Water Resources Management between Water Users and Japan Water Agency (JWA)

- Case Study on Kiso River System -

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-Japan Water Agency (JWA) had constructed large-scale dam reservoirs,

-canals and water intake facilities in the Kiso River

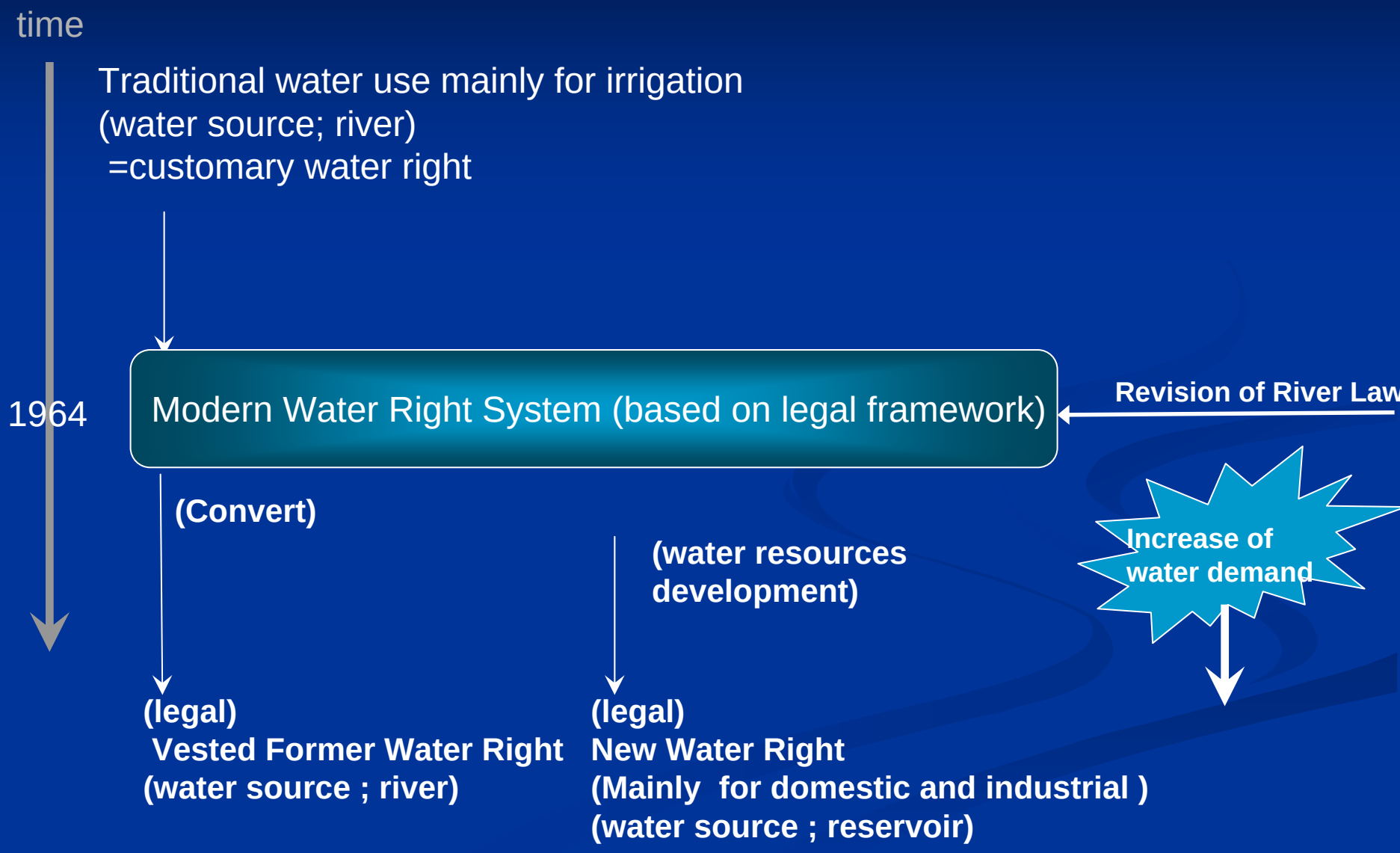
-JWA is held responsible for conducting management of the facilities as well as water resource management.

