



The History of Agricultural Water and Water Rights

March 2013



Water Resource Division
Rural Infrastructure Department
Rural Development Bureau
Ministry of Agriculture, Forestry and Fisheries of
JAPAN

Table of Contents

1. Functions of Water Use in Rural Area

Topic; Water Conflicts on the Takina river (San-noukai Land Improvement District)

2. The Purposes of the River Law and Principles of River Administration

3. Characteristics of permitted Water Rights for Agriculture

4. Customary Water Rights

5. The Characteristics and the Challenges of Agricultural Water

(1) Volume of Water for Agriculture and its Recycle Use

(2) Water Use Management mainly by LID (Land Improvement Districts)

(3) Changes of Farming Method and its influence on Water Demand

(4) Various Effects of Agricultural Water

(5) Countermeasures against Serious Droughts

(6) Rationalization of Agricultural Water and its Reallocation

1. Functions of Water Use in Rural Area

Agricultural water has been demonstrated various functions such as irrigation, which is directly necessary for crop growth, as well as domestic use, protecting ecosystem, fire-fighting and so on. Those uses are in conformity of the order of water use which has been formed through repeated water use as custom and practice and occasional water conflicts.

Water conflicts formed the order of water use and sometimes changed it gradually.

Domestic Use



Protecting Ecosystems



Amenity, Landscape



Water Quality Control



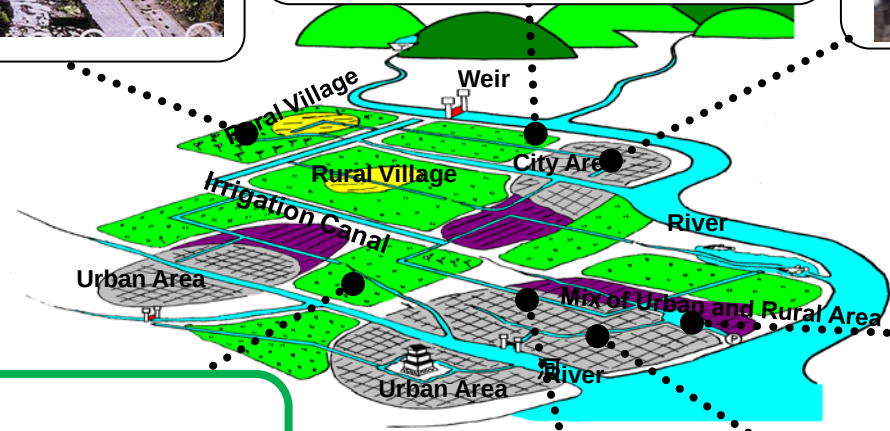
Irrigation



Melting, Clearing and Removing Snow



Fire-fighting



On the basis of the order of water use socially accepted

Topics: Water Conflicts on the Takina river (San-noukai Land Improvement District)

The alluvial fan along the Takina river, in the center of Iwate Prefecture, had been reclaimed as paddy fields since recorded history. By the Edo Era, paddy fields reached 822 ha and were irrigated by several weirs. As there was little rainfall compared to cultivated fields, serious water conflicts occurred frequently. Those conflicts were so terrible that some people were killed eventually. At the end of the Meiji Era, the drought and poor harvest made farmers thirst for new water resources.



27 weirs along the Takina river



San-noukai Dam constructed in 1952



People waiting for water running from the Dam

The prefectural governor at the time made trees planted on the dam body, hoping a water conflict would never occur.

As the agriculture of this area developed, The dam was reconstructed to resolve the water shortage happening again. The current area of the San-noukai LID is approx. 3,800ha.



San-noukai Dam constructed in 2001

2. The Purposes of the River Law and Principles of River Administration

(Purposes of the River Law)

Article 1.

The purpose of this Law is to contribute to land conservation and the development of the country, and thereby maintain public security and promote public welfare, by administering rivers comprehensively to prevent occurrence of damage due to floods, high tides, etc., utilize rivers properly, maintain the normal functions of the river water by maintaining and conserving the fluvial environment.

(Principles of River Administration)

Article 2.

A river is public property and its conservation, utilization, and other forms of administration shall be properly performed so as to attain the purposes stated in the preceding article.

