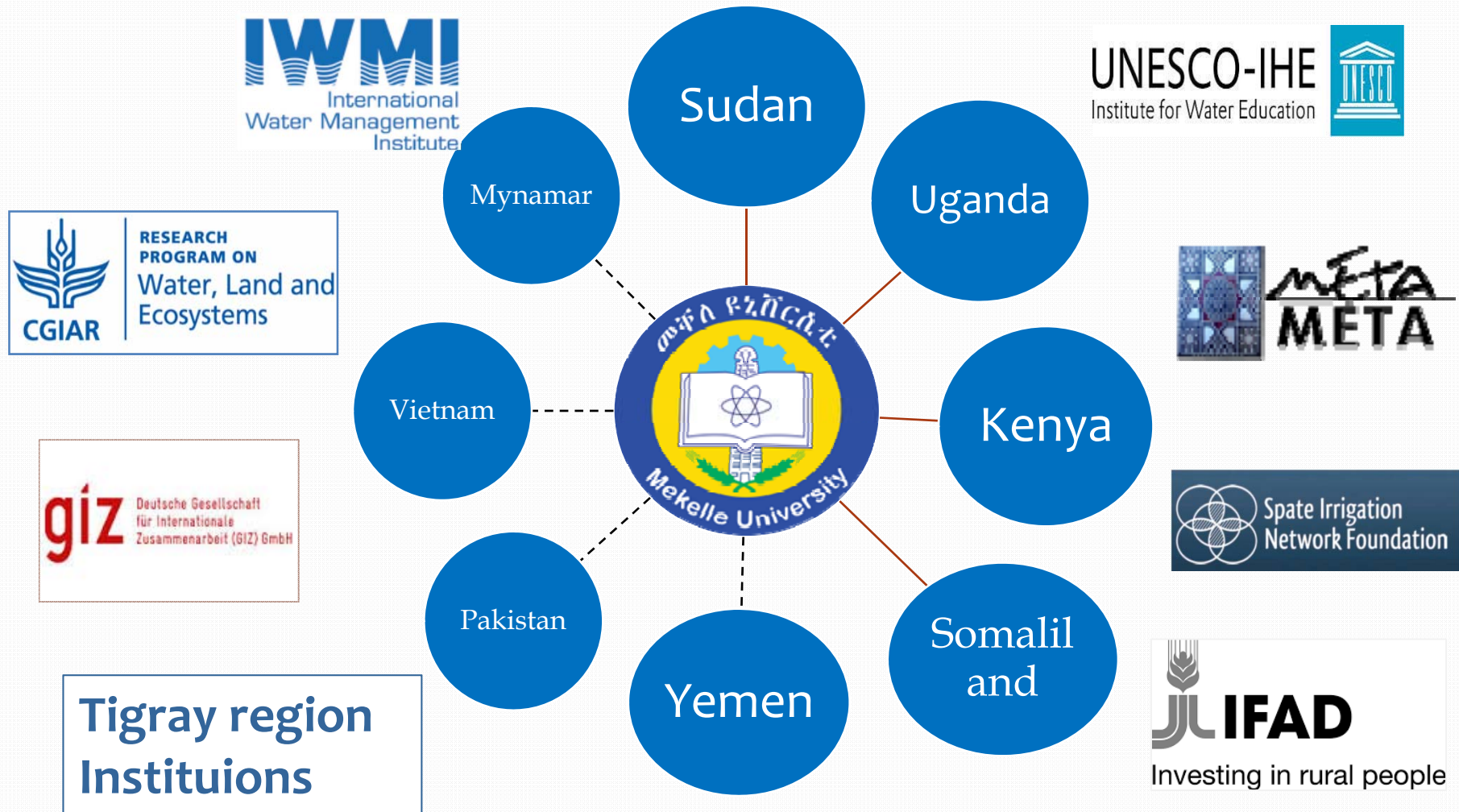
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Was all about visibility

2. Establish country bases
3. Don't wait for invitations, show-up at major events with powerful messages!!



Mekelle University played key role form the very start



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Guguf spate irrigation scheme, Raya Valley

Rehabilitating/stabilizing eroded river beds, farmers-led designed check-dams



Sorghum yield: 5
ton/ha

FBFS are productive

First harvest :
4 ton/ha

**Second
harvest
(ratoon):**
2 ton/ha



Konso spate irrigation, SNNP

FBFS are productive – there are bright spots?