Makio Dam

Aichi canal

Fig.1 Overview of State of the Kiso River System

Historical Flow of Water right



Comprehensively and Efficiently Manage Complex Water Network (Kiso River System)

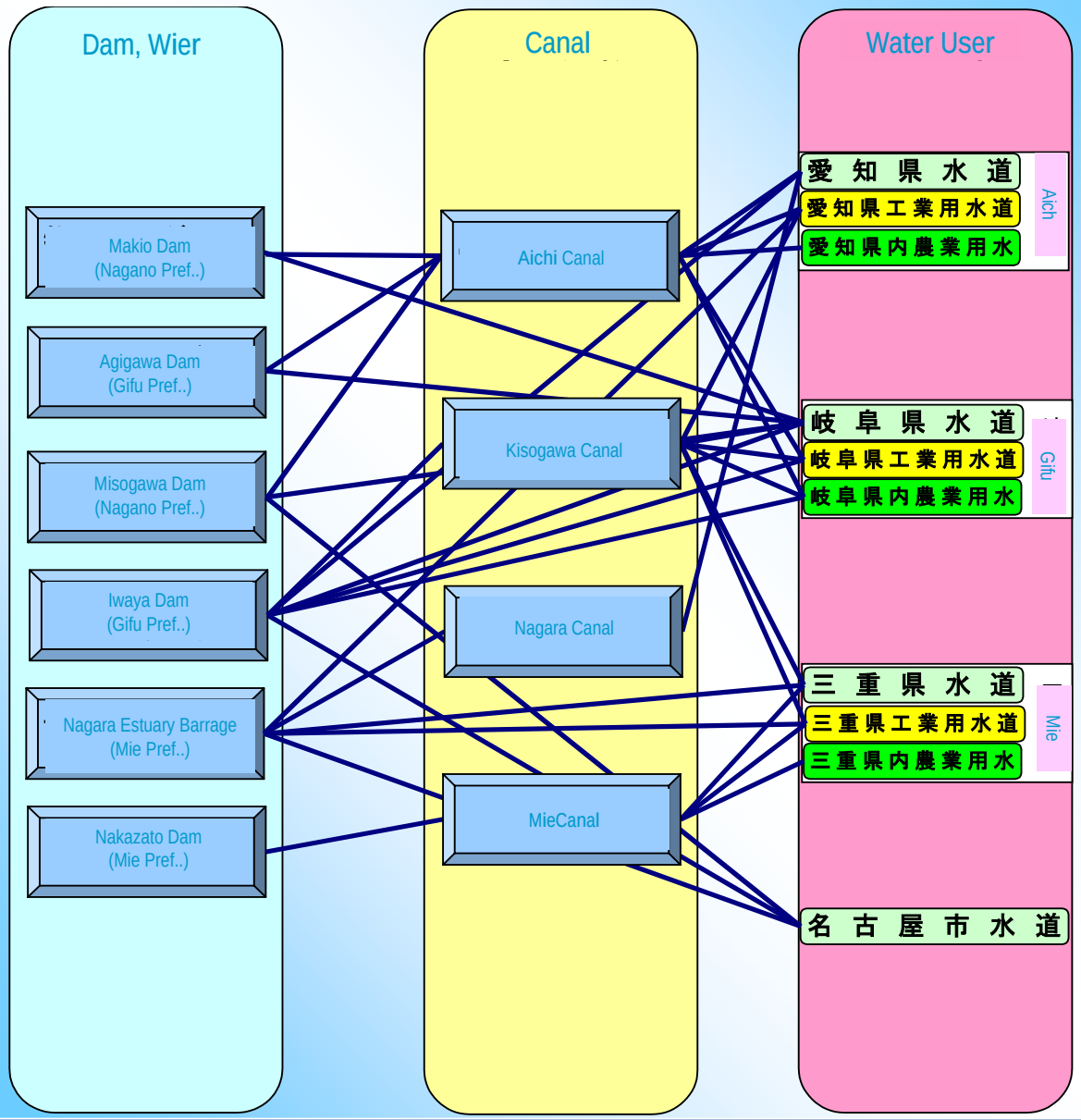
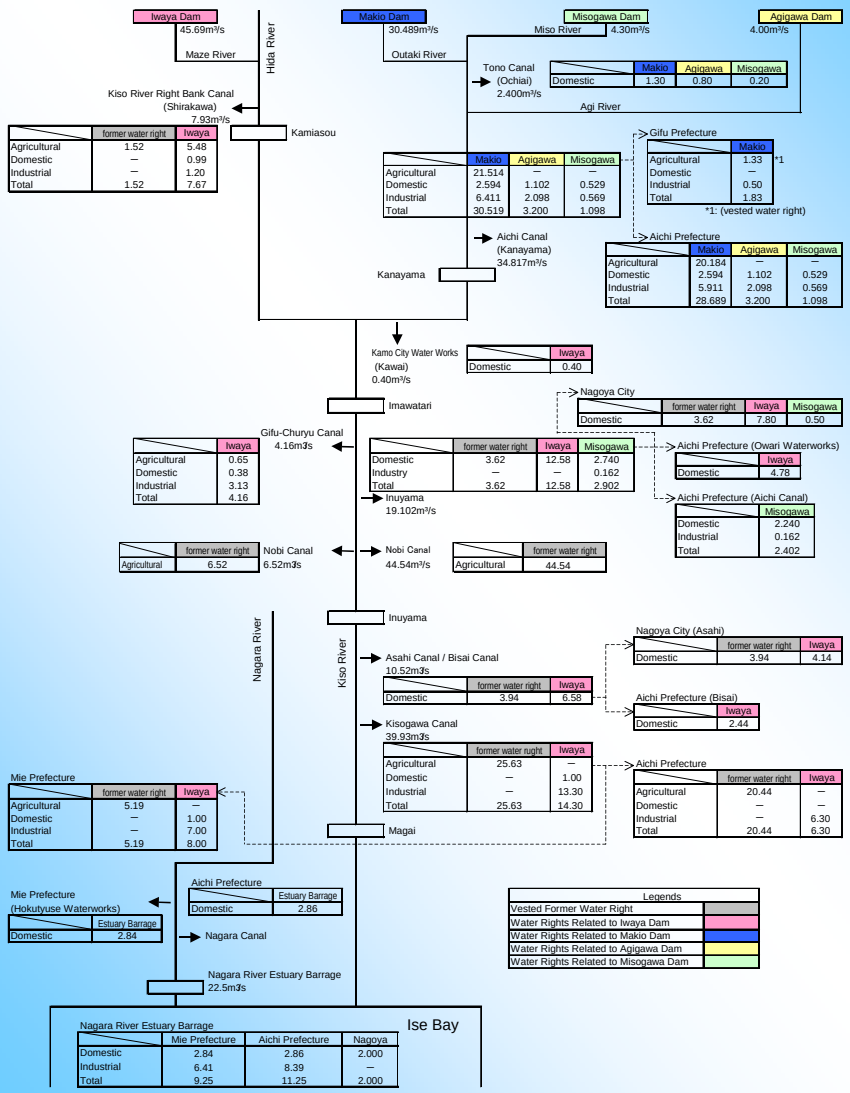


