# JICA's Approach for Sustainable Irrigation Water Management

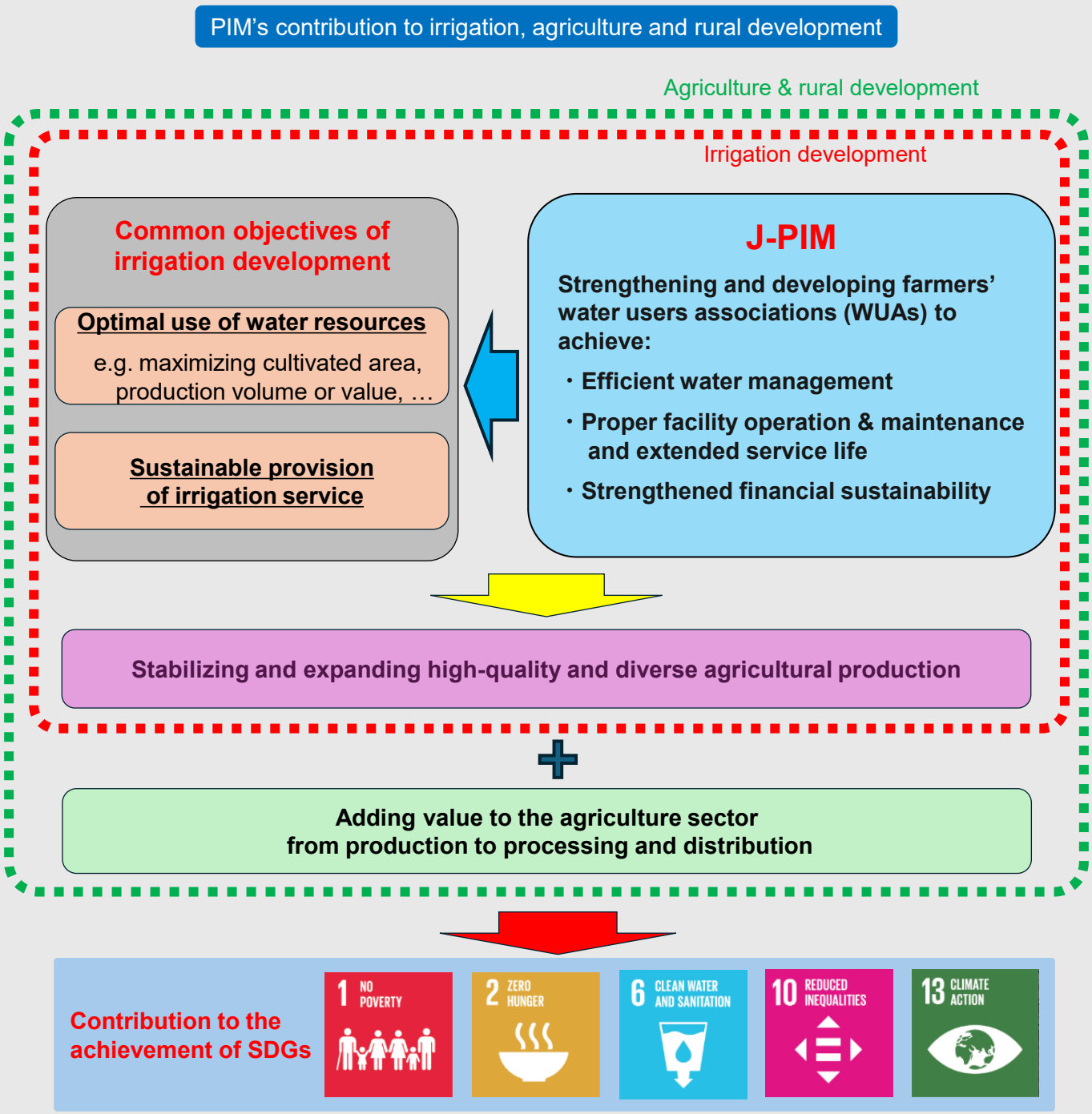
# (J-PIM)

Japan International Cooperation Agency
(2026)

## ■ Irrigation Development with Participatory Irrigation Management (PIM)

Irrigation Management Transfer (IMT) and Participatory Irrigation Management (PIM) initiatives are being advanced in many irrigation projects worldwide.

