

Spotlight on Ethiopia
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IWMI in Ethiopia





Photo: Petterik Wiggers

Our Vision

A water-secure world

About IWMI

The International Water Management Institute (IWMI) is a non-profit, scientific research organization focusing on the sustainable use of water and land resources in developing countries. IWMI is a member of CGIAR, an international consortium of agricultural research centers.

Background

In 2002, IWMI proposed a presence in East Africa to the (then) Ministry of Water Resources (now the Ministry of Water and Energy), Ethiopia. This was welcomed and led to the signing of a memorandum of understanding (MOU) and the establishment of the IWMI East Africa and Nile Basin Office in 2003.

The IWMI East Africa and Nile Basin Office is part of the CGIAR campus in Addis Ababa and works closely with

the other nine CGIAR centers represented on-site, on their various global research-for-development programs.

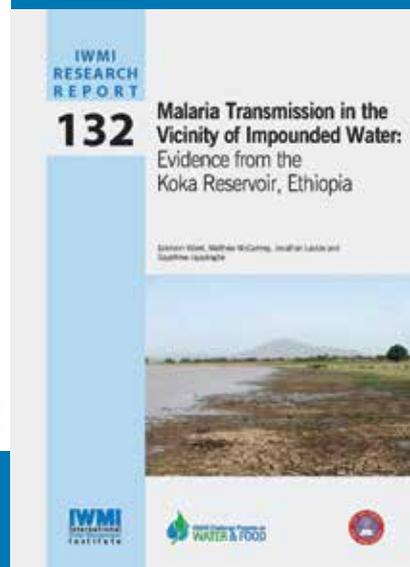
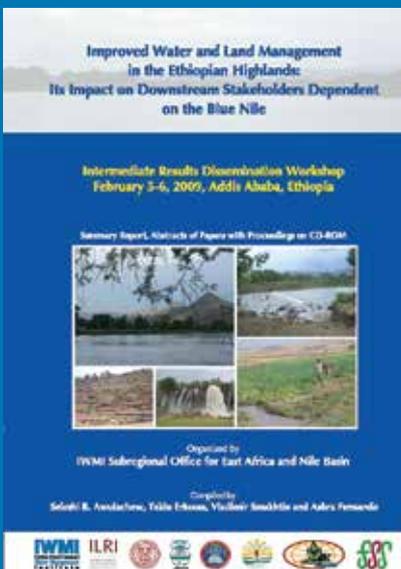
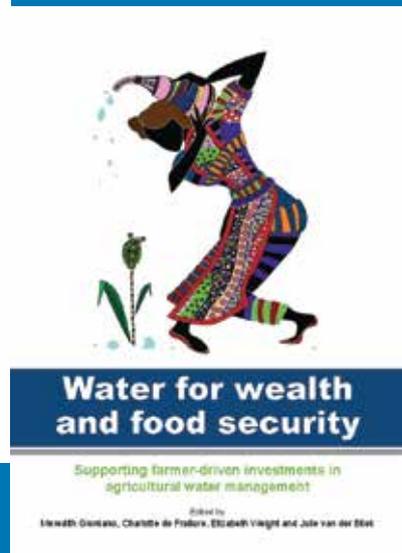
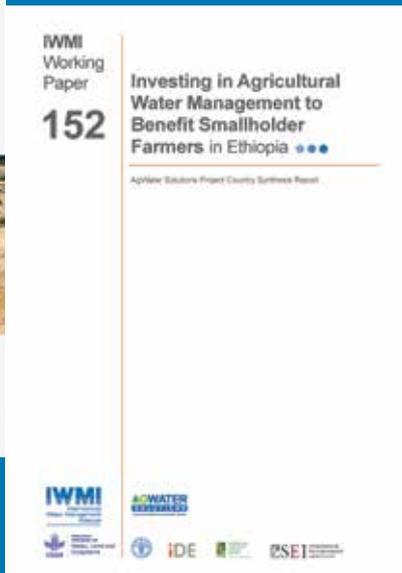
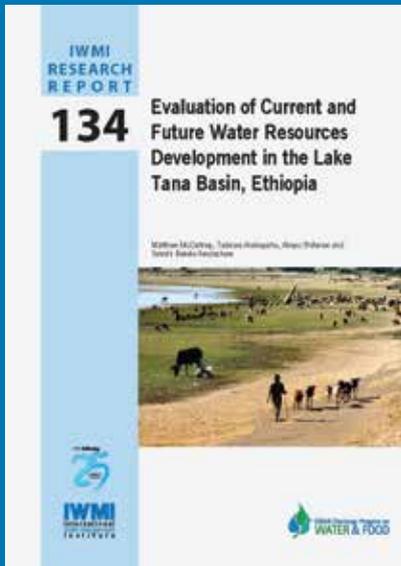
Our staff

