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Multifunctionality of irrigated agriculture and rural areas



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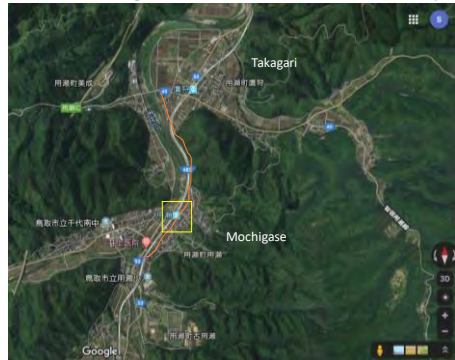
In addition to the above,

- Place for medical care, nursing care, and welfare
- Decomposing organic matter
- Promoting rural development

MAFF, JAPAN

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Other use of irrigation water for local community



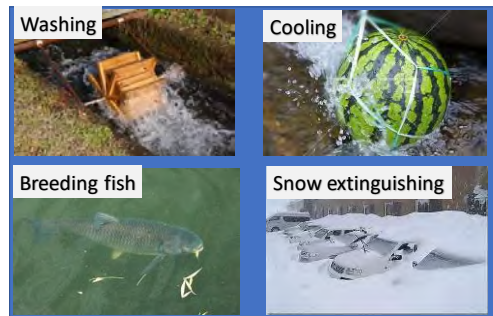
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Other use of irrigation water for local community



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Other use of irrigation water for local community



Domestic use

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Other use of irrigation water for local community

Fire Prevention



Securing living condition

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Multifunctionality of irrigated agriculture

Enhancing capacity building



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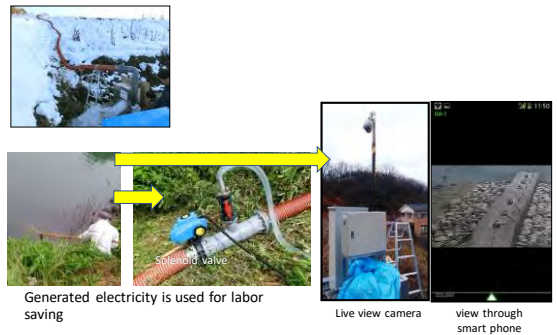
Renewable energy
Hydro power



Hydro power using irrigation pond and the usage of generated electricity

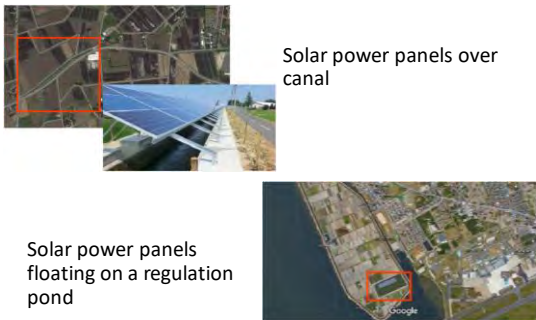
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Renewable energy
Hydro power



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Renewable energy
Solar power



Solar power panels over canal

Solar power panels floating on a regulation pond

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Amenities, services, and goods provided by Irr Sys

Item	Category			Beneficiaries		
	Amenity	Services	Goods	Field	Rural area	Basin
1. Flood prevention		o			o	o
2. Landslides and soil runoff prevention		o		o	o	o
3. Stabilization of river flows		o			o	o
4. Recharging groundwater			o			o
5. Providing habitats for creatures (Ecosystem)		o		o	o	o
6. Preserving views of rural areas		o			o	o
7. Handing down culture		o			o	o
8. Cooling down heat		o			o	o
9. Place to experience learning and education		o			o	o
10. Place for medical care, nursing care and welfare		o			o	o
11. Healing and relaxing people		o			o	o
12. Decomposing organic matter		o		o		
13. Domestic water use	o	o			o	
14. Securing living environment		o			o	
15. Enhancing social capital	o				o	
16. Renewable energy			o	o	o	o



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Water use for cultivation management
(Vegetables and taro - a case study of Tottori -)

Water used for crop growth and cultivation management				
Crop	Japanese radish	Green onion (winter)	Green onion (spring)	Taro
Purpose of irrigation				
Crop growth (mm)	0	0	103	0
Cultivation management (mm)	98	70	142	896

6 months (from April to September) Rainfall: 835 mm, ET_{ref} : 737 mm

In the coastal irrigation districts (sandy soil), most of irrigation water is used to **prevent sand blow** by wind.

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Water use for cultivation management
(Tea plantation and orchards, Shizuoka and Wakayama)

Tea plantation and orchards

Conventional method: rainfed + solid fertilizer

New method: drip/sprinkler with liquid fertilizer

→ Promote **quick growth** of trees



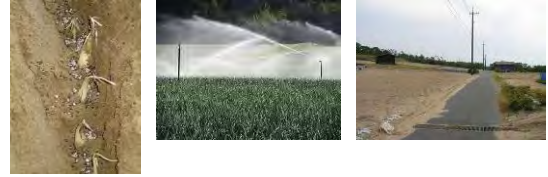
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Summary

- Amenity, services, and goods(ASG) provided by irrigation system are summarized **based on Japanese cases, mainly paddy rice irrigation.**
- Irrigation systems provide ASG to **fields, rural areas, and basin (rural area + city).**
- **Hydro power** and **solar power** have been disseminated as recently recognized goods.
- Water use for **cultivation management** can not be ignored to save labor costs and increase productivity.

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Water use for cultivation management
(Japanese shallot, Tottori)



Farmers irrigate to their fields not only for crop growth but also for **easy seeding and preventing sand blow.**

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Water use for cultivation management
(Frost protection by sprinkler - Entre rios, Argentina -)



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Future step

Need to add more info about amenity, service, and goods provided by irrigation systems, especially, in arid and semi-arid regions.

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The Basic Law on Food, Agriculture, and Rural Areas (1999) notes that agricultural lands not only “function as places for food production, living and resting, they also fulfill a variety of other roles and multifunctionality.