WORKSHOP REPORT

# Workshop Report: Towards Sustaining Healthy Flows and Functions in the Omo-Gibe Basin

Addis Ababa, Ethiopia | May 14, 2026

John P. Simaika and Alemseged Tamiru Haile

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## Authors

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## Author contributions

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## CGIAR Multifunctional Landscapes Program

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**Front cover photo**: Group photo of workshop participants, ILRI Campus, Addis Ababa Ethiopia (Rahel Mesganaw/IWMI)
**Back cover photo**: Omo-Gibe Reservoir, Ethiopia (Wolde Mekuria Bori/IWMI)

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## Summary

This workshop was convened on 14 May 2026 as part of IWMI's contribution to the CGIAR Multifunctional Landscapes program and its work on environmental flows for resilient river systems. The engagement focused on the Omo-Gibe Basin, where water resources development, ecosystem health, livelihoods and downstream dependencies intersect. The rationale for the workshop was to create a common technical and policy-oriented understanding of environmental flows and to identify how e-flow concepts, methods and tools could support planning in a basin affected by hydropower development, irrigation expansion, data limitations, climate variability and institutional coordination challenges. The workshop brought together 27 attendees from water, hydrology, environmental management, academic and civil-society sectors to build a shared understanding of environmental flows and their relevance to sustainable management of the Omo-Gibe Basin. Technical presentations introduced environmental flow concepts, assessment methods, IWMI tools, the Nile Basin Initiative e-flows framework and the Omo-Gibe hydrological context.

Using participatory systems analysis, stakeholders examined the basin's main pressures, including hydrological variability, sparse monitoring data, cascade hydropower development, irrigation expansion, catchment degradation, downstream livelihood dependence and transboundary implications. Water quality degradation and pollution emerged as a recurring concern across the groups, pointing to the need to develop environmental flow methods that explicitly encompass water quality alongside flow magnitude, timing and variability. Breakout groups translated the technical material into basin-specific priorities, focusing on data availability, stakeholders, use cases, governance, data needs, capacity needs, pilot reaches and indicators. The workshop established a basis for follow-up work on environmental flow assessment, stakeholder engagement and integration of e-flow evidence into planning and future digital-twin work for the basin.

Demand for this work was expressed directly by participating institutions. Closing the workshop, Michael Mehari Moges of the Ethiopian Ministry of Water and Energy noted: *"This workshop's outcomes are very useful for the government, and we look forward to using any policy briefs that may come from your work on environmental flows in Ethiopia."*

# 1. Background

## 1.1 Overview

The Omo-Gibe Basin is one of Ethiopia's most important river basins, extending from the humid southwestern highlands to the semi-arid lowlands of South Omo. Covering about 79,000 square kilometers, it supports three major functions: water and energy development, agricultural and livelihood systems, and important ecosystem services. The basin hosts the Gibe hydropower cascade and has significant irrigation potential, making it central to Ethiopia's energy, food security and regional development priorities. At the same time, its downstream floodplains, wetlands, pastoral livelihoods, and cultural heritage depend on well-managed seasonal flows. Sustainable management of the basin therefore requires balancing infrastructure development with environmental flow needs, stronger monitoring and data sharing, inclusive stakeholder engagement, coordinated reservoir and irrigation planning, and transboundary cooperation.

IWMI's earlier work in the Omo-Gibe and Omo-Turkana context has focused on the links between river-basin development, ecosystem services and livelihoods in a changing transboundary system. Through the EU Horizon 2020 DAFNE project — *Use of a Decision-Analytic Framework to explore the water-energy-food Nexus in complex and transboundary water resources systems of fast-growing developing countries* — IWMI contributed to analysis of how hydropower development, irrigation expansion and land-use change affect flows, floodplain functions, fisheries, agriculture and downstream dependence on the Omo River and Lake Turkana.

In the Omo-Gibe Basin, environmental flows are not just a technical issue. They are about deciding how limited and highly seasonal water should be shared among the diverse water users in the basin. Stakeholder consultation helps make environmental flow planning more practical, fair and trusted, because it connects scientific studies with the real needs of pastoralists, fishers, basin authorities and energy planners. As Ethiopia continues to develop the Omo-Gibe Basin, regular, inclusive and well-organized consultation will be important to ensure that water planning is technically sound, socially fair and better able to manage future conflicts and uncertainties.