JICA, too, is implementing technical cooperation to improve irrigation water management in developing countries, which leverages Japan's successful participatory irrigation management expertise to achieve optimal water resource utilization and the sustainable provision of irrigation services in irrigation development.



## ■ Features of J-PIM

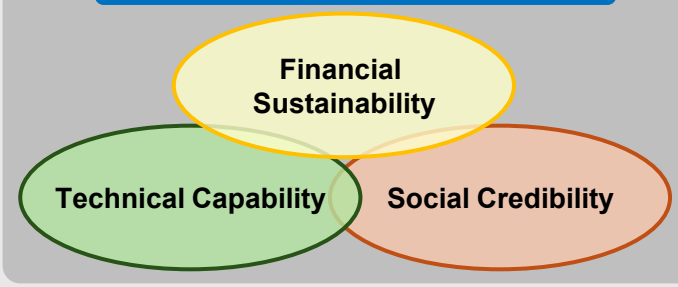
- ✓ Based on know-how from Japan's PIM system, transfer PIM expertise to government agencies while adapting it to local conditions.
- ✓ Strengthen local agencies and WUAs in model areas through cascade-style technology transfer.
- ✓ Institutionalize and disseminate PIM through a process of applying it in model areas and demonstrating its effectiveness.
- ✓ Facilitate farmer-led construction work of terminal facilities to foster ownership and extend facility lifespan.

**- Options -**

- ✓ Provide grant-aid for infrastructure development, purchase of equipment (e.g., construction machinery) for model irrigation schemes.
- ✓ Provide financial supports to expand nationwide and apply to large-scale schemes, collaborate with development partners.
- ✓ Implement market-oriented agricultural support measures in coordination.

| Functions required in WUAs | Means to achieve |
|---|---|
| **Organizational Trustworthiness** | • **Democratic decision-making**<br>• **Equitable water allocation planning**<br>• **Rapid resolution of complaint and dispute**<br>• **Strict enforcement of rules, including penalties** |
| **Stability and Reliability of Water Supply** | • **Water delivery according to the planned schedule**<br>• **Prompt response to malfunctions and failures** |
| **Adequacy of Water Charges** | • **Water fee < increased revenue by irrigation**<br>• **Eligible farmland = benefit-yielded area** |
| **Convenience of Payment Methods** | • **Commodity payment in kind**<br>• **Collection by Agricultural Cooperatives** |
| **Transparency of Accounting Rationality of Expenditures** | • **Budget and settlement approval procedures involving member farmers** |

**Efficient and sustainable WUAs**



■ **J-PIM Project at Rwanda for Water Management and Capacity Building (WAMCAB)**

**（Phase1：2019-24、Phase2：2025～）**

## WAMCAB Approach

- Strengthening Irrigation Water Users Organizations (IWUOs) by ensuring bottom-up hierarchy, accountability, and transparency
- Technical and financial capacity building of IWUOs
- Recruitment and capacity building of core technical and managerial personnels
- Strengthening collaboration and integrated operations between IWUOs and agricultural cooperatives
- Ensuring appropriate scale of IWUOs through mergers
- Fostering farmer ownership through farmer-participatory construction work
- Support from central and local governments

General Assembly for the establishment of Cyaruhogo IWUO

Nurseries preparation training (Rugende Scheme)

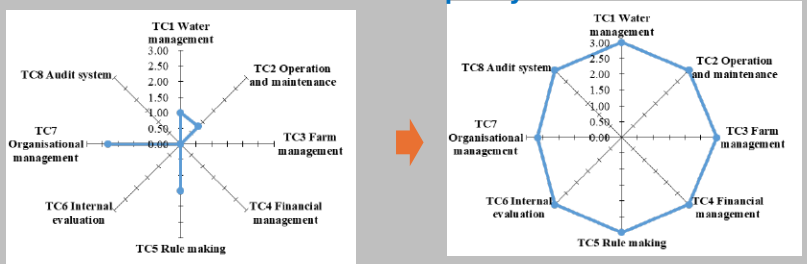
Community work for the construction of night storage (Nyabuyogera Site)

