

IWRM experience in Japan — The case of Tone Canal Project

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The Role of Tone Canal Project



In order to meet with the rapidly growth of water demand in Metropolitan area, this project achieved to supply water large quantity and rapidly from the Tone River middle reach.



The Role of Tone Canal Project



This project was carried out as a comprehensive plan to supply domestic water and agricultural water.



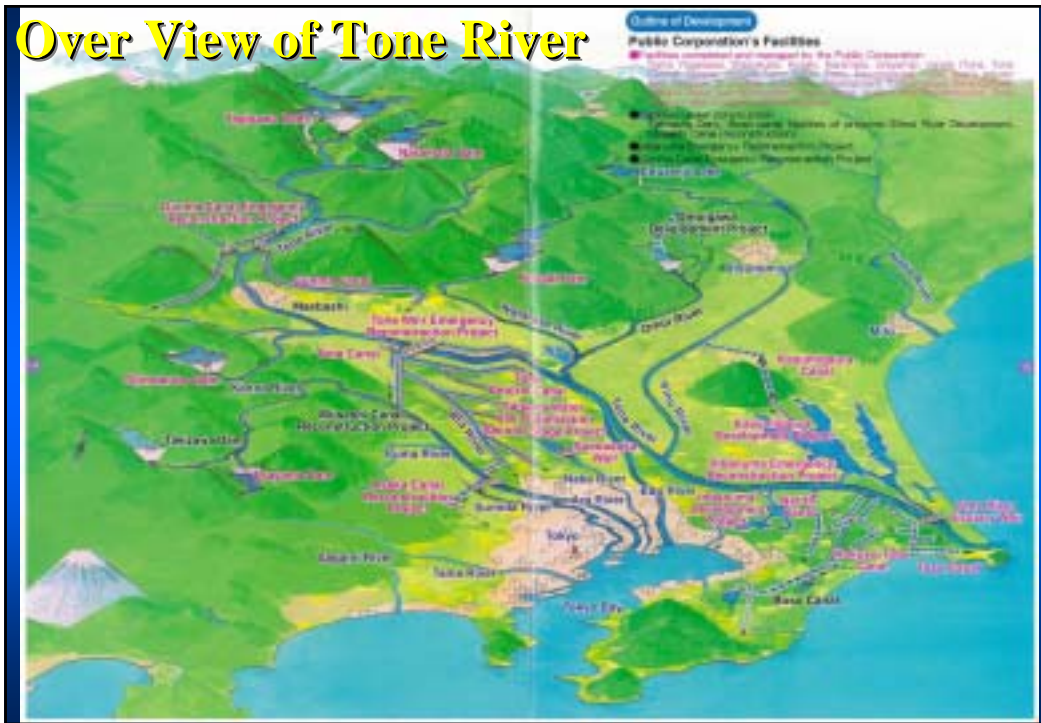
The Role of Tone Canal