## 1.2 Workshop Objectives

The main objective of the workshop was to advance a shared and evidence-based understanding of environmental flows and their role in strengthening sustainable, inclusive and resilient water resources planning and management in Ethiopia, particularly in the Omo-Gibe Basin. The following are the specific objectives:

- Strengthen shared understanding of the role of environmental flows in sustainable water resources management in Ethiopia, with specific attention to the Omo-Gibe Basin.
- Review existing environmental flow assessments, relevant policy frameworks and basin-specific evidence on hydrology, monitoring, water balance, hydropower, irrigation and ecosystem-livelihood linkages.
- Discuss challenges and opportunities associated with hydropower development, irrigation expansion, catchment-wide livelihoods, ecosystem health, data availability, governance and institutional coordination.
- Identify practical ways to improve environmental flow application in basin planning and management, including priority reaches, indicators, capacity needs and potential pilot activities.

# 2. Summary of Sessions

## 2.1 Opening, Welcome and Introduction to IWMI and the Project

Abdulkarim Seid (IWMI, Ethiopia) opened the session and welcomed participants. John Simaika (IWMI, Sri Lanka) then introduced IWMI as an international water research organization working with governments, civil society and the private sector to address water security challenges and presented the workshop objectives. The session linked IWMI's strategic focus on water risks, inequalities and sustainable water management to environmental flows as a means of maintaining ecosystem integrity while supporting development choices.

The project introduction framed the workshop as part of the environmental flows critical capability under CGIAR Multifunctional Landscapes. It emphasized the need to connect hydrological analysis, ecological functions, livelihoods, stakeholder knowledge and scenario-based planning for the Omo-Gibe Basin.

The session outlined the workshop agenda (Annex A): morning presentations, a group photograph and break, technical sessions on environmental flows and the Omo-Gibe context, breakout group work, synthesis, group reporting and discussion of next steps.

The opening established the workshop's participatory approach and encouraged participants to relate technical presentations to practical basin-management needs, including data gaps, governance arrangements, stakeholder roles and opportunities for piloting environmental flow assessment.

## 2.2 Environmental Flows: Concepts, Methods, Tools and Applications

Matthew McCartney (IWMI, Sri Lanka) introduced environmental flows as the quantity, timing and quality of freshwater flows and levels needed to sustain aquatic ecosystems and the human cultures, economies, livelihoods and well-being that depend on them. The session emphasized that environmental flows are not simply minimum releases, but should preserve key components of natural flow variability, including high, medium and low flows.

The presentation explained important flow characteristics—magnitude, frequency, duration, timing and rate of change—and showed how different flow events support different ecological and social functions such as wetland flooding, fish spawning, algae control, navigation, flood-recession agriculture and channel maintenance.

Participants were introduced to hydrological, hydraulic-rating, habitat-simulation and holistic assessment methods. The session highlighted the role of environmental management classes and explained that the desired river condition is a management and societal choice: a more natural river requires more water and greater variability, while heavier development increases ecological and livelihood trade-offs. Although the definition of environmental flows explicitly includes the quality of freshwater flows, most established assessment methods address the quantity and timing of flows only. Given the pollution, sedimentation and nutrient pressures raised by participants, the discussion pointed to the need to develop and test e-flow methods that explicitly encompass water quality.

## 2.3 Nile Basin Initiative Experience and Environmental Flow Management Framework

Abdulkarim Seid presented experience from the Nile Basin Initiative and introduced the Nile e-flows framework as a structured approach for consistent environmental flow assessment and management across ecosystems and scales. The framework includes seven phases: scoping and alignment with management requirements; setting resource quality objectives; establishing the hydrological foundation; classifying ecosystem types; describing flow alterations; linking flows with ecosystem services; and setting and monitoring environmental flows.

The presentation demonstrated how environmental flow requirements can be communicated through monthly flow requirements, flow-duration curves and environmental management classes. It reinforced the importance of presenting results in ways that support stakeholder dialogue, basin planning and monitoring.

## 2.4 Omo-Gibe River Basin Context: Hydrology, Development Pressures and Management Challenges

Demelash W. Goshime (Arba Minch University, Ethiopia) presented the hydrology of the Omo-Gibe Basin and described its main water-resource management challenges. The basin is characterized by strong hydrological variability and seasonality, sparse and uneven rainfall monitoring, many ungauged catchments and changing runoff patterns linked to land-cover change and hydraulic development.