## 9 step of IWUO Management Model

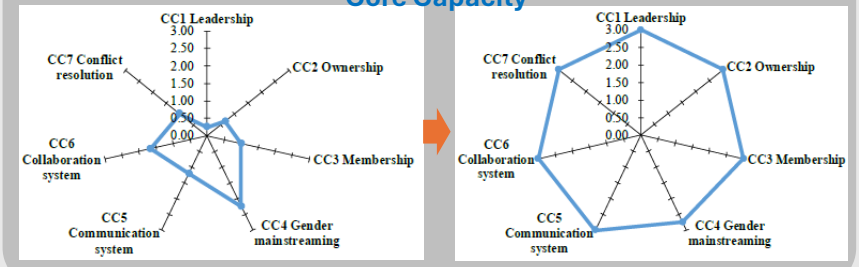
1) Defining Scheme Service Area
2) Database Preparation and Organizing Irrigation Block
3) Formation of IWUO Structure
4) Roles, Responsibility and Internal Regulation
5) Call for GA Meeting and ratification of by-law
6) Conduct Necessary Training
7) Commencement of Actual Scheme Operation
8) Registration and IMT Agreement
9) Monitoring and Evaluation, conduct Routine Training

## Capacity development at Cyaruhogo IWUO

**Jan. 2021** **Technical Capacity** **Oct. 2024**



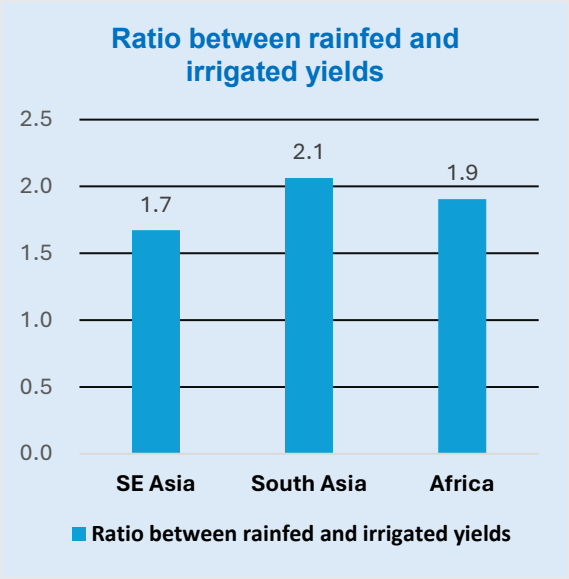

**Core Capacity**

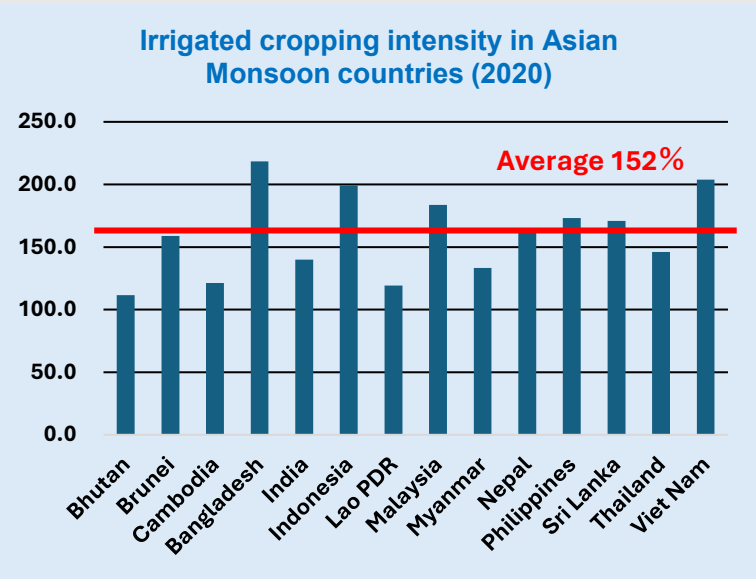


## ■ Contribution of J-PIM to Addressing Climate Change Impacts

By facilitating **collective action and positive participation of farmers** and strengthening the **synergy with social capital of rural communities**, J-PIM promotes;

- Enhancing resilience through maximizing of facility performance during normal times by improving water use efficiency and maintaining facilities in good condition.
- Risk hedging through collective crop diversification in farmer groups.
- Smooth implementation of drought management measures tailored to the severity of drought.