Chick pea yield:

- Rainfed: 0.4 to 0.6 ton/ha
- Conventional irrigation: 2- 5 ton/ha
- FBFS: up-to 3.5 ton/ha

Fogera Flood plain - Flood recession:
North West Ethiopia, East of Lake Tana



Phase I: 2007 to 2011

The Challenge

Where is the technical know-how to develop FBFS

Where are the credible technical references

The Approach

Solutions oriented scientific research

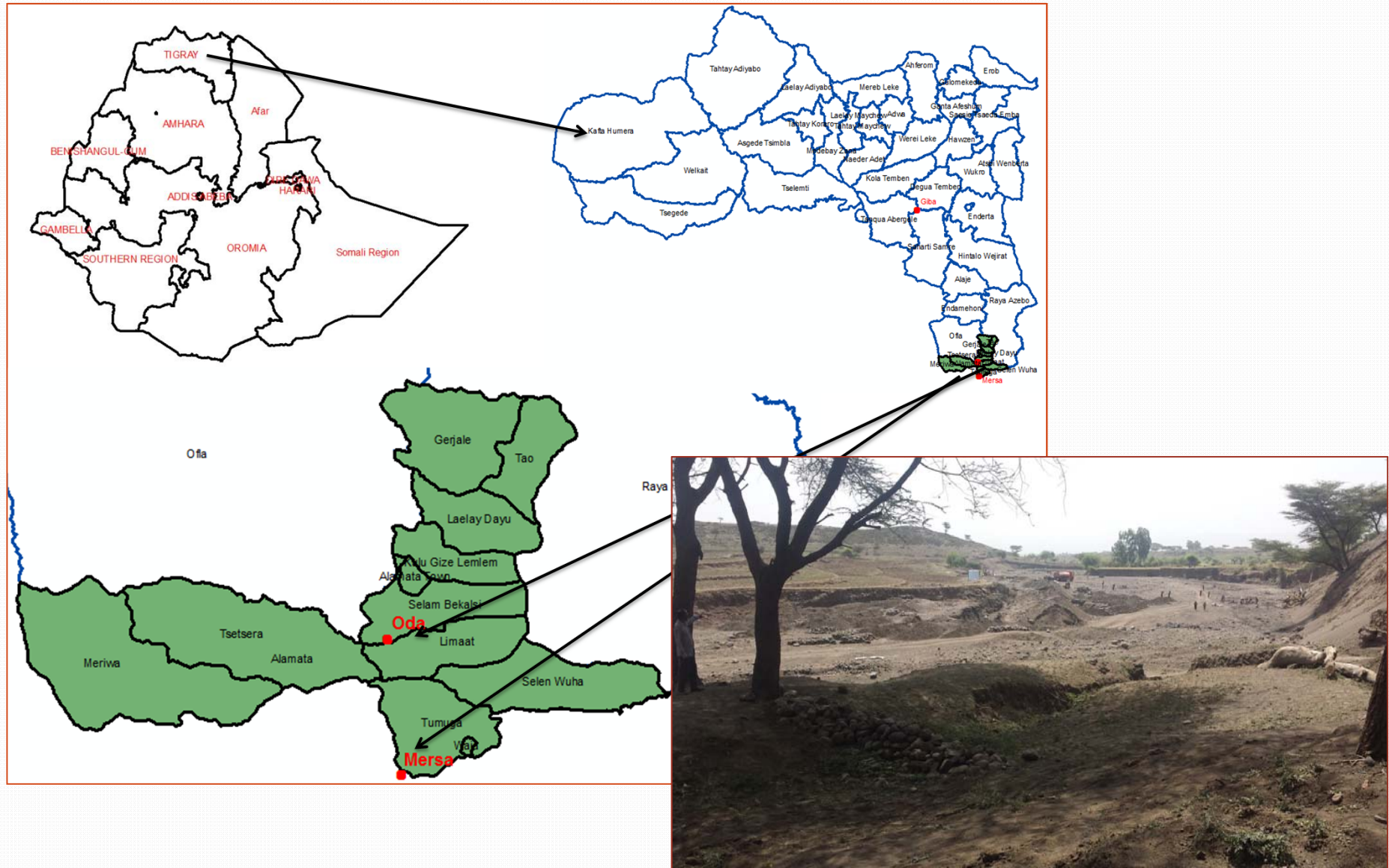
Institutionalizing Spate Irrigation

Creating platform for knowledge-sharing platforms

The Approach

Working in partnership with varied stakeholders
“Agents of Change”

