



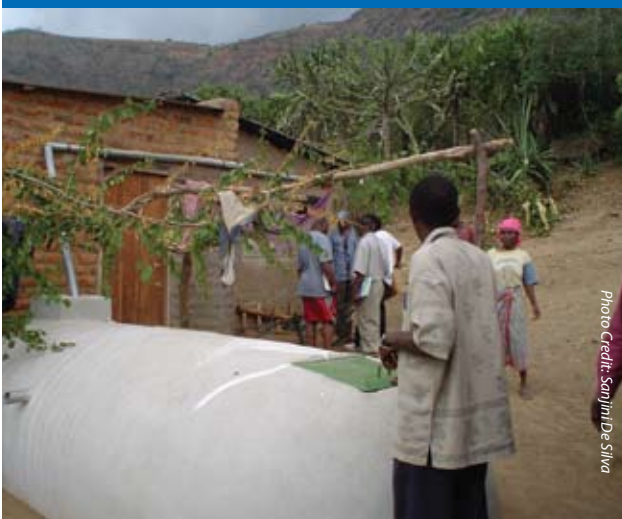
**Water for food, livelihoods and environment**

# Big questions

**How much water do we have now, and how much will we need?**

## **IWMI Research Theme 1**

**Water Availability and Access:** Understanding water availability and access, climate change, water and agriculture, and adaptive management strategies and trade-offs.



**How do we use water more productively to meet the increasing demand for food and energy?**

## **IWMI Research Theme 2**

**Productive Water Use:** Revitalizing irrigation, managing water in rainfed systems and sustainable use of wetlands.

## How can we turn wastewater into an asset and manage water quality to minimize risks to agriculture, human health and the environment?

### IWMI Research Theme 3

Water Quality, Health and Environment: Managing impacts of agricultural and urban land use on water quality, increasing food production, and reducing poverty.



## How do we improve governance to ensure equitable, productive and sustainable use of water resources for all?

### IWMI Research Theme 4

Water and Society: Reforming water governance, building evidence-based arguments for change, and assessing the impacts of research and water interventions.

# Impact

## Bringing abandoned farmland back into production

Soil quality in Northeast Thailand has suffered badly from rapid land use change and agricultural intensification over the last several decades. IWMI research is helping to reverse this trend and renew degraded soils. By mixing bentonite clay into their soil, farmers are able to get higher yields and higher prices. Estimates show that some 200 farmers in Northeast Thailand and 400 in Cambodia have adopted the technology and a further 20,000 farmers now know about this new technique.

## Resolving conflict between water users

In the tropical coastal deltas of Southeast Asia, the rapid development of aquaculture has sometimes resulted in violent conflicts between rice farmers and commercial shrimp producers. IWMI researchers, together with colleagues from the International Rice Research Institute (IRRI), Can Tho and Nong Lam universities, developed a hydraulic and salinity model for operating sluice gates to control water salinity. There have been no conflicts between the two water user groups since provincial authorities adopted the management recommendations and there has been a threefold increase in the incomes of poor people in communities living on acid sulphate soil areas.



## Improving governance and transparency

Stakeholders affected by dams everywhere are concerned with management transparency, communication between stakeholder groups, and the need for good research to inform the dialogue process. The Akosombo Dam in Ghana is no exception. IWMI and the Volta Basin Development Foundation are acting as a co-secretariat for the National Dialogue on Dams and Development in Ghana. With financial assistance from Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ), the Secretariat is facilitating this multi-stakeholder



dialogue process and bringing together stakeholders who would otherwise have either little opportunity to exchange views or who would face institutional barriers. GTZ is replicating the model elsewhere and will support a third phase of the process.



## Influencing policy, reducing costs and conserving groundwater

Depleted aquifers and a bankrupt electricity industry were a problem in Gujarat, India. Government agencies and international lenders argued for a return to metered charges, but farmers opposed the move through energetic political mobilization. IWMI intervened with a suggestion to separate power lines supplying electricity to well pumps from power lines supplying other users. The government invested US\$ 250 million in the scheme which has helped farmers increase their incomes and reduce groundwater extraction and electricity use by as much as 50%.



## Shaping the global water agenda

Rapid urbanization is driving an increasing demand for untreated wastewater in agriculture. Wastewater can be used to water crops, if the health risks are properly managed. IWMI, the International Development Research Center (IDRC) and World Health Organization (WHO) invited experts from 30 international, regional and national organizations based in 17 countries, including the Gates and Google Foundations, to Accra to discuss risk reduction and wastewater governance. The Accra Consensus proposed a multi-disciplinary agenda for action to improve health and livelihood outcomes and facilitate adoption of the 2006 World Health Organization guidelines for the safe use of wastewater.