### Drought countermeasures in Irrigation scheme

**Drought Intensity (High)**

- **Minimizing damage by reducing cultivated area (abandoning some part of irrigated farm plots)**
- **Introducing deficit irrigation (reducing total water requirement in the scheme)**
- **Implementing precise water management at farm plots (reducing irrigation losses at farm plot level)**
- **Raising water-saving awareness among farmers**

**Drought Intensity (Low)**

## ■ Background of J-PIM

### ■ History of irrigation development in Japan

Rice is Japan's staple food, accounting for 54% of its farmland area. Annual rainfall in Japan is about twice the global average, but irrigation is essential for rice cultivation as rainfall is concentrated during the rainy and typhoon season.

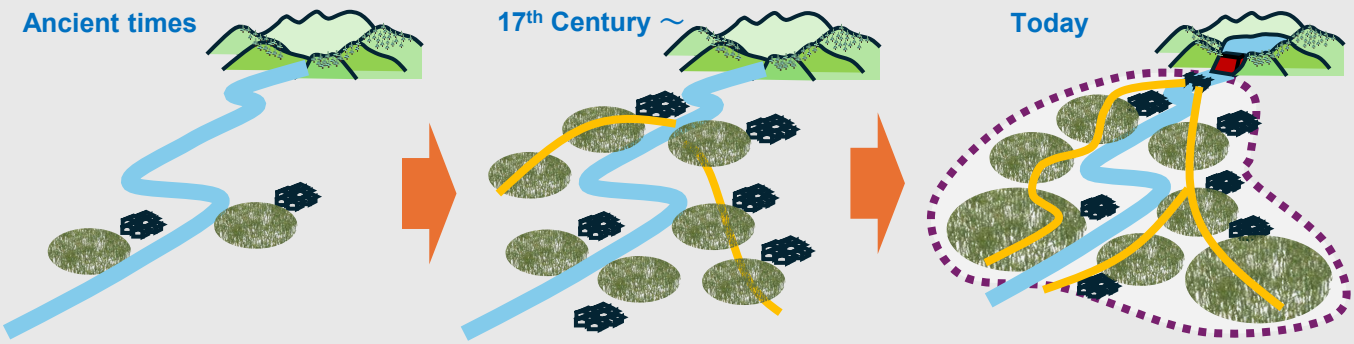
Since the beginning of rice farming over 2,000 years ago, the forming of rural villages coincided with the spread of paddy rice cultivation.

Construction of irrigation canales and ponds, and irrigation water management were carried out as communal tasks by rural villages.

Following the 17th century, paddy area was significantly expanded with advanced civil engineering. It also worsened water shortages during the droughts, intensified conflicts between villages.

Thus, primary challenge for modern Japanese irrigation projects is to develop new water resources, such as dams, and integrate traditional village-based irrigation schemes into large-scale irrigation system.

**Irrigation development in Japan**

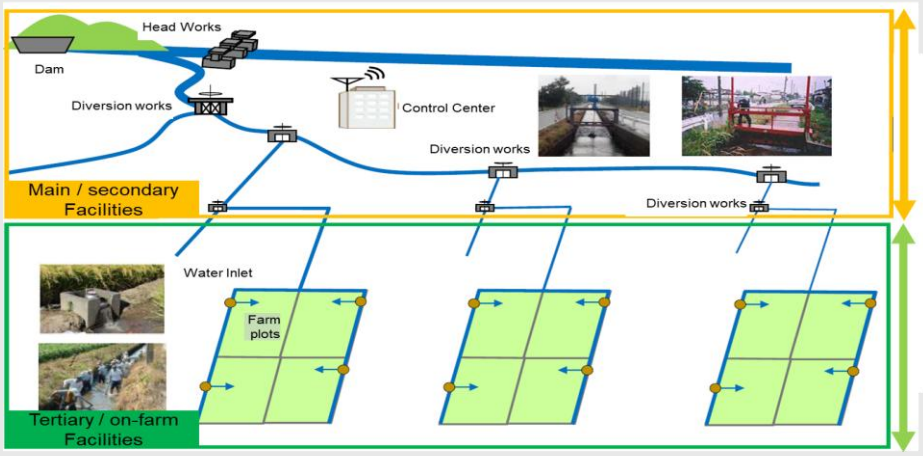



- **spread of paddy rice cultivation**
- **forming of rural villages**

- **paddy field area significantly expanded**
- **irrigation water management carried out as communal tasks**

