

# Climate resilient and adaptive water allocation in Pakistan



## Key details

### Location

Pakistan

### Duration

Start Nov 2024

End Jun 2029

### Budget

AUD 3,000,001

### Commissioned organisation

Commonwealth Scientific and Industrial  
Research Organisation

### Partners

University of Agriculture, Faisalabad; Pakistan Council for Research on Water Resources; South Asian Conservation Agriculture Network; Indus River System Authority

### Project leader

Dr Mobin-ud-Din Ahmad

### ACIAR Research Program Manager

Dr Neil Lazarow

### Program

Water

### Project code

WAC/2022/152



## Research need

**This project aims to improve social and economic outcomes for farming communities in Pakistan, including increased productivity and reduced vulnerability to climate change, by improving water planning and management at multiple levels (i.e. provincial, canal command, and village/farm).**

Pakistan operates the world's largest contiguous irrigation system, the Indus Basin Irrigation System, which provides water for agricultural, domestic and industrial uses across four provinces (Punjab, Sindh, Khyber Pakhtunkhwa, and Balochistan), serving more than 80% of the country's overall population. This system is mainly dependent on surface water supplies from 6 major tributaries that rise in the mountainous region of the upper Indus Basin.

Pakistan has experienced a substantial surge in population – nearly a 7-fold increase since independence in 1947, and this has significantly increased demand on agrifood production systems. Irrigated agriculture accounts for 95% of surface water

supply in Pakistan, and as cropping intensification has increased to meet demand, the gap between water supply and irrigation demands is increasing. In this environment, secure access to irrigation water becomes crucial for smallholder farmers to increase productivity and manage the risk of crop failures.

Addressing the challenges of fair and sustainable distribution of water requires interventions and innovations (from on-ground through to policy initiatives) at multiple levels – farm/village, canal command and provincial level.

- Farming communities are better informed on a range of water management options supported by water-wise initiatives and on anticipating and planning their irrigation for improved farm production.



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## Activities

- Work with national and provincial water agencies to enhance their use of decision support tools, specifically the Water Apportionment Accord Tool, which is being used successfully in Pakistan for pre-season (Kharif, Rabi) water allocation planning.
- Engage with local communities to understand the local context and practicalities, impediments to and appetite for trialling different water-wise options, including, off-farm and/or on-farm water storages.
- Technical and socio-economic activities, such as village-level water accounting studies, and surveys of community attitudes, current practices and capacity to adapt to change and adopt new technologies, will be undertaken to be able to assess the social and economic benefits of a more reliable irrigation water supply to different groups within local irrigation farming communities.
- All project activities are designed and will be implemented as capacity development activities with the ultimate goal of handover of products and delivering on outcomes.

## Outcomes

- Improved knowledge and understanding of the impacts of climate change on the flow regime and reliability of irrigation water supplies.
- Enhanced knowledge base and capacity for water allocation procedures and practices in Pakistan.
- Better informed water allocation decision-making for climate change adaptation and resilience and sustainable use of water resources.