Cost-effective, Fit-for-purpose Irrigation Modernization - ADB Experience

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1 - 7 Sept 2024 | ICC Sydney
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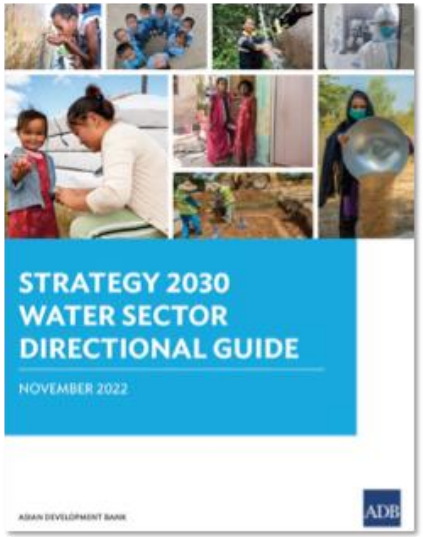
IRRIGATION AUSTRALIA
CONFERENCE AND EXHIBITION
2 - 4 September 2024 | ICC Sydney

ADB Water Sector Vision
- Advancing Water Secure and Resilient Asia-Pacific



Overview of Irrigation Modernization

Irrigation is essential for food security and rural livelihoods.

- Key Challenges in Current Irrigation Practices in Asia
  - Water scarcity and inefficient use of water
  - High operational costs and outdated infrastructure
  - Land degradation and climate change impacts
  - Lack of expertise and financing in developing countries
- Need for Modernization
  - Increase water use efficiency for resilience to climate change
  - Reduce operational and maintenance costs
  - Enable crop choice, and/or improve crop yields, water productivity, and farmer incomes in food security context

ADB Support to Irrigation Modernization

ADB has supported irrigation including modernization as key elements for water and food security

- Investment: During 2010 – 2023, $4,545 million investment (regular/ concessional loans, and grants)
  - Various instruments: policy-based loan, results-based loan, sector development program, sector loan, local currency lending
- Policy support/advisory:
  - Irrigation reform (governance, institution, irrigation pricing and asset management plan, etc.)
  - National irrigation strategy
  - Water accounting and productivity

Case Study 1: GEO Climate Smart Irrigation SDP

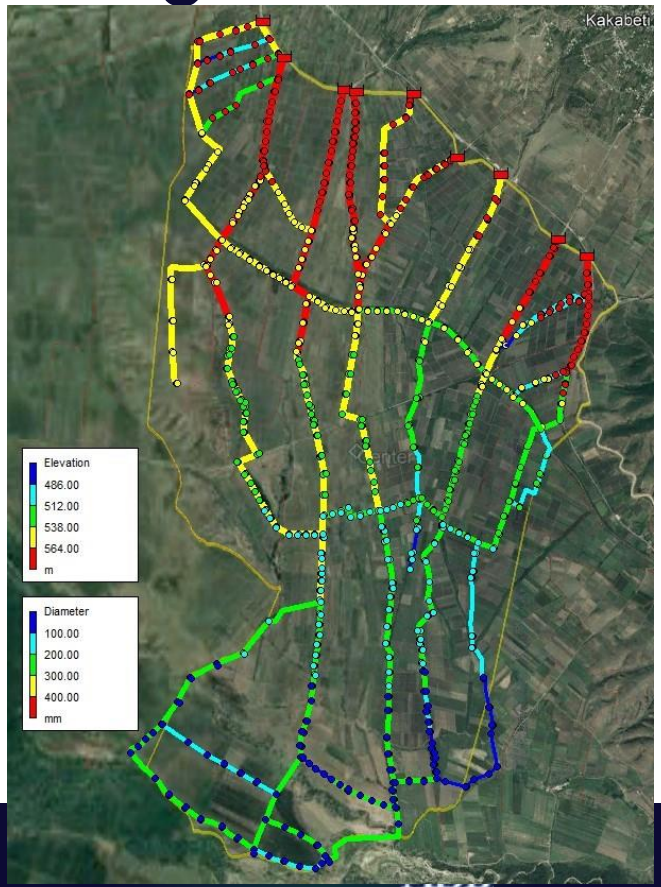
This is a sector development program, including a policy-based loan and a project loan with AFD cofinancing (total loan: $103 million, 2023-2028).

Output 1: Institutional, governance, management enhanced

Output 2: Irrigation Scheme modernized

Output 3: Agriculture production support

- Converting outdated open canal to pressurized pipe network (7,000 ha)
- SCADA



Case Study 2: Indonesia Integrated Participatory Development & Management of Irrigation Program

This is a result-based lending to support the government's Irrigation Improvement Program (2015-2025), with performance-based form of financing linking the disbursement of results ($500 million, 2017-2024)

Key Interventions/Achievements:

- 8 disbursement linked indicators (O&M)
- 4,500 WUAs and 88 irrigation commissions
- An irrigation asset management information system since Dec 2019
- 523,000 ha Rehabilitated/modernized

Case Study 3: PRC Ningxia Irrigated Agriculture and Water Conservation Demonstration

Expand water-saving irrigation and strengthen the local partnership model between enterprises and households ($70 million, 2013-2020)

Key Interventions/Achievements:

- New drip irrigation for 2,690 ha
- Increasing vine grape processing capacity by 15,000 tons (enterprise + households)
- WUAs establishment and operational
- 8,600 farmers trained
- Quality monitoring and control system for vineyards

Case Study 4: VIE Water Efficiency Improvement in Drought Affected Provinces Project

Strengthen climate resilient irrigation management and support efficient on-farm water management practices ($100 million, 2018-2028)

Key Interventions:

- Pressurized piped irrigation systems, serving 19,200 ha (8 schemes)
- High-level technology to assess water productivity
- Irrigation water allocation and delivery services, real-time decision support system for farmers
- Introducing water pricing to support improved O&M

Sprinkler Irrigation of Coffee near Krong Buk Ha,

Case Study 5: Policy and Advisory Support

- Irrigation reform (pricing, institution, governance, and management): e.g. China, Georgia, India, Indonesia, Nepal, Viet Nam, etc.
- National Irrigation Master Plan:
  e.g. Bhutan, Nepal
- Water accounting and productivity: Cambodia, India, Kazakhstan, Mongolia, Pakistan, Philippines, Sri Lanka, Viet Nam, etc.
  - Contribute to baseline assessment, scenario building, targets and indicators for project design, and monitoring and evaluation

ADB Support to Irrigation Modernization

Summary of Lessons Learned

- Involve farmers in planning, implementation, and O&M
- Enhance climate resilience of irrigation systems requires audit and calibration of all associated structures
- Integrate modern technologies with local knowledge
- Support policy reform, good governance, and empowerment of farmer organizations at the same time of modernizing key irrigation infrastructure
- Monitor and track performance and make necessary adjustments

ADB Support to Irrigation Modernization

Way Forward

- ADB as a climate bank
- Irrigation infrastructure is a key element for food systems transformation, one of ADB's priorities
- Upstream climate change study to inform the selection of future projects and adopt solutions resilient to climate change
- Focus on modernization rather than rehabilitation
- Support pricing reform and institutional strengthening for sustainable O&M
- Scale up innovative solutions of modernization