Fig-2 Quantity of Water Intake in the Kiso River System (Water Rights)



	former water right	Iwaya
Agricultural	1.52	5.48
Domestic	–	0.99
Industrial	–	1.20
Total	1.52	7.67

	Makio	Agigawa	Misogawa
Agricultural	21.514	–	–
Domestic	2.594	1.102	0.529
Industrial	6.411	2.098	0.569
Total	30.519	3.200	1.098

	Makio	Agigawa	Misogawa
Domestic	1.30	0.80	0.20

	Makio
Agricultural	1.33
Domestic	–
Industrial	0.50
Total	1.83

	Makio	Agigawa	Misogawa
Agricultural	20.184	–	–
Domestic	2.594	1.102	0.529
Industrial	5.911	2.098	0.569
Total	28.689	3.200	1.098

	Iwaya
Domestic	0.40

	former water right	Iwaya	Misogawa
Domestic	3.62	7.80	0.50

	Iwaya
Agricultural	0.65
Domestic	0.38
Industrial	3.13
Total	4.16

	former water right	Iwaya	Misogawa
Domestic	3.62	12.58	2.740
Industry	–	–	0.162
Total	3.62	12.58	2.902

	Iwaya
Domestic	4.78

	Misogawa
Domestic	2.240
Industrial	0.162
Total	2.402

	former water right
Agricultural	6.52

	former water right
Agricultural	44.54

	former water right	Iwaya
Domestic	3.94	4.14

	former water right	Iwaya
Domestic	3.94	6.58

	Iwaya
Domestic	2.44

	former water rught	Iwaya
Agricultural	25.63	–
Domestic	–	1.00
Industrial	–	13.30
Total	25.63	14.30

	former water right	Iwaya
Agricultural	20.44	–
Domestic	–	–
Industrial	–	6.30
Total	20.44	6.30

	former water right	Iwaya
Agricultural	5.19	–
Domestic	–	1.00
Industrial	–	7.00
Total	5.19	8.00