The session highlighted existing and planned cascade reservoirs, including Gibe I, Gibe II, Gibe III, Gibe IV and Gibe V, and discussed the risk of conflict between hydropower production, irrigation expansion, local water availability and maintenance of healthy river ecosystems. It also reviewed irrigation and agricultural development in the lower basin and the dependence of downstream communities and ecosystems on river flows.

The presentation summarized previous studies on flood-based farming, streamflow monitoring, water balance modelling and cascade reservoir operation. Postgraduate students of Arba Minch University have extensively studied the basin, addressing various topics pertinent to water management. However, these studies were constrained by the availability of hydrological data. Key management issues identified included catchment degradation, sediment, monitoring gaps, water demand conflicts, climate variability, flood and drought management, water quality, transboundary concerns and limited institutional coordination.

## 2.5 Breakout Groups: Participatory Systems Analysis for Environmental Flow Planning

John Simaika led the facilitation of the breakout sessions, which used brainstorming, problem-tree analysis, objective-tree analysis and group presentations to translate the technical material into basin-specific priorities (Figure 1). Participants were asked to identify a core problem, its causes and effects, then convert these into objectives, means and expected outcomes.

Participants were asked to write down what they perceived as the main water management or governance issues in the catchment and write them down on post-it notes. These were then grouped thematically, which resulted in the establishment of the following six groups:

**1. Parking Lot**: This section captured various unresolved or complex issues including water conflicts regarding Lake Turkana expansion, hydropower development impacts, lack of systematic irrigation systems, selection criteria for environmental flow requirements, and organizational challenges such as a lack of coordination and budget for rehabilitation plans.

**2. Flooding and Validation Methods**: Topics included downstream flooding risks, the selection of required environmental parameters, and the application and validation of environmental flow estimation methods in data-scarce regions.

**3. Catchment and Water Quality Management**: Focused on land use changes, catchment degradation, water quality pollution, sedimentation, and broader issues of water conflict within the basin.

**4. Environmental Flow Frameworks**: Focussed on water scarcity, the integration of environmental flows (EF) into Environmental and Social Impact Assessments (ESIA), the need for a basin-wide EF framework, environmental flow rules, and the impact of flow alteration.

**5. Data Monitoring and Scarcity**: Covered the availability and quality of data, the establishment of monitoring systems and station distribution, updates to rating curves, and the limitations caused by a lack of technological information and supply/demand data.

**6. Hydrologic Extremes and Climate Variability**: Concentrated on climate variability and change, highlighting flood risks and the occurrence of hydrologic extremes and anomalies such as flooding and drought.


**Figure 1.** Left: Thematically grouped post-it notes from the brainstorming session. Right: A Problem Tree Analysis done by a breakout group. This example is on poor dam operation as the problem (main stem). Roots are causes and branches are effects (consequences).
*photo:* Rahel Mesganaw/IWMI

Based on the identified themes, groups were asked to draw problem and objective trees. Below are the summaries from these trees, which were obtained using the AI model Claude Sonnet in Microsoft Copilot (Version 2.20260811.56.0).

**Problem Tree — Group 1: Water conflict**

**Core problem:** Water conflict

- **Effects**
  - Depredation of biodiversity → loss of habitat
  - Dehydration / health issue → illness
  - Cultural impact → individualism
  - Ecological issues → reduced flow → harm to reservoirs and fisheries
  - Hydrological issues / hydraulics (dam) → affects WA
  - Socio-economic issues
- **Causes**
  - Water availability (WA) declining
  - Resource utilization increasing (driven by population growth) → demand ↑
  - Supply ↓ → over-extraction → loss of access to safe drinking water → groundwater (GW) depletion
  - Forced displacement
    - affects pastoralists and agriculture
    - upstream damming → destroys farming

**Objective Tree — Group 1: Water conflict reduced/resolved**

**Core objective:** Water conflict reduced / resolved

- **Ends**
    - Biodiversity conserved → habitat preserved
    - Hydration / health improved → illness reduced
    - Cultural practices protected → community cohesion strengthened (individualism reduced)
    - Ecological flow maintained → reservoirs and fisheries protected
    - Hydrological / hydraulic balance restored (dam operations) → WA secured
    - Socio-economic conditions improved
- **Means**
    - Water availability (WA) increased / stabilized
    - Resource utilization balanced against population-driven demand growth
    - Supply stabilized → extraction regulated → access to safe drinking water ensured → groundwater protected
        - Means: WB-controlled flow — protects environment, manages watershed
    - Displacement avoided or well-managed
        - Pastoralist and agricultural livelihoods protected
        - Upstream damming managed so farming is not destroyed
        - Means: compensation and Resettlement Action Plan (RAP) provided