- **legal framework established to develop large-scale irrigation system**

**Operation and Maintenance (O&M) by LIDs and local communities**




LIDs,
Local governments

Beneficiary farmers group (IMOs)
&
Local communities

## ■ Irrigation management system in Japan – Land Improvement Districts (LIDs) -

Land Improvement Act (1949) requires the establishment of Land Improvement Districts (LIDs), in which all the beneficiary farmers are obliged to participate.

The characteristics of LIDs include:

- Clear definition by law on farmers' membership, organizational structure, decision-making processes, and the authority to collect water fees, etc.
- Capability to manage water delivery, maintain and repair facilities, ensuring stable water supply during the irrigation period.
- Transparent decision-making process involving beneficiary farmers and implementation of equitable water allocation.
- Farmers' participation in the planning stage of irrigation development projects, contributing to facility planning that meets farmers' needs.
- Incorporation of traditional village-based irrigation management organizations (IMOs) as subsidiary, maintaining a hierarchical structure while managing whole facilities from main canals to terminal structures in an integrated manner.
- Maintenance activities at terminal facilities such as weeding and dredging carried out as voluntary activities by IMOs and rural communities.
- Financial and technical support system from central and local governments established.

## Synergy of PIM and social capital in rural communities

### Rural Communities

**Functions in rural communities**

- **Mutual Support in Daily Life**
- **Maintenance and Management of Local Resources (Rural Landscapes, Woodlands, Waterways, Ponds, Roads)**
- **Cooperation in Agricultural Farming Activities**

**Supported by**

- **Trust in the community, sense of belonging**
- **Compliance with norms and rules within the community**
- **The ability to build consensus within the community**
- **The inheritance of experience and wisdom cultivated throughout history**
- **Shared rituals**

### Irrigation schemes

**PIM facilitates member farmers to:**

- **Participate in decision-making process**
- **Comply with rules and regulations in WUAs**
- **Participate in the daily operation and maintenance of terminal facilities**
- **Intake water according to the delivery schedule**

## ■ J-PIM Projects

| Country | Project | Period |
|---|---|---|
| Tanzania | Project for Capacity Development for the Promotion of Irrigation Scheme Development under the District Agricultural Development Plans (TANCAID) Phase 2 | 2015 - 2020 |
| Malawi | Project for Enhancing Capacity for Medium Scale Irrigation Scheme Development, Operation and Maintenance (MIDP2) | 2015 - 2020 |
| Mozambique | Project for Improvement of Rice Productivity in Zambezia Province (ProAPA) | 2016 - 2021 |
| Lao PDR | Participatory Agriculture Development in Savannakhet Province | 2017 - 2022 |
| Iraq | Project for Sustainable Irrigation Water Management through Water Users Associations | 2017 - 2020 |
| Nepal | Project for the Promotion of Irrigated Agriculture in Terai Plain | 2019 - 2025 |
| Uganda | The Project for Sustainable Utilization, Operation and Management of Irrigation System in Atari Basin Area | 2021 - 2025 |
| Sudan | Capacity development project for promotion of market-oriented agriculture and improved irrigation scheme management in River Nile State | 2021 – 2026 |
| Kenya | Capacity Development Project for Enhancement of Rice Production in Irrigation Schemes (CaDPERP) Phase2 | 2024 - 2029 |
| Rwanda | Water Management and Capacity Building (WAMCAB) Phase 2 | 2025 - 2029 |
| | | |

## ■ References


● **Strategy for Climate Change Measures in Agricultural and Rural Development Cooperation**
Outlines the fundamental principles of PIM that also address climate change, along with reference points for project implementation.
https://www.jica.go.jp/activities/issues/agricul/__icsFiles/afieldfile/2024/11/27/httpswww.go.jpactivitiesissuesagriculclimatechange_E.pdf



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