Innovation from Ethiopia: Hybrid Design



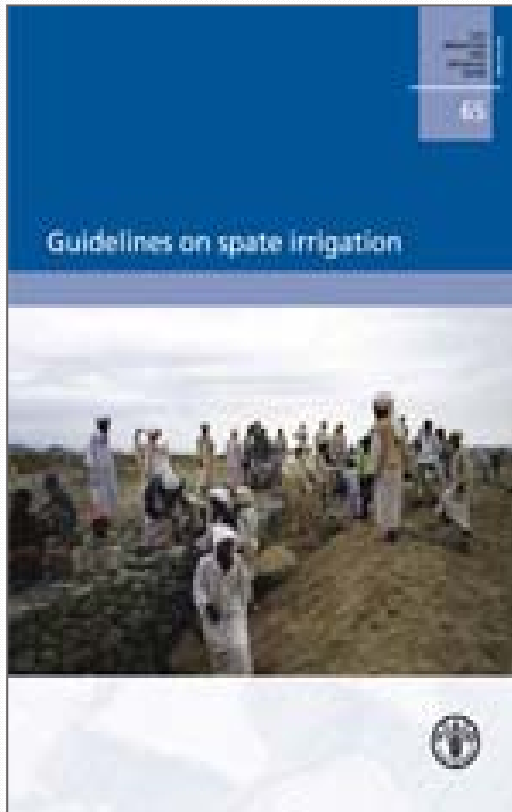
Innovation from Ethiopia: Hybrid Design

Traditional	Modern
Partially open – less liable to sedimentation as it avoids the full diversion of large floods	Diverts the designed (required) flood only
0.2 m high at the entrance and 0.6 m high at their ends - create small disturbance to the natural flow conditions	diversion ratio – 5 % at peak flood and 100 % when it recedes
Oriented at 135° or 45° diversion angle – helpful in fully diversion of the small floods	Made of Concrete +Masonry and has cutoff and apron structures, river protection structures

Innovations from Pakistan: Porous Spillway



Some achievements at Global, Regional Level



*IFAD Large Grant:
Spate Irrigation for Rural Economic Growth and Poverty Alleviation: Ethiopia, Sudan, Yemen and Pakistan*

Short course on Spate Irrigation at UNESCO-IHE, the Netherlands launched in 2009

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Phase 3: 2011 to 2015

The Challenge

Embedding FBFS
in national policy
and strategy
documents

Integrate FBFS
into national
curricula

Strengthened
outreach to
farmers

The Approach

Invest into local
champions

Invest in
strengthened
country knowledge
centers

Engage policy
makers and
farmers –
communication
toolkit

The Approach

Working in
partnership
with varied
stakeholders
“Agents of
Change”

Stockholm 2012



Model Farmer from Ethiopia

Model practitioner from Sudan



A Pro-poor local political leader (Pakistan)

Knowledge sharing among farmers and policy makers

2012: Sudan; 2013: Yemen



Knowledge products: Videos and brief notes in local languages


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Water Rights In Spate Irrigation



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"Floods are not always a hazard. They may also sustain aquatic life and riverine biodiversity, recharge aquifers, enrich soils and in some of the world's poorest areas they are the main source of irrigation." -- Global Water Partnership (2000) 'Toward water security: a framework for action.

Spate irrigation is the art and science of managing floods for irrigation. It is unique to arid and semi-arid environments, found in the Middle East, North Africa, West Asia, East Africa and parts of Latin America.

Unpredictability is inherent to spate irrigation, yet water distribution rules regulate the distribution of the unpredictable water supplies. They impose a pattern and reduce uncertainty and potential conflict by regulating the relations between the landowners that have access to flood water. Particularly where flood water users depend on one another in maintaining flood channels and reconstructing diversion structures, agreement on how water is distributed is a precondition for cooperation between different parties in this respect.

More info: <http://www.spate-irrigation.org/library/spate-notes>
Produced by: TheWaterChannel

Related

- Spate Irrigation: Traditional Engineering in Hadramawt 4273 Views
- Minor Crops in Spate Irrigation 4445 Views
- Traditional Spate Irrigation Practices in Raya Valley 3425 Views
- Meeting Rural Livelihood and Climate Variability Challenges with Spate Irrigation 6071 Views
- Spate Irrigation in Northern Ethiopia_French 1844 Views
- Spate Irrigation in Northern Ethiopia 5079 Views
- Soil Moisture Conservation and Field Water Management in Spate Irrigation 4737 Views
- Spate Irrigation in DI Khan, Pakistan 2344 Views