**Problem Tree — Group 2: Poor dam operation**

**Core problem:** Poor dam operation

**Causes:**

- Lack of WR Info
    - Inaccurate/no forecasting
    - Limited skill/manpower
    - Low quality data (hydro, meteo, spatial)
    - Limited resource & technology
    - Weak EWS (early warning system)
- Weak Coordination
    - Poor communication
    - Lack of timely decision
    - Weak enforcement
    - Ineffective planning

**Effects:**

- Lack of WR Info
    - Flooding
    - Water scarcity
    - River channel deterioration
- Weak Coordination
    - Hydropower generation decline
    - Ecosystem degradation

**Objective Tree — Group 2: Effective dam operation**

**Core objective:** Effective dam operation

**Ends/outcomes:**

- Reduce water related hazard
- Increase water availability & HP (hydropower) generation
- Restore R.V (river valley) channel & ecosystem

**Means:**

- **Improve Water Resource Info.**
    - Human Resource capacity building
    - Modernization/digitization
    - Improve data quality
- **Strong Coordination & Enforcement**
    - Strength forecasting & EWS (early warning systems)
    - Establish communication platform
    - Realize effective WR (water resource) Planning
    - Improve timely decision

**Problem Tree — Group 3: Water quality degradation**

**Core problem:** Water quality degradation/pollution

**Effects:**

- **Water Security** (top-level effect, fed by all three branches)
  - **Loss of ESS** ← Challenged dam safety ← Sedimentation
  - **Reduced productivity** ← Human health (water-borne diseases) ← Harmful chemical accumulation
  - **Loss of fish productivity** ← Algal bloom ← High nutrient load, dams/river
- **LULC Change / Land degradation**
  - Deforestation
  - Urbanization
  - Intensive agriculture
- **Flood**
  - Climate variability
  - Environmental degradation
- **Anthropogenic Activities** (untreated waste disposal)
  - Industrialization
  - Urbanization
  - Intensive agriculture
  - Weak enforcement

**Objective Tree — Group 3: Improved water quality**

**Core objective:** Improved water quality

**Ends/outcomes:** Improved food security and quality of life

- **Improve productivity** ← Maintained design capacity of life (lift/dam?)
- **Reduced health incidence** ← Reduced accumulation of harmful chemicals
- **Enhance ecosystem services** ← Increased fresh/healthy water environment
- **Restoration/Rehabilitation**
  - Plantation
  - Soil & Water (S&W) conservation
  - NBS (Nature-Based Solutions) implementation
  - Construct treatment facility
- **Climate Resilience (CR) Adaptation & Mitigation**
  - Real-time prediction
  - Early warning
- **Climate Smart Agriculture / Infrastructure**
  - Climate smart agriculture
  - Construct appropriate treatment plant
  - Law enforcement
  - Buffer zone

**Problem Tree — Group 4: Environmental flow issues**

**Core problem:** Environmental flow issues

- Absence of institutional platform
  - Financial limitation
- Lack of awareness (knowledge) limitation
  - Institutional awareness
  - Community & stakeholders awareness

**Causes:**

- Lack of basin-specific policy, proclamations, and guidelines on minimum flow (environmental flow)

**Effects:**

- Ecological degradation (biodiversity and wetland loss)
- Downstream water scarcity
- Conflict of interest
- Affects livelihood

**Objective Tree — Group 4: Environmental flow solutions and outcomes**

**Core objective:** Environmental flow solutions and outcomes

**Means:**

- Nature/engineering-based solutions for environmental flow requirement
    - ↑ leads to
- Institutional platform & legal framework established/implemented
    - ↑ leads to

**Ends/outcomes:**

- Biodiversity and wetland loss reduced
- Downstream water use conflict due to $H_2O$ abstraction reduced
- Livelihood improved

**Problem Tree — Group 5: Data quality and availability**

**Core problem:** Poor data quality and availability

**Causes:**

- Poor coverage of measurement stations
- Limited water quality (WQ) testing facilities
- Inadequate skilled manpower
- Inadequate budget
- Weak enforcement
- Lack of a functioning Data Management Information System (MIS), including data sharing
- Fragmented data generation (spatial and temporal gaps)

