THE 2ND MEETING OF
WORKING GROUP ON INSTITUTIONAL ASPECTS OF IRRIGATION/
DRAINAGE SYSTEM MANAGEMENT (WG-IOA)
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Importance of Institution and Organization for Sustaining Irrigation and Drainage System Management in the Future
- Lesson Learned from Practice in Japan -

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A growing consensus that the world’s food and agriculture system is broken

* Promoting only a handful of high-yielding crop varieties, using irrigation, petrochemical fertilizers and pesticides

* Definitely making yield increase but causing degradation of land and water resources, biodiversity loss, pollution and greenhouse gas emissions
  * Pollution caused by leaching of fertilizers and pesticides degrades water quality of both surface and groundwater

* Increasing inequality, marginalization of the poor and women, and loss of community and household resilience to climate and economic shocks
  * Rural poor are facing new drivers of hunger, including food price volatility and unpredictable weather caused by GCC

* Shifting toward monoculture production systems of a handful of export crops, which has driven the loss of 75 percent of plant genetic resources over the 20th century
Viet Num
“Ethnic minority’s preparation - seedlings for transplanting”

China - Yunnan
“Dizzy sculpture on the Earth“
Indonesia - Bali
“Worshipped water from the kingdom of God”

Philippines
“Reaching up to the very sky”

Japan
“Oriental Arcadia in mountain”
Most of the world’s poor depend on local markets for their food security. Small-scale food producers are critical to achieving food security for the poor through sustainable, equitable, and resilient agricultural approaches. Lower yields on small-scale farms in poor countries are largely due to a disparity of access to markets, land, water, finance, infrastructure, and technologies. Supporting small-scale food producers can build less vulnerability and more resilience to climate shocks. For example, system of Rice Intensification helped smallholders boost productivity and reduced reliance on inputs. Studies found average yield increases across eight countries of 47 percent and average reductions in water use of 40 percent.

Japan

“Thousand plots of terraced paddies on a mountainside.”
Japan
“Foggy morning”

Japan
“Live pyramid succeeded by local farmers”
Japan

“Fantastic twilight over the water world”

“Transplanting in water”

“Drying rice in the sun”
Collaborative investment between small scale farmers and governments

* Most investment needs for smallholders are increased access—access to land and water, financial services, credit, weather insurance, policymaking processes, knowledge and information, and basic rural services

* The largest investments in food production are made by food producers themselves
  * These should be supported and complemented by investments by national/local governments and so on to fill the current wide gaps

* “Land Improvement Districts”—access to land and water

* “Agricultural Cooperatives”—access to financial services, credit, weather insurance, policymaking processes

* “Extension service”—access to knowledge and information
Irrigation project systems in Japan

* Decide the project management body in accordance with the beneficiary area and the degree of technical difficulty of each project

Facilities constructed by each project management body under the Land Improvement Law of Japan
Case study in Japan

*Inba-numa Land Improvement District*

Location and history of Inba-numa

**Around the 11th century**

**After river translocation project in the 18th century**

**Before land reclamation**
Inba-numa

* Area: 13,100ha
* Storage capacity: 13,100,000 m³
* Depth: 2.5m in maximum  1.7m in average
* Perimeter: 29km
* Catchment area: 53,462ha  (population: 770,000)
* Related municipalities: 10 cities and 2 towns

Inba-numa Land Improvement District

* Beneficiary area: 6,410ha  (Paddy: 6,117.8ha  Upland: 292.8ha)
* Member farmers: 8,632
* Member of board: 24
* Staff: 23  (permanent: 21  part time: 2)
* Area charge: JPY 79,300 / ha (around USD 1,000 / ha)  
  (JPY 39,500 for operation cost  JPY 39,800 for maintenance cost)
Farmers are charged a levy and requested a collective labor force for maintaining their public facilities.

It makes a basis for managing the fair water distribution both during normal periods and abnormally dry spells.