	Estuary Barrage
Domestic	2.86

	Estuary Barrage
Domestic	2.84

Nagara River Estuary Barrage	Mie Prefecture	Aichi Prefecture	Nagoya
Domestic	2.84	2.86	2.000
Industrial	6.41	8.39	–
Total	9.25	11.25	2.000

Facilities Managed by the JWA in the Kiso River

	Makio Dam (68)	Iwaya Dam (61.9)	Agigawa Dam (22)	Misogawa Dam (30)	Remarks Total capacity (182.9 million m^3)
Aichi Canal	●	-	●	●	"●" shows the water source dam for each canals.
Kisogawa Canal	-	●	-	-	

Notes: The figures in parentheses under the name of each dam show the amount of storage capacity for water use in units of 1,000 m^3.

Features of Water Usage Operation

-The vested former water right holders are given priority for water use

-The vested former water right holders are entitled to take all the water they need from the natural flow of the river

Restriction of Water Storage in Dam Reservoirs and Water Taking at Intakes

-It is obliged that the storage of water in dam reservoirs and the intake of water from rivers do not cause any adverse impact on the environmental function of the river flow and water use of vested former water right holders.

Water Demand from Water Users

-Water users apply the quantity of water demand to JWA. JWA then examines it and determines the quantity to take in from the rivers on the following day.

Water Saving Operation in Drought Period

-The Water Saving Measures in drought period for the Kiso River are conducted by
(a) the water users and JWA jointly determining voluntary water saving measures, and
(b) mediation and conciliation by the river administrator under the River Law.

-When it is thought that water use would be seriously affected if the water saving measures in (a) alone are taken, the river administrator is required to decide on action (b).

Organization for Examining and Determining Water Saving Measures

(Organization consisting of the JWA and water users)

-In order to investigate and implement water saving measures and the appropriate and smooth distribution of water to users in times of drought, JWA and water users have established the organizations for each canal project. They meet in times of drought, as necessary depending on the state of water sources, to determine and implement water saving measures.