**Effects:**

- Poor informed decision-making
- Poor infrastructure design
- Declining productivity
- Declining ecosystem services
- Wastage of resources
- Socio-economic problems: conflict, threatened livelihoods, poor health outcomes

**Objective Tree — Group 5: Improved data quality and availability**

**Core objective:** Improved data quality and availability

**Means:**

- Develop a data monitoring strategy and guidelines (identify gaps, establish new monitoring stations, adopt telemetric technology, ensure calibration and maintenance)
- Mobilize resources and strengthen coordination
- Build staff capacity
- Set up a Management Information System (MIS)
- Strengthen regulators' capacity

**Ends/outcomes:**

- Informed decision-making
- Enhanced ecosystem services
- Improved health and wellbeing
- Increased productivity (agriculture, fisheries, livestock)

**Overall Goal**

- Improved livelihoods and sustainable socio-economic development

**Problem Tree — Group 6: Flood and drought**

**Core problem:** Flood and drought

**Effects:**

- Loss of life
- Infrastructure damage
- Health problems
- Agriculture decline
- Food insecurity & water scarcity
- Ecosystem damage

**Causes:**

- **Climate Variability**
  - Shifting climate (rainfall & temperature) due to ENSO
    - Low rainfall
    - High temperature
  - Extreme rainfall
- **Poor Watershed Management**
  - High deforestation
  - Rapid population & urban expansion
  - Weak soil & water conservation works
  - Rapid agricultural expansion
  - Lack of clear basin plan / water allocation & implementation
  - Poor adaptation & mitigation
- **Poor Early Warning System**
  - Lack of adequate forecast models
  - Data limitations
  - Poor communication
  - Lack of expertise & awareness
  - Weak coordination
  - Poor reservoir management

**Objective Tree — Group 6: Reduced flood and drought impacts**

**Core objective:** Reduced flood and drought impacts

- **Enhance Early Warning System**
  - Protect life & property from damage
  - Reduce population displacement
  - Protect against economic loss
  - Reduce health problems
- **Improve Basin Management**
  - Improve water availability
  - Increase agricultural production
  - Increase economic income
- **Enhance Climate Adaptation & Mitigation**
  - Improve awareness
  - Reforestation
  - Select appropriate crop types

**Key challenges from the analyses are:**

- Fragmented basin governance and weak coordination, especially around dam operation, water allocation, enforcement, data sharing, and timely decision-making.
- Poor data quality and limited monitoring coverage, including gaps in hydrological, meteorological, spatial, water-quality, forecasting, and supply–demand data.
- Dam operation risks, linked to weak forecasting, limited technical capacity, poor communication, and inadequate early warning systems.
- Water conflict and competing demands, driven by declining water availability, increasing abstraction, irrigation expansion, hydropower development, population growth, and downstream livelihood dependence.
  - Water quality degradation, caused by land-use change, catchment degradation, sedimentation, untreated waste, intensive agriculture, urbanization, and weak enforcement, with no established method for linking these water-quality pressures to environmental flow requirements in the basin.
- Environmental flow gaps, including lack of basin-specific policy, guidelines, institutional platforms, awareness, and practical mechanisms for integrating e-flows into planning.
- Flood and drought vulnerability, intensified by climate variability, poor watershed management, inadequate basin planning, weak early warning, and poor reservoir management.

- Livelihood and ecosystem impacts, including biodiversity and wetland loss, reduced fisheries, health risks, food insecurity, infrastructure damage, and declining ecosystem services.

## 3. Lessons Learned and Deliverables

- Problem and objective tree analyses showed that Omo-Gibe priorities are interlinked: water conflict, dam operation, water quality, environmental flows, data gaps, and flood–drought risks should be addressed as one basin-management agenda.
- Reliable data is the main enabling condition for next steps, including improved monitoring coverage, water quality testing, rating-curve updates, telemetry, data sharing, and a functioning basin data/MIS platform.
    - Environmental flows should be framed around seasonal variability, downstream livelihoods, biodiversity, wetlands, fisheries, reservoir operation, and water-quality outcomes—not only minimum releases. The prominence of pollution, sedimentation and nutrient loading in the group analyses indicates a clear methodological gap and demand: e-flow methods applied in the basin need to encompass water quality, not flow quantity and timing alone.
- Priority deliverables include a concise Omo-Gibe e-flow workplan, a data and monitoring gap assessment, draft indicators for pilot reaches, and agreed institutional roles for data sharing, coordination, validation, and follow-up modelling.