IWMI has just over 345 staff members globally, 27 of whom are based in Ethiopia, including 8 national positions. They work in areas such as scientific leadership, technical support, knowledge management and communication, accounting and finance, human resources and administration. Between 2005 and 2013, IWMI supported 13 PhD and 125 MSc students from Ethiopia, financially, academically and, in some instances, in both these areas. Through this approach, IWMI provides significant opportunities for career advancement. The Institute also contributes to the national economy through its local procurement and purchasing policies.

IWMI research in Ethiopia

- Remote sensing and mapping
- Water storage
- Improving agricultural water management (AWM)
- Enhancing smallholder incomes
- Climate change and adaptation
- Landscapes and ecosystems for resilient rural livelihoods

IWMI publications on Ethiopia



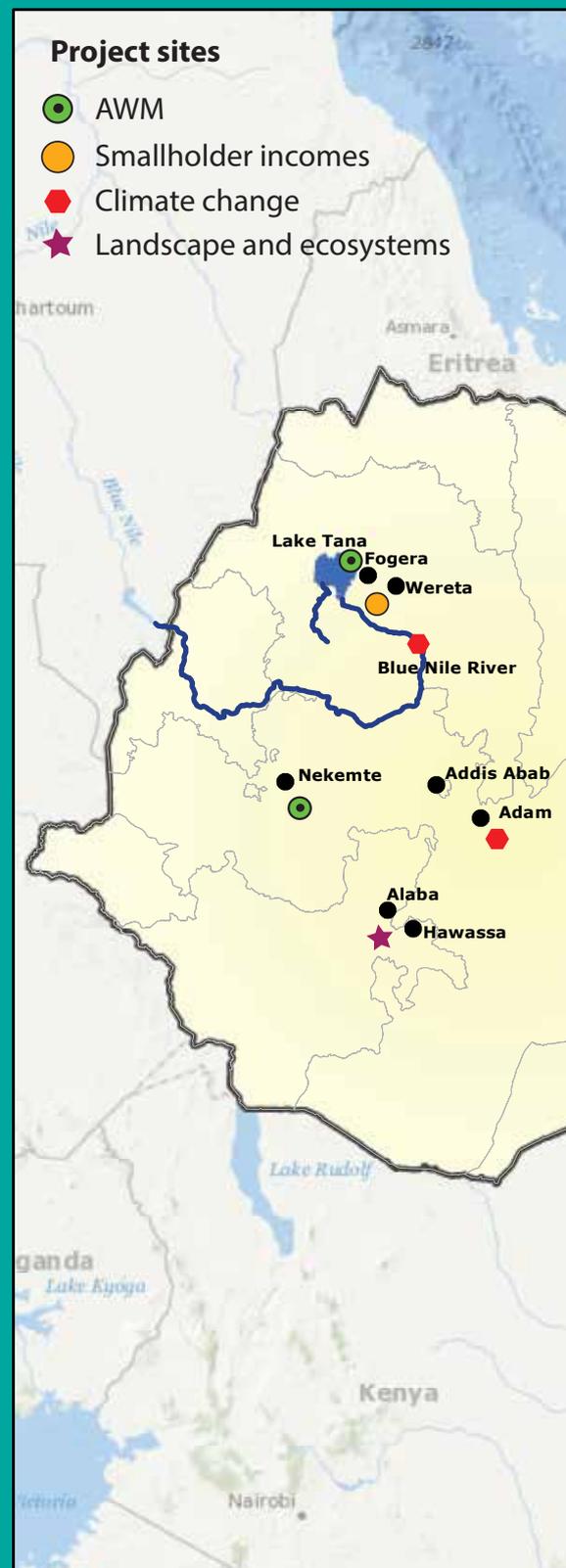
IWMI research in Ethiopia

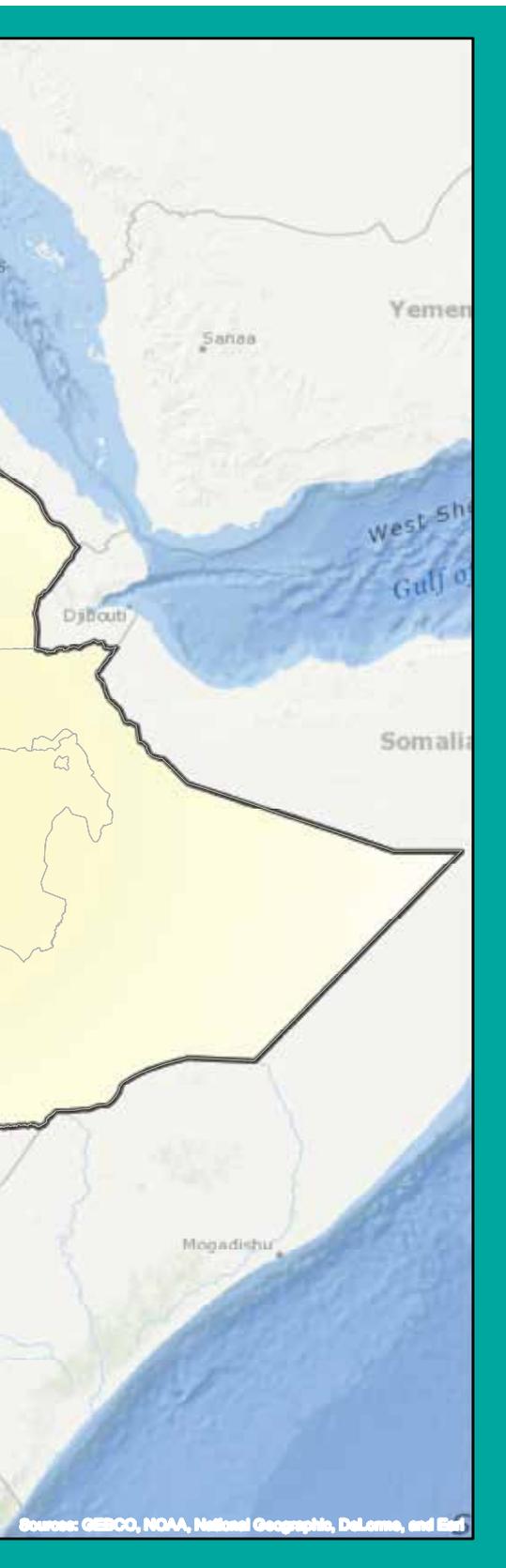
Improving agricultural water management (AWM)

The majority of farmers in Ethiopia depend on subsistence, rain-fed agriculture for their livelihoods. Yet, this rainfall is often highly erratic and there are few alternative, low-cost water sources available. This has resulted in low productivity, less profit and significant food insecurity. In response, IWMI's research focuses on raising crop yields per hectare of land. Local opportunities, such as businesses for hiring small irrigation pumps and the installation of rainwater harvesting ponds, are studied for their potential contribution. IWMI has provided policymakers, farmers and development practitioners with recommendations to improve access to investment in irrigation equipment, borehole drilling and motorized water pumps. The Institute is also helping to train mechanics in rural garages on the repair and maintenance of irrigation pumps to ensure that farmer investments in these pumps are more sustainable in the long-term. To ensure these solutions are as effective as possible, IWMI has also developed detailed maps that define areas which would be most responsive to specific AWM practices.