Aichi Canal Water Saving Committee

Chairman : Director of the Aichi Canal Integrated Project Department, JWA

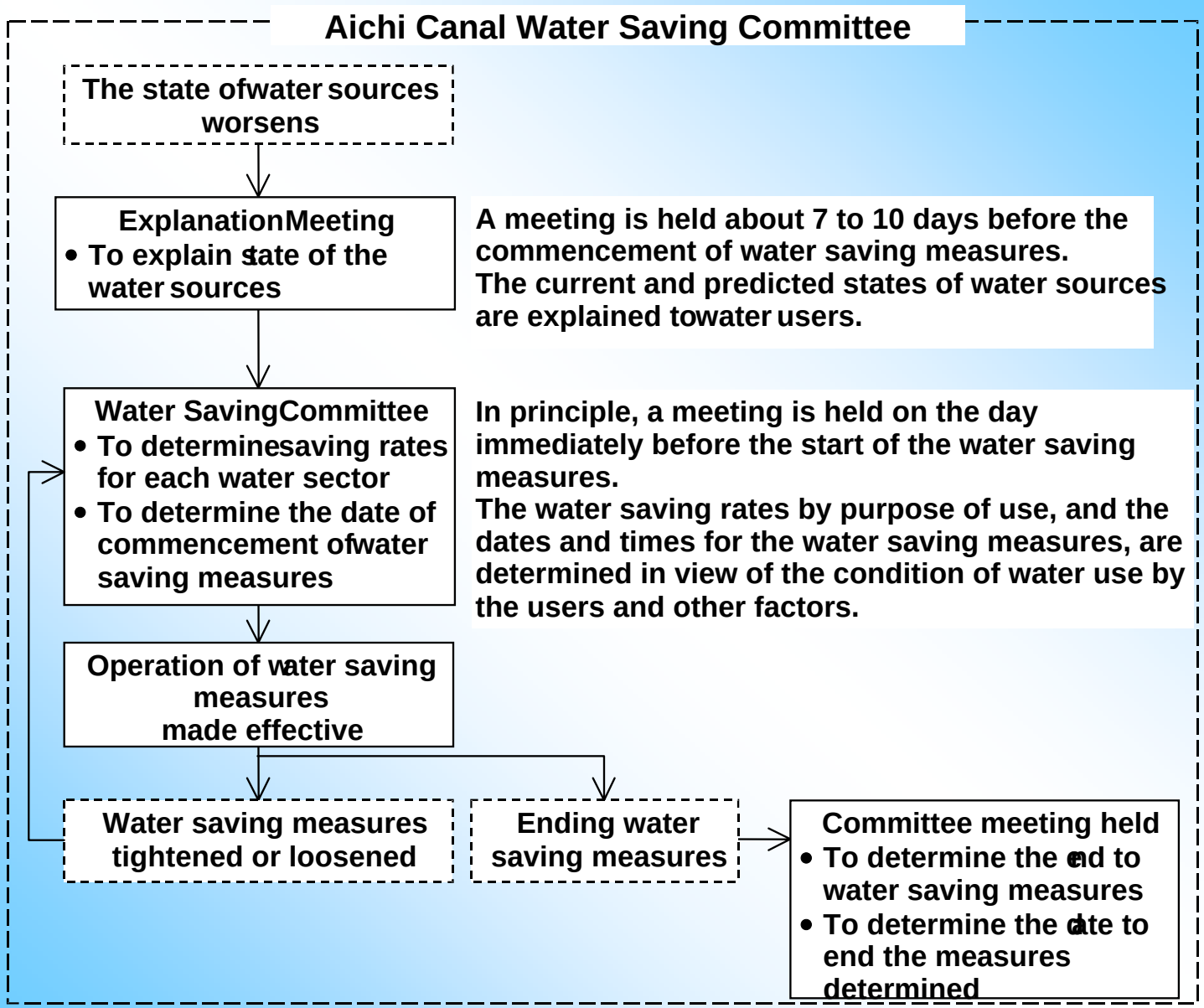
Members : -Land Improvement Districts concerned (3 districts)
-Kani City Hall
-Projects Management Bureau, Gifu prefecture
-Public Enterprise Bureau, Aichi Prefecture
-Agriculture, Forestry and Fisheries Department, Aichi Prefecture
-Japan Water Agency

Note) “Land Improvement District” is rural farmers’ organization

Kisogawa Canal Water Saving Council

Chairman : Director of the Kisogawa Canal Integrated Management Office, JWA

Members : -Federation of Land Improvement Districts for Kiso River Right Bank Canal
-Land Improvement Districts concerned (3 districts)
-Infrastructure Development Department, Gifu Prefecture
-Public Enterprise Bureau, Aichi Prefecture
-Agriculture, Forestry and Fisheries Department, Aichi Prefecture
-Water works and Sewerage Bureau, Nagoya City
-Dept. of Agriculture, Forestry, Fisheries, Commerce and Industry, Mie Prefecture
-Public Enterprise Bureau, Mie Prefecture
-Japan water Agency


Aichi Canal Water Saving Committee
The state of water sources worsens
Explanation Meeting
• To explain state of the water sources
A meeting is held about 7 to 10 days before the commencement of water saving measures.
The current and predicted states of water sources are explained to water users.
Water Saving Committee
• To determine saving rates for each water sector
• To determine the date of commencement of water saving measures
In principle, a meeting is held on the day immediately before the start of the water saving measures.
The water saving rates by purpose of use, and the dates and times for the water saving measures, are determined in view of the condition of water use by the users and other factors.
Operation of water saving measures made effective
Water saving measures tightened or loosened
Ending water saving measures
Committee meeting held
• To determine the end to water saving measures
• To determine the date to end the measures determined

Organization for Examining and Determining Water Saving Measures

(Organization for water use coordination by the river administrator)

-In order to discuss the adjustment of water use in an extraordinary drought in the Kiso River System and a method to implement these measures smoothly, the river administrator organized the "Kiso River System Emergency Water Use Coordination Council." In this Council, extralegal adjustment going beyond water rights can be adopted.