## 4. Gender and Youth Related Observations

The available participant list does not provide gender or age-disaggregated information, so gender and youth cannot be quantified from the attendance data alone. However, the workshop design created opportunities for inclusive participation by using facilitated breakout groups, problem-tree analysis, objective-tree analysis and group reporting. This format allowed participants from different institutional backgrounds to contribute to discussion on data needs, stakeholder roles, governance, pilot reaches and indicators.

## 5. Partnerships

The workshop strengthened partnerships among IWMI, Ethiopian government agencies, universities, engineering institutions, basin and hydrology specialists, and civil-society actors concerned with water resources, river health and livelihoods. Participants included representatives from the Ministry of Water and Energy, Addis Ababa University, Arba Minch University, Addis Ababa Science and Technology University, Haramaya University, Ethiopian Engineering Corporation, Ethiopian Meteorology Institute, Water Witness and independent hydrology specialists. The engagement also linked the Omo-Gibe work to wider CGIAR Multifunctional Landscapes priorities and to experience from the Nile Basin Initiative. Government interest in taking the results forward was expressed explicitly at the workshop close, with the Ministry of Water and Energy signalling demand for policy briefs arising from the environmental flows work in Ethiopia. These partnerships are important because environmental flow assessment requires hydrological data, ecological interpretation, social and livelihood knowledge, institutional coordination and policy uptake. Future engagement should formalize collaboration around data sharing, pilot reach selection, technical review, capacity strengthening and communication of environmental flow results to planning and management institutions.

## 6. Recommendations

A follow-up co-design workshop will be organized to jointly shape an environmental flow approach for Omo-Gibe basin. The workshop will introduce a hydrological flow model, discuss available data and assumptions, and identify practical ways to address data gaps through field measurements, local knowledge and community observations. It will also consider how water-quality objectives can be incorporated into the environmental flow method applied in the basin, given the pollution and sedimentation pressures identified by stakeholders. Stakeholders will be meaningfully engaged in selecting the pilot river reaches, preliminary indicators and identifying practical next steps for environmental flow assessment in the basin. The assessment should avoid framing environmental flows only as minimum releases; instead it should link flow requirements to ecosystem functions, water quality, livelihoods and water management trade-offs.

Building on the challenges identified during the breakout sessions and the lessons learned outlined above, the following recommendations are proposed to guide follow-up work in the Omo-Gibe Basin:

- **Strengthen basin governance and coordination**: Establish or reinforce an institutional platform bringing together the Ministry of Water and Energy, regional universities, engineering institutions and civil society to improve communication, enforcement and timely decision-making on dam operation and water allocation.

- **Invest in data and monitoring systems**: Develop a basin-wide data monitoring strategy, expand station coverage, adopt telemetric technology, and establish a functioning Management Information System (MIS) to close hydrological, meteorological and water-quality data gaps identified by the breakout groups.
- **Advance digital-twin development for the basin**: Build on the improved monitoring and data systems above to progress the planned digital-twin work for the Omo-Gibe Basin, linking hydrological, reservoir-operation and water-quality data streams into a shared modelling platform that can support scenario testing, e-flow assessment and stakeholder decision-making.
- **Advance an environmental flow policy and framework**: Develop basin-specific policy, guidelines and an institutional platform for environmental flows, ensuring flow requirements are linked to seasonal variability, ecosystem services, downstream livelihoods and reservoir operation rather than treated only as minimum releases.
- **Address water quality and catchment degradation**: Prioritize soil and water conservation, nature-based solutions, treatment infrastructure and stronger enforcement to reduce sedimentation, pollution and land-use pressures affecting the basin.
- **Develop environmental flow methods that encompass water quality**: Building on the pollution, sedimentation and nutrient concerns raised throughout the workshop, develop and test assessment approaches that link water-quality objectives to flow requirements, so that e-flow recommendations for the Omo-Gibe address the quantity, timing and quality of flows together. This responds to a demand articulated by basin stakeholders and would be transferable to other data-scarce, development-pressured basins.
- **Strengthen climate resilience and early warning**: Improve forecasting models, communication channels and reservoir management to reduce the impacts of floods and droughts, and support climate-smart agriculture and reforestation in affected catchments.
- **Integrate livelihoods and ecosystem outcomes**: Ensure that pilot reach selection, indicator development and follow-up modelling explicitly account for downstream livelihoods, biodiversity, wetlands and fisheries alongside hydropower and irrigation objectives.
- **Deepen partnerships and capacity building**: Formalize collaboration among IWMI, government agencies, academic institutions and civil-society partners on data sharing, technical review and capacity strengthening, drawing on lessons from the Nile Basin Initiative e-flows framework.