Enhancing smallholder incomes

IWMI's research shows that irrigation and improved market opportunities can help to advance Ethiopia's agricultural development and improve farmers' incomes. Research in the Lake Tana Basin revealed that, on average, household incomes of those that practiced small-scale irrigation were 27% higher than those that did not. There is considerable potential to expand the use of irrigation among other Ethiopian farmers. IWMI takes a holistic approach to agriculture by also looking at the production, processing and sale of agricultural products, in collaboration with partners. Farmers are brought together with marketers and processors in IWMI-led workshops to discuss challenges and build new strategies for mutually beneficial collaboration.





Climate change and adaptation

IWMI's research plays a central role in efforts to reduce Ethiopia's vulnerability to climate change, and help communities adapt to these new challenges. Independently, it has been estimated that adaptation strategies could reduce losses as a result of climate change by as much as 50%. IWMI's multi-disciplinary research teams are assessing the potential effects of climate change on water, agriculture, energy, infrastructure, tourism, forestry, ecosystem services and health. For example, IWMI's researchers are using 'state-of-the-art' rainfall and temperature change predictions in detailed climate change models. These are being used to predict, more accurately, the impacts of climate change on water resources throughout the Nile River Basin. These models also include the projected demand for water from different sectors, such as irrigation, hydropower, domestic and industrial use, and other societal needs. IWMI researchers have also developed mobile phone applications to provide Ethiopian farmers with accurate, up-to-date water-related advice in local languages, which are specific to their individual fields. This advice is based on regularly updated satellite imagery, and other weather, hydrological and crop growth data.