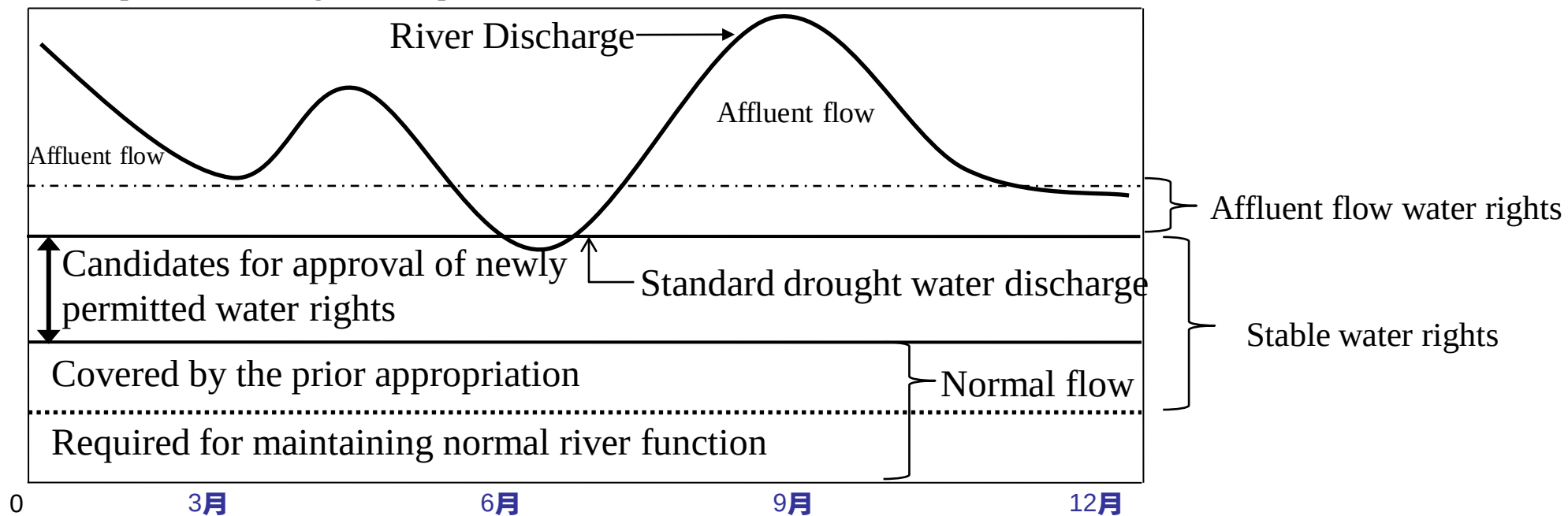
2 The water of a river cannot be made the subject of private rights.

(Permission for River Water Use)

Article 23.

Any person who intends to use the water of a river shall obtain the permission of the river administrator as may be provided for in detail by Ministry of Construction Ordinance

Concept of Water Rights in Japan



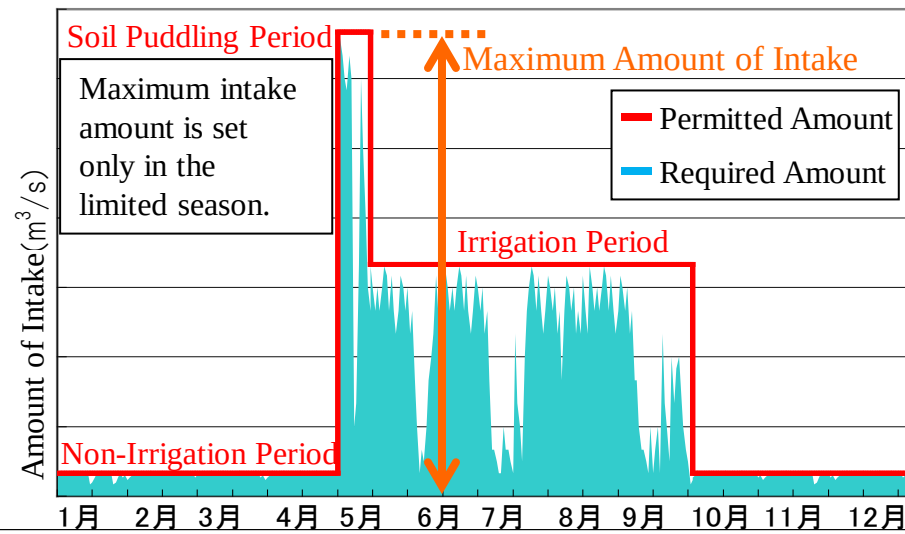
3. Characteristics of permitted Water Rights for Agriculture

To use the water of a river, the permission of the river administrator should be obtained.