Kiso River System Emergency Water Use Coordination Council

Chairman :-DG of Chubu Regional Bureau, Ministry of Land Infrastructure and Transport (River Administrator)

Members :-DG of Chubu Bureau of Economy, Ministry of Economy, Trade and Industry

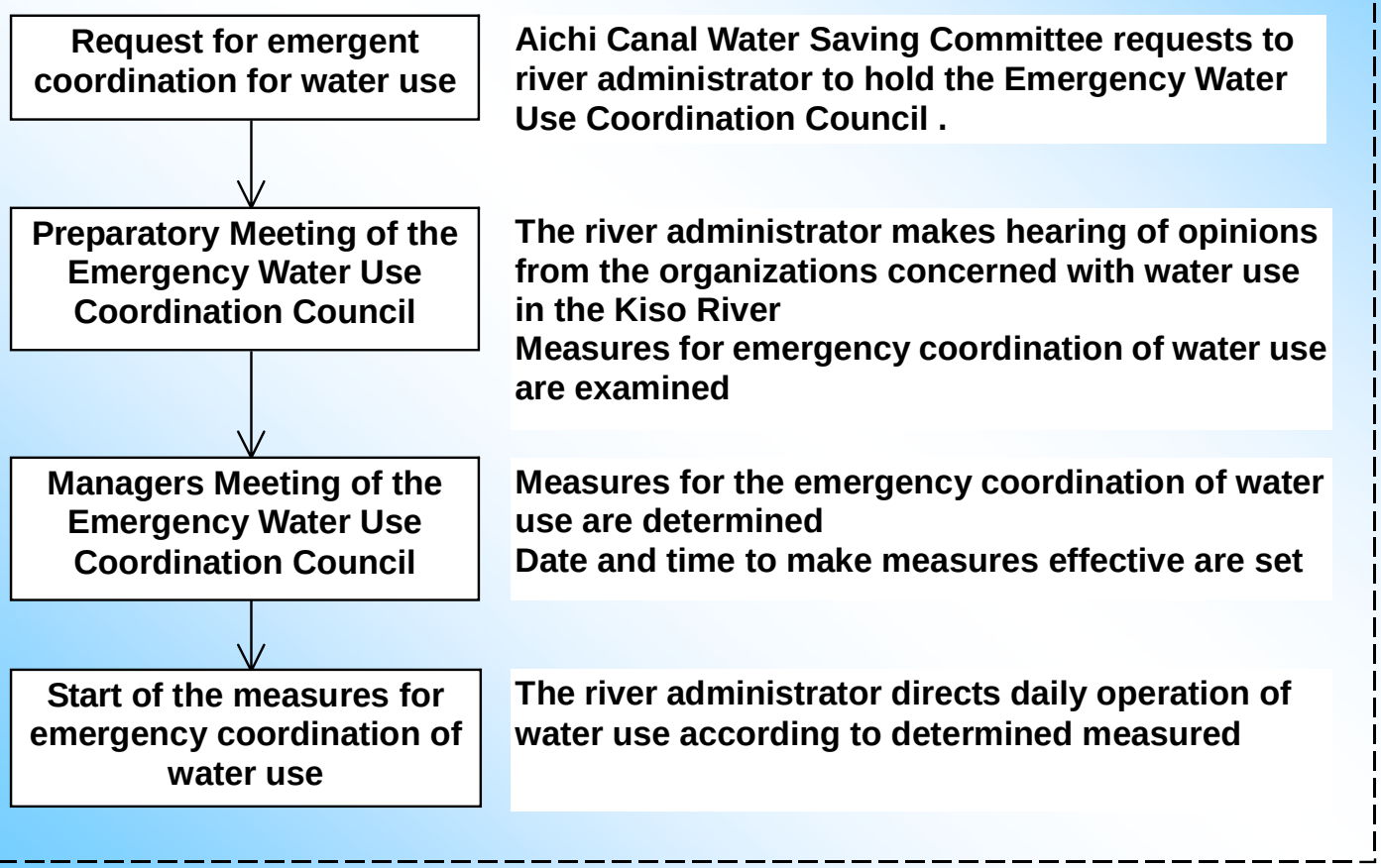
-DG of Tokai Regional Agricultural Administration Office, Ministry of Agriculture, Forestry, and Fisheries

-Governor of Aichi Prefecture

-Governor of Gifu Prefecture

-Governor of Mie Prefecture

Kiso River System Emergency Water Use Coordination Council



Water saving rate

-The Water Saving Committee examines and determines water saving rates on each occasion because the condition of water use by the purpose of use differs according to the time when water saving measures are implemented.