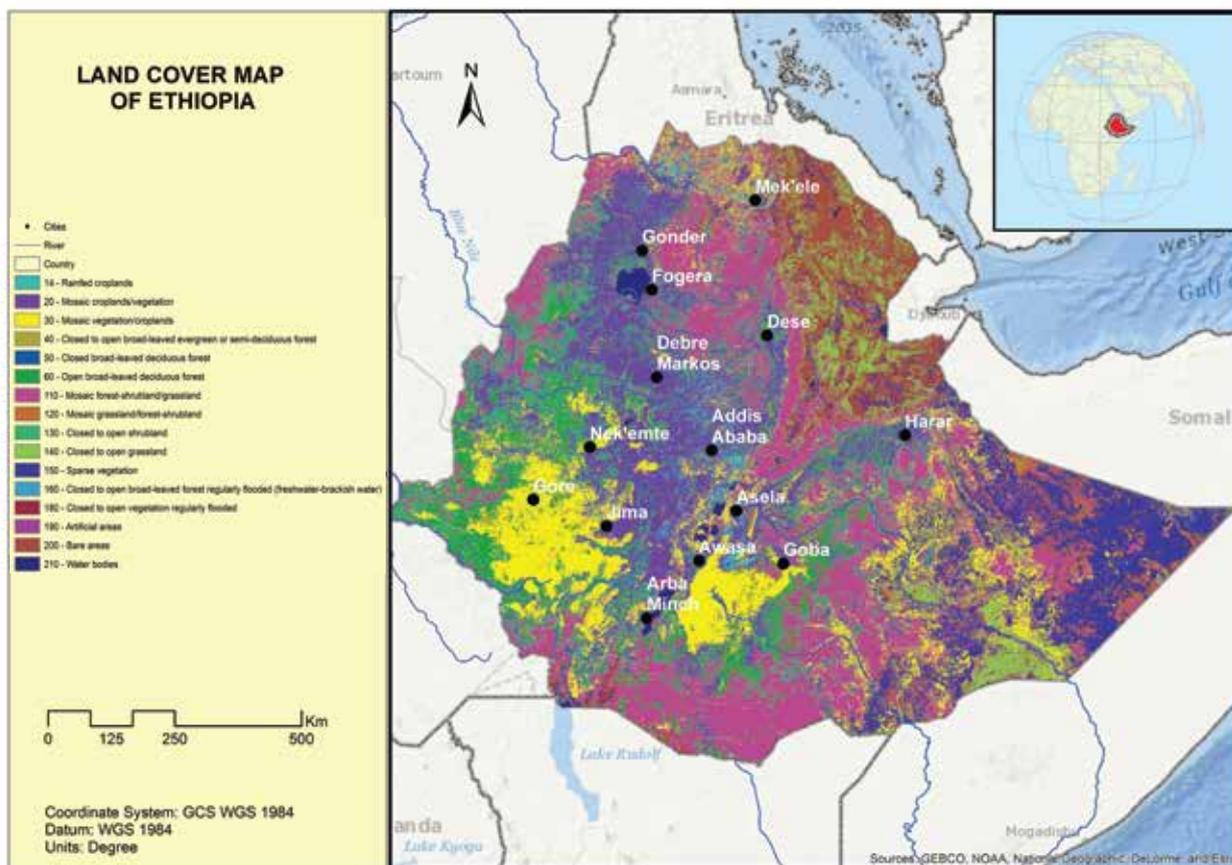


Landscapes and ecosystems for resilient rural livelihoods

In IWMI's research, a key strategy to enhance the resilience of Ethiopian rural livelihoods is effective rainwater management. This is crucial to the welfare of the 14 million people living in the Ethiopian Highlands catchment of the Blue Nile River Basin. IWMI's research is examining ways to improve soils that are degraded, or threatened with degradation, by enhancing the amount of carbon contained in the soil. This can be a significant factor influencing fertility and moisture retention. Researchers are investigating how different ecosystems in Ethiopia, and the goods and services they provide, can be enhanced and protected as a long-term poverty alleviation strategy.