Agriculture water rights permitted by the river administrator are determined those purpose as “irrigation” and have each limited intake amount appropriate for each period. Excess intake and water uses for other purposes are prohibited.

Irrigation Use

かんがい水利使用イメージ



Permitted amount varies seasonally.

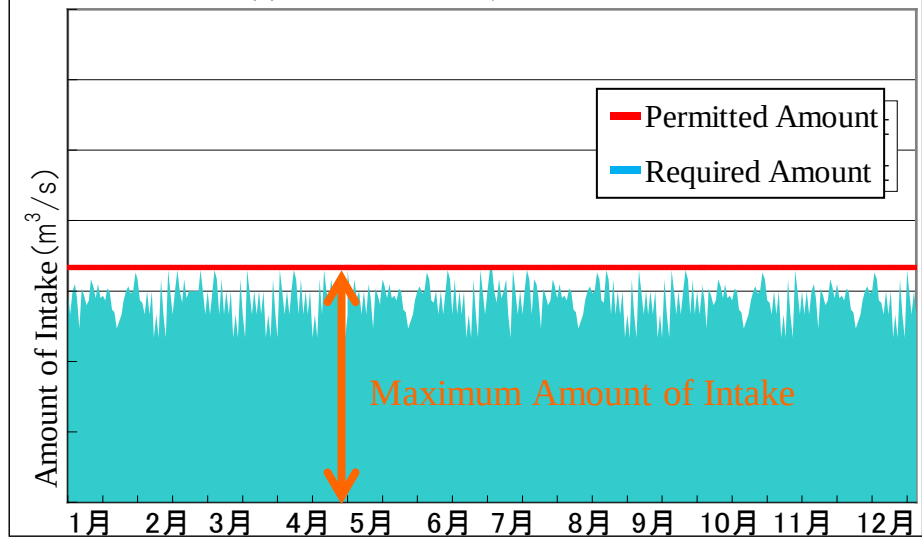
Required amount should be below the permitted and varied according to weather and stages of farming.

Required amount is calculated to satisfy the maximum demand of 10 years return period, which indicates, practically, water use would be below the permitted in the average year.

Bad climate condition such as low or high temperature, lack of sunlight, etc. changes the required water amount.

Municipal Use

都市用水水利使用イメージ



Permitted amount is steady through the year.

Required amount is almost the same level as permitted.

Besides agricultural use, there are domestic use, industrial use and hydro power use. An inland fishery right holder is also one of concerned river users.

Generally, the most amount of intake water is used by hydro power, then irrigation, domestic and industrial to the least. Water used by hydro power is not consumed and shall return to river.

4. Customary Water Rights

Customary Water rights are socially accepted on the basis of custom and practice of water use for a long time by the enactment of the River Law. Those are recognized by the Law and “look upon” as water rights permitted under the Law.

The validity does not expire unless the substances change. The permission should be obtained when some modification of the substances are made. Almost all of customary water rights in large-scale agricultural area over 1,000 ha have already converted into water rights permitted by the river administrator.

Type of Water Rights

Type	Facilities		Amount of Intake		Irrigation Area	
	Number	Ratio (%)	cm/s	Ratio (%)	Thousand ha	Ratio (%)
Permitted	22,964	24.0	5,960.3	49.3	1,606	62.5
<u>Customary</u>	72,721	<u>76.0</u>	6,141.0	<u>50.7</u>	965	<u>37.5</u>
Total	95,685	100.0	12,101.3	100.0	2,570	100.0

A customary water right has (1) ambiguity in those substances, (2) no chance to be assessed properly and periodically, (3) no records of water intake. The river administrator recommends the conversion into a permitted water right on the occasion of reconstruction of facilities. As customary water holders are individuals or small organizations, it is not so easy to get the permissions by preparing formal documents.

Perceptions toward conversion into permitted water right

The River Administrator	Customary Water Users
Rationalization of water management Reconstruction of facilities makes it possible to measure amount of intake water clearly. While permitted water right holders are clearly defined with water quantity, customary water intake is sometimes defined only by the means of intake.	They are unwillingly to (1) apply for a permit of water use, computing for the applied quantity of water intake. (2) accept 10 years of the validity newly. (3) introduce intake limit of each period in a year. (4) measure intake water daily and report annually.