Turning tragedy into opportunity: water management solutions for flood-recession and dry season agriculture in Nigeria

Inception workshop, Transcorp Hilton Hotel, Abuja, 08 July 2014
Increased agricultural production and food security achieved through sustainable water management that allows smallholder farmers to profitably engage in flood recession and dry season agriculture.

Goals and Objectives

Goal

Establish fact-based evidence on historical flood inundation patterns to guide decision making and development of AWM solutions.

Objectives

Develop AWM solutions that will improve dry season farming.
Outputs

- **Land and water management maps** at river basin and state levels
- **Tools** to support flood forecasting and estimate potential impacts along Niger and Benue rivers
- **Agricultural land and water management solutions** (e.g. rainwater harvesting, surface ponds and tanks, pump irrigation, land leveling, narrow and stable dug wells, vertical drains, etc.)
- **Maps of AWM solution suitability, livelihood patterns** and number of beneficiaries (hectares and people)
- **Proven business models** for implementation of AWM solutions
Work Packages

WP 1: Flood Vulnerability and Recession Analysis (national/basin/state level)
- Flood inundation & vulnerability mapping and analysis
- Identification of flood capture and storage options and related AWM solutions for flood recession agriculture
- Pilot existing, relevant AWM Solutions
- Development of flood forecasting & risk assessment tools

WP 2: AWM Situation and Opportunity & Constraint Analysis (national/state/local)
- Scoping: inventory of resource maps, key value chains; AWM technologies, policies & institutions
- Mapping: Resource (GW, surface water, soil moisture); livelihoods; AWM suitability
- Field surveys: Opportunity and Constraint of selected AWM solutions
- Environment & social impacts and institutional analysis of selected AWM Solutions

WP 3: Business Model Targeting and Refinement (national)
- Targeting: Mapping specific solutions to priority value chains
- Targeting: Mapping geographic suitability of AWM Solutions and beneficiaries
- Refinement of AWM business models

WP 4: Implementation and Monitoring of Business Models (state/local)
- Pilot AWM solutions and business models in selected states
- Continual monitoring of impacts (agricultural productivity, livelihoods, gender and environment)
- Adaptation of AWM solutions and business models

WP 5 & 6 Consolidation, Ownership and Scaling Up (national)
- Joint implementation of all WPs and supplementary capacity building
- Regular consultations and validation with key stakeholders (public and private sector; local, national and state)
- Application of methodologies, maps, and tools to scale-up tested AWM solutions and business models and identify new ones
- Develop & promote appropriate policy changes

Outputs

- Flood inundation and vulnerability maps
- Flood assessment and forecasting tools
- AWM analysis and needs assessment
- Resource and livelihood maps; AWM suitability and potential
- Refined assessment methodologies
- Refined AWM solutions and targeting maps
- Refined business models
- Proven AWM solutions and field tested business models
- Suite of scalable AWM Solutions & business models
- Strengthening of local capacity to design/implement solutions
- Evidence-based recommendation for policy changes
FOCUS ON FLOOD ASSESSMENT AND RISK ASSESSMENT
Flood Mapping Products (Initial Results)

Time-Series MODIS TERRA Flood Occurrence Maps (2012 & 2013)

Source: IWMI

Legend

<table>
<thead>
<tr>
<th>Value</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>High 46</td>
<td>Red</td>
</tr>
<tr>
<td>Low 0</td>
<td>Blue</td>
</tr>
</tbody>
</table>
Soil Moisture Products
Application in Flood Recession Agriculture

- Soil Moisture important input in flood recession areas detection
- On a daily basis day/night SM will be provided
Mobile Apps—Operational Flood Information Management

“Project outcomes to target thousands of farmers get access to right information at right time on flood risks and opportunities from flood recession agriculture”
FOCUS ON AGRICULTURAL WATER MANAGEMENT
Small, cheap motorized pumps have increased smallholder irrigation, reducing dependency on rainfed agriculture.
The Irrigation Service Provider Model – Pump Rental Plus
Imagine this
Irrigation Service Provider
Business Plan
Outcomes

• **Improved food security** through better knowledge of Nigeria’s water resources and their management to improve crop planning and increase cropping intensity.

• **Enhanced rural incomes** through expanded dry season and flood recession farming coupled with new opportunities for rural employment (particularly for the youth) through the introduction of irrigation service providers and other AWM business models.

• **Smallholder farmers profitably participate in food crop value chains.**

• Improved adaptation to climate change and more resilient farming communities.
Partners

Nigeria
• Federal Ministry of Agriculture and Rural Development
• Federal Ministry of Water Resources (NIHSA)
• Nigerian Meteorological Agency (NIMET)
• Anambra, Benue and Kogi State Governments
• Universities.

International:
• International Food Policy Research Institute (IFPRI)
• Food and Agriculture Organization of the UN (FAO)
International Water Management Institute (IWMI)

• One of 15 international non-profit scientific research centers

• Member of the CGIAR Consortium (global partnership of research centers and funders)

• Works in partnership with countries, international and national research institutes, universities and other organizations

• Develops water management solutions (policies, practices, technologies and tools) that contribute to poverty reduction, livelihoods and food security
IWMI Vision
Water-secure world

IWMI Mission
Provide evidence-based solutions to sustainably manage water and land resources for food security, livelihoods and the environment
IWMI staff

- 330 employees in 10 countries
- 64% from developing countries
- 75% of researchers in the field
IWMI in Africa – Informing the development of innovative water management solutions
What does this mean for Africa?

A water-secure world
www.iwmi.org
Context: African extensification compared with Asian intensification

Source: FAO 2006a.
Note: Each point represents a five-year average, starting with 1961–65 = 100.
Agricultural and water issues in Africa: opportunities

- A large underutilized *endowment* of water resources.
- Huge potential for expansion of area under irrigation.
- Increased demand for high value products responsive to agricultural water management solutions.
- Renewed public and political interest in food security, agriculture and environmental sustainability.
- Acceptance by political decision makers that market-based principles must guide development decisions.
- IWMI’s research capability and presence through 5 main offices spread across Africa in Ghana, Ethiopia, South Africa, Egypt and Burkina Faso.
THANK YOU FOR YOUR ATTENTION