Remote sensing and mapping

IWMI's expertise in remote sensing and geographic information systems (GIS) allows it to make full use of today's satellite technologies. Expert assessments of land-use change and geophysical phenomena are a vital tool for a range of research projects. Resolutions of up to 10 m are now possible, giving GIS specialists unparalleled detail in mapping and analysis.



Map of Ethiopia overlaid with land cover data.

Water storage

Ethiopian farmers are heavily reliant on rain-fed subsistence agriculture. Inadequate water storage leaves many of them vulnerable to the vagaries of climate. For agriculture, there are a wide range of storage options, each with particular strengths and weaknesses. These include not just built structures, but also ways to enhance soil moisture and natural ecosystems, such as wetlands. Because of the uncertainty associated with climate change, planners need to focus on flexibility in storage systems and give careful consideration to the sustainability, effectiveness and suitability of different types, and combinations, of storage. There is an urgent need for appropriate investments in water storage to increase agricultural productivity and build the resilience of communities, by ensuring that farmers have options for adjusting to climate change. IWMI research helps to identify the most effective and sustainable solutions for a variety of water storage challenges.

Our role

IWMI works in partnership with governments, civil society and the private sector to develop scalable agricultural water management solutions that have a real impact on poverty reduction, food security and ecosystem health. IWMI researchers have been actively engaged in achieving this goal in Ethiopia, and elsewhere in East Africa, for over 10 years. We work directly with a broad spectrum of people and organizations, from rural farmers to national policymakers. This is because we recognize that in order to really make a difference, our efforts are most effective when we partner with others.

IWMI is a:

- think tank driving innovative research and ideas for solutions;
- provider of science-based products and tools; and
- facilitator of learning, strengthening capacity and achieving uptake of research findings.

Careful consideration of how the outputs of IWMI's research activities can be easily communicated, understood, taken up and acted on, forms a core component of our work. Our approach to impact puts people – research users and the ultimate beneficiaries – at the heart of research for development efforts. We communicate and foster informed decision-making at all levels through workshops, capacity building, involving partners in the research process, and participation in national and regional events and forums. We also share our research findings through research reports, working papers, policy briefs, issue briefs and online through websites and social media.

The power of partnerships

IWMI's close relationships with its local partners enables it to undertake research that is tailored to local solutions. This helps generate timely policy advice, and produces recommendations for new tools and practices that can help deliver sustainable growth. For instance, unique insights on opportunities and constraints related to more efficient implementation and development of the country's Sustainable Land Management (SLM) work have been provided by IWMI, together with other national and international agricultural research systems through the Nile Basin Development Challenge. By working with our range of partners, there will be a long-lasting influence on developing these programs in the future through the evidence generated and shared with, for example, woreda officials, extension agents, and ministers and their advisors at a national level. IWMI staff contribute to advisory panels such as the Ministry of Agriculture Small-scale Irrigation Capacity Building Task Force.

CGIAR Research Program on Water, Land and Ecosystems

The CGIAR Research Program on Water, Land and Ecosystems (WLE) combines the resources of 11 CGIAR centers, the Food and Agriculture Organization of the United Nations (FAO) and numerous national, regional and international partners to provide an integrated approach to natural resource management research. WLE promotes a new approach to sustainable intensification in which a healthy functioning ecosystem is seen as a prerequisite to agricultural development, resilience of food systems and human well-being.

WLE works in four priority regions (West Africa, East Africa, Southern Asia and the Mekong). Work in these regions will focus on strengthening decision-making around large-scale investments in water and land resources. In East Africa, WLE will work specifically in the Nile River Basin, including Ethiopia, building on work that its partners have carried out in the region. WLE aims to bring a sustainability agenda to existing and evolving processes and investments, and help to play a role in achieving green, resilient and equitable growth in Ethiopia and other countries of the Nile River Basin.



Photo: Matthew McCartney/IWMI

IWMI partners in Ethiopia

- Addis Ababa University
- Amhara Regional Agricultural Research Institute
- Arba Minch University
- Bahir Dar University
- Dilla University
- Eastern Nile Technical Regional Office (ENTRO) of the Nile Basin Initiative
- Ethiopian Economic Association
- Ethiopian Rainwater Harvesting Association
- Forum for Social Studies
- Geospatial Consultants Pvt. Ltd.
- Haramaya University
- Ministry of Agriculture
- Ministry of Water and Energy
- Wollega University (also known as Nekemte University)
- Oromia Agricultural Research Institute
- Wollo University
- Farm Africa
- Agricultural Transformation Agency

Front cover photo: Sean Sprague/SpraguePhoto.com

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