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Embed Code


Drinking Water P Spate Irrigation

اناج کے مقامی ذخیروں کو بہتر بنانا



الثروة الحيوانية في مناطق الري ألسيلي في اليمن

ورقة عامة تطبيقية في الري بمياه السيول




የግብርና-መስኖ የእርሻ ማሳን ማሻሻል
እና የአፈሩን እርጥበት መጠበቅ

Command Area Improvement and Soil Moisture Conservation in Spate Irrigation

ورقة عامة تطبيقية لري بمياه السيول

Practical Not



Regular Short-course on FBFS at Mekelle University

Regular Short Course Sustainable Development of Flood-based Farming Systems in Arid and Semi-arid Regions

Mekelle University, Ethiopia



Implementing Partner Institutions



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Regular Short Course Sustainable Development of Flood-based Farming Systems in Arid and Semi-arid Regions

Demand driven and relevant

This short course was initiated in 2013 in Mekelle following an extensive field research to the arid lowlands of Ethiopia in 2012. The varied stakeholders consulted justified the need for the short course as follows:

- Acute shortage of flood-based farming system (FBFS) designers, managers and researchers.
- Limited participatory planning, implementation and monitoring of FBFS.
- Lack of capacity in basin-wide approach for the development of FBFS

50 engineers and managers benefited from the August 2013 pilot course conducted by local and international experts. They appreciated the quality of content, delivery and organization of the modules including the interactive group discussions and content-rich field visits. They recommend that the course be offered on annual basis and up-scaled into regional (Africa) level.

Key learning objective

Produce professional leaders with a broader understanding of a participatory and river basin approach and specific skills to design and manage FBFS.

Course delivery

It follows practical approach where key experts present their case studies and share their best practices for extensive discussion with the participants. It is tailored at generating new ideas and practical dilemmas of a technical, economic, environmental, social and managerial nature.

Course duration

In 2014: 11 – 22 August

Registration fee

600 USD

Location

Mekelle University
PO Box 231, Mekelle
Tigray, Ethiopia

Course content – six modules with clear focus

MODULE 1	MODULE 2	MODULE 3	MODULE 4	MODULE 5	MODULE 6
Introduction to flood-based farming systems	Participatory planning, implementation and monitoring	Land and water management	Participatory design	Watershed management	Field visit
Gives comprehensive overview and clear-cut differences with conventional irrigation systems.	Provides concrete skills in Participatory Rural Appraisal (PRA), stakeholder analysis and triangulation techniques.	Focuses on command area development, water rights based on-farm water management, FBFS relevant soil moisture conservation practices and modeling tools.	Pinpointing key differences with conventional design concerning dependable flood analyses, intake and canal design, sediment management.	Gives the bigger picture - analyses the impact of different watershed management measures on the sustainability of FBFS and vice versa.	On-site in bright spots and failed systems, gain practical know-how through observation and discussion with real experts – farmers, site engineers, managers and extension workers.

Started in 2013
(35 participants)

2014 (47 participants)

In 2014 Participants came from Kenya, Sudan, Uganda, Somaliland

Water Harvesting Technologies & Potential Sites for Future Investments in Karamoja Region, Uganda



FBFS potential in Kenya: Mission by Mekelle University experts

13 sites visited and potential identified: 174 000 ha

Training delivered for 7 experts and more trainings are planned in Kenya and Ethiopia



Phase 4: 2015 ... The Journey Ahead – new frontier with our partners

We are off the take-off appears to be good

2015 to 2016: Harnessing Floods for Enhanced Livelihood and ecosystem services

- From Scheme to landscape level
- Increasing agricultural production while safeguarding the health of the Environment



Phase 4: 2015 ... The Journey Ahead – new frontier with our partners

The take-off appears to be good

2015 to 2016: Harnessing Floods for Enhanced Livelihood and ecosystem services

- From Scheme to landscape level
- Increasing agricultural production while safeguarding the health of the Environment



**Research
Program on**
Water, Land and
Ecosystems

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Phase 4: 2015 ... The Journey Ahead – new frontier with our partners

2015 to 2019: From Africa to Asia & Back Again:



Testing adaptation of FBFS



Some concrete deliverables expected in the Tigray Region

- | | |
|----|--|
| 1. | Strengthening the MSc Programme in Integrated River Basin Management |
| 2. | One new MSc Programme in Irrigation started-up |
| 3. | One vocational training and two farmer learning schools strengthened |
| 4. | Support to development of two investment programmes |

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Thank You