# Annexes

## Annex A. Workshop Agenda

**Workshop: Towards Sustaining Healthy Flows and Functions in the Omo-Gibe Basin**
**Date: 14 May 2026** **Venue: ILRI Campus, Addis Ababa**

| Time | Session | Speakers & Objectives |
|---|---|---|
| **08:30–09:00** | **Registration & Coffee** | |
| **09:00–10:00** | **Opening & Welcome** | **Speakers:** Dr. Abdulkarim Seid, IWMI<br>Dr. John Simaika, IWMI<br><br>• Welcome<br>• Introducing IWMI<br>• Workshop objectives |
| **10:00–10:45** | **What Environmental Flows are and their importance to sustainable development** | **Speaker:** Dr. Matthew McCartney, IWMI |
| **10:45–11:15** | **Group picture & Coffee / Tea Break** | |
| **11:15–11:30** | **Experience from Nile Basin Initiative** | **Speaker:** Dr. Abdulkarim Seid, IWMI |
| **11:30-12:00** | **Omo-Gibe River Basin Context** | **Speaker:** Dr. Demelash W. Goshime, Arba Minch University |
| **12:00–13:30** | **Breakout groups: Data availability, Stakeholders, Use Cases, Governance, Data needs, Capacity needs, Pilot Reaches and Indicators** | **Facilitator:** Dr. John Simaika, IWMI; all IWMI staff |
| **13:30–14:30** | **Lunch Break** | |
| **14:30–15:45** | **Synthesis and Way Forward** | **Facilitator:** Dr. Alemseged Haile<br><br>• Presentation of group outputs (all)<br>• Next steps - Dr. John Simaika, IWMI;<br>• Closing words – Dr. Alemseged Haile, IWMI; Dr. Michael Mehari, MoWE |
| **15:45–16:00** | **Coffee / Tea Break & END OF WORKSHOP** | |

# Annex B. Participant List

| Name | Affiliation |
|---|---|
| Andualem Mekonen | Addis Ababa University |
| Ayele Atlaw Meechan | Ministry of Water and Energy |
| Bahru Mekuria | Addis Ababa Science and Technology University (AASTU) |
| Bier Alemayehu | Ministry of Water and Energy |
| Birtukan Abebe | Haramaya University |
| Bizuneh Asfaw | Ministry of Water and Energy |
| Demelash Wondimagegnehu | Arba Minch University |
| Ermias Alemu | Ethiopian Engineering Corporation (EEC) |
| Esayas Samuel | Water Witness |
| Esayas W/Mariam | Ethiopian Engineering Corporation (EEC) |
| Getahun Kebede | Addis Ababa Science and Technology University (AASTU) |
| Habtamu Mulat | Ethiopian Engineering Corporation |
| Habtemariam Tilahun | Ministry of Water and Energy |
| Mamo Kassegn | Addis Ababa University |
| Melkamu Kifetew | Freelancer |
| Meron Tesfaye | Ministry of Water and Energy |
| Michael Mehari | Ministry of Water and Energy |
| Mintamir Ferede | Arba Minch Water Technology Institute (AWTI) |
| Mulugeta Genanu | Addis Ababa University / Ethiopian Disaster Risk Management Commission |
| Shemsu Mubarak | Ethiopian Meteorology Institute |
| Shewangizaw Amare | Addis Ababa University |
| Surafel Dawit | Ministry of Water and Energy |
| Surafel Mamo | Freelancer |
| Tadele Tesfaye | Ministry of Water and Energy |
| Wallelgn Jene | Ethiopian Engineering Corporation |
| Yirgalem Esuneh | Ministry of Water and Energy |

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To learn more about the Multifunctional Landscapes Science program, please visit https://www.cgiar.org/cgiar-research portfolio-2025-2030/multifunctional-landscapes

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