Three steps of procedures provided by the Land Improvement Act for implementing irrigation projects:

1. Farmers’ own initiative (application) and corresponding share of expenses for project
   * Under the joint signatures of 15 cultivators or more

2. Beneficiary farmers’ consent and obligatory participation/cost sharing to all farmers concerned
   * Consent by more than two thirds of the farmers required

3. Establishment of water users’ association namely “LID”
   * Facilities constructed through irrigation projects should be managed by LIDs in principle
   * LID carries out all of the planning, implementation, dispute settlements, assessments and collection of fees for water distribution
Japanese farmers to be water users must establish a Land Improvement District (LID), legislative water users association, to which they themselves compulsorily belong.

These LIDs maintain and manage the irrigation facilities and operate the distribution of water, charging the farmers a consideration known as a regular levy consisting of operating fees and maintenance and management fees.

In Japan the general practice is to charge water users for paddy irrigation not volumetrically but according to the area of paddy fields.

96.8% of LIDs that charge the operating fees and 94.0% of those that charge the maintenance and management fees do regular levies in the form of area charges, i.e., in proportion to paddy field area.

<table>
<thead>
<tr>
<th>District</th>
<th>Operating costs (m² of area)</th>
<th>Operating costs (%)</th>
<th>Maintenance and management costs (m² of area)</th>
<th>Maintenance and management costs (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>By land area</td>
<td>5,108</td>
<td>96.8</td>
<td>5,857</td>
<td>94.0</td>
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<tr>
<td>By ranking</td>
<td>52</td>
<td>1.0</td>
<td>108</td>
<td>1.7</td>
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<td>By water volume</td>
<td>16</td>
<td>0.3</td>
<td>81</td>
<td>1.3</td>
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<tr>
<td>By operating costs</td>
<td>17</td>
<td>0.3</td>
<td>41</td>
<td>0.7</td>
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<tr>
<td>By elevation</td>
<td>2</td>
<td>0.0</td>
<td>12</td>
<td>0.2</td>
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<td>Other</td>
<td>84</td>
<td>1.6</td>
<td>133</td>
<td>2.1</td>
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<tr>
<td>Total</td>
<td>5,279</td>
<td>100.0</td>
<td>6,232</td>
<td>100.0</td>
</tr>
</tbody>
</table>

(National Federation of Land Improvement Associations. Survey on management of LID, 1999)
In normal times the area charge systems allow farmers to alleviate the transaction costs such as efforts of collecting fees.

During abnormal water shortages they allow for a more realistic response than conducting volumetric pricing, since they entail arrangements on distribution of water and provision of labor during such shortages.

Even under normal conditions water use is carefully managed in a collective manner, enabling farmers to respond flexibly as a group during abnormally dry spells and other emergencies.

In the case of paddy irrigation in humid climates, area charges thus constitute a rational method of charging for water use.

Policy objectives of irrigation project:
- Improvement of agricultural productivity in harmony with the environment
- Sustainable development of rural areas etc.
- Proper construction of facilities
- Sustainable and efficient utilization of facilities/water

Effects:
- Increase in the efficiency of the national budget
- National land conservation and social stability
- Facilitating the accumulation of social capital

Check at three stages:
1. Application by at least 15 cultivators
2. Agreement by at least two thirds
3. Establishment of LID

Empowerment
Governance
Accumulation of social capital
Agricultural Cooperatives and Extension Services

* Agricultural Cooperatives was established in 1948 and provides following to smallholders;
  * Economies of scale to reduce transaction costs for buyers and make working with smallholders a more attractive proposition
  * Greater bargaining power,
  * Better access to agricultural services, and
  * A stronger political voice

* Farmers learn best from hands-on interaction with other farmers and agricultural extension agents trained to share new techniques

* Japan owe much of their agricultural productivity gains to periods of emphasis on solid extension services though agricultural extension has been slashed in many countries along with the general decline in development support for agriculture over the past few decades
  * Japan had an extension worker for every village (about 100 households) during its greatest period of growth

Conclusions

* The world’s food and agriculture system is broken and it becomes a disputed point to shed a light on a large number of small scale agriculture

* The investment should be provided collaboratively by smallholders and national/local governments to increase access to land and water, financial services, credit, weather insurance, policymaking processes, knowledge and information, and basic rural services

* Japan has accumulated experiences on the collaborative investment through the systems of Land Improvement Districts, Agricultural Cooperatives and extension services
Merci pour votre attention
Thank you for your attention