## Expertise

We are a regional team of professionals and experts who can bring to bear decades of knowledge and experience. IWMI's current knowledge domains and areas of expertise include:

- Ecology
- Economics
- Irrigation and Agricultural Engineering
- Remote Sensing and Spatial Analysis
- Soil Science and Agronomy
- Social Sciences
- Geography
- Water Quality and Health
- Water Resources Management



## Tools and Resources

Access our **African Transboundary Water Law Database**; a searchable database of more than 150 different treaties, amendments and protocols covering the use of Africa's transboundary waters.

Assess environmental flows using our **Global Environmental Flow Calculator**.

Use our **Climate Atlas Web Query Service** - online climate summaries for user-specified locations. Irrigation and agricultural planners can get rapid access to accurate data on climate and moisture availability for agriculture with our **World Water and Climate Atlas**.

Develop scenarios with **WATERSIM** and probe key links between water, food security and the environment at global, national and basin scales.

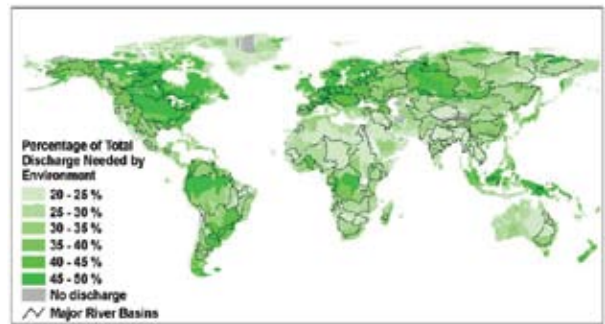
Use **PODIUM**, an interactive policy planning and scenario analysis tool, to explore trade-offs and future demands on water resources on a national scale.

Search our **Virtual Library**. The results of over 20 years of applied research are freely available to individuals, government agencies, NGOs and private sector corporations seeking solutions to water problems.

Use our **Online Irrigation Benchmarking Service** to compare the performance of your irrigation scheme with similar schemes worldwide.

View our maps on **Global Water Scarcity and Global Environmental Water Scarcity**.

## Environmental Flows



IWMI's environmental water assessments estimate the total volume of water that should be allocated to each river over the long term to maintain environmental functions. By comparing total water use with the total amount of water available and environmental water needs, river basins are classified as a) environmentally safe, b) environmentally water-stressed, and c) environmentally water-scarce.

Visit our **Drought Information Center** for facts, figures and tools for drought management.

Use our OASIS model to simulate irrigation interventions in medium to large-scale irrigation systems.

IWMI and the International Crops Research Institute for the Semi-Arid Tropics co-host the South Africa node of **ReSAKSS - Regional Strategic Analysis and Knowledge Support System**.

IWMI is the Asia-Pacific Water Forum Knowledge Hub for Irrigation Service Reform.

*Inquire about other tools and resources.*  
[www.iwmi.cgiar.org/Tools\\_And\\_Resources](http://www.iwmi.cgiar.org/Tools_And_Resources)

## Satellite Sensor Based Global Irrigated Area Map



IWMI's Global Map of Irrigated Areas shows the extent of land and water resources committed to irrigated agriculture across the world. It also distinguishes types of irrigated areas and shows distinct classes of irrigation. It is a useful tool when planning interventions to make agriculture more sustainable and to manage environmental resources better.

# Our Vision - Water for a food-secure world

## About IWMI

IWMI is an international, non-profit organization doing research to improve the management of land and water resources for food, livelihoods and the environment. IWMI is one of 15 research centers supported by members of the Consultative Group on International Agricultural Research (CGIAR).

## Our Mission

To improve the management of land and water resources for food, livelihoods and the environment.

## Our Role

IWMI is a partner with global, national and regional organizations shaping the global water agenda. IWMI's research and field activities help create new knowledge and provide the evidence scientists and water management experts need to make policy recommendations to local, national and international decision-makers. IWMI offers a wide range of tools and resources, a huge knowledge base on past and ongoing research, and a worldwide network of water professionals to partners and clients seeking lasting solutions to water problems.

## IWMI's guiding principles

- Poverty alleviation and gender equity
- Improving and safeguarding access to water as a pathway to poverty reduction
- Integrated Water Resources Management
- Understanding how agriculture interacts with other ecosystems
- Providing scientific evidence for water policymakers and water managers



"Water scarcity is the defining issue of the 21st century. How wisely we use water will affect global food security, our livelihoods, our health, and the quality of our environment. This is IWMI's research agenda.

IWMI researchers worldwide are working with partners and clients to develop tools, interventions and strategies to help people and organizations meet the challenges of water scarcity, sanitation, poverty, food security, climate change, and the water/energy nexus."

## Colin Chartres

Director General  
International Water Management Institute

Cover Photo: MARKET GARDENING IN THE VICINITY OF TIMBUKTU, Mali (N 16°48' W 3°04' © Yann Arthus-Bertrand/Earth from Above

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# Join us

Help us improve food security, the environment and the lives of poor people living in water-stressed areas of the world through better water and land management.

## Be a research partner!

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