

# UNDERSTANDING the ROLE of REMOTE SENSING and WATER ACCOUNTING in supporting AGRICULTURAL WATER MANAGEMENT in VIETNAM



## Research to enhance the management of water for agriculture and other uses, using remote sensing and water accounting approaches, with a case study in Vietnam.

In many low- and middle-income countries, *in situ* monitoring of water resources — such as river flows, groundwater levels, and irrigation use — is constrained by the high costs of infrastructure and technical expertise, particularly for groundwater. As a result, detailed, localised data that is essential for effective water management and decision-making is often lacking. While big data and remote sensing (RS) technologies offer solutions at broader, regional, or national scales, their usefulness for sub-basin and local water management remains poorly understood. This research project aims to address this gap by investigating how remote sensing data can supplement hydrological information and support water accounting and agricultural water management at local and sub-basin scales.

The primary goal of this project is to assess the potential of **freely available or low-cost remotely-sensed data** to provide timely, actionable hydrological information for agricultural water managers in low- and middle-income contexts. It will also explore how remotely-sensed data can be integrated into **water accounting tools** to enhance decision-making processes.

## RESEARCH PARTNERSHIP

This research is being undertaken by a multidisciplinary team of local and international researchers, combining expertise from ground and surface water remote sensing, agricultural management, water accounting, water governance, and stakeholder research-application research.

The research is led by a partnership of **International WaterCentre at Griffith University, Australia**, and **Institute of Water Resources Planning, Ministry of Agriculture and Environment, Vietnam**, and involved frequent engagement with government agencies, irrigation companies and academia.

Funding and support are being provided by the Australian Government's **Australian Centre for International Agricultural Research (ACIAR)**.

The project is due to complete in February 2026.

Additional information, and access to project outputs, will be available from the project website: [WATERCENTRE.ORG/AGRICULTURAL-WATER-MANAGEMENT-IN-SE-ASIA/](http://WATERCENTRE.ORG/AGRICULTURAL-WATER-MANAGEMENT-IN-SE-ASIA/)

## RESEARCH APPROACH

Specifically, this research aims to:

1. **Assess remotely-sensed information** relevant to sub-basin water management — focusing on water availability and use — while considering technical capacity, cost, and computing resources.
2. **Characterise decision-making processes** at sub-basin levels in agricultural contexts. This includes describing governance and management structures, identifying key stakeholders, mapping decision-making timelines and locations through case studies in Southeast Asia, and developing a typology of management regimes and water data users.
3. **Pilot a localised water accounting tool** that incorporates selected remote sensing products for sub-basin water managers in rural Vietnam. The pilot will test the tool's usability, accessibility, and potential to support improved decision-making within current and emerging management frameworks.
4. **Evaluate the feasibility and opportunities** for scaling up the application of RS-based water accounting tools in Vietnam and other regions facing similar data and management challenges

## ROLE OF STAKEHOLDERS IN THE RESEARCH

This project takes a user-centred approach, prioritising the needs and perspectives of sub-basin water managers while addressing key gaps in how they access and utilize remote sensing products to support sustainable agricultural water management, particularly in contexts where field-based data is limited and costs are prohibitive.

The research will assess the applicability and relevance of remote sensing products and tools across various spatial and temporal scales, examine the relationships between national and regional water management agencies and local sub-basin operators, and recognize the limitations of RS data— while identifying practical products and strategic investments that can improve decision-making at sub-basin levels.

To understand the needs of sub-basin water management, interviews are being undertaken with stakeholders. These stakeholders are being identified because of their current professional role in water management – groundwater or irrigation/surface water. These stakeholders in irrigation operators, irrigation/surface water managers in any level of government, and groundwater managers in any level of government.

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## ACIAR

**ACIAR's Water Program: Improving agricultural water management through innovative technical and policy approaches.**

The Water Program addresses the challenge of efficient, sustainable water use to support agricultural production in a context of increasingly uncertain climate, competition from other sectors and declining water quality. The program works to improve agricultural water management through innovative technical and policy approaches under three main themes:

- improving access to, and outcomes from, irrigation
- sustainable use of groundwater in agriculture
- risks and opportunities for safe productive use of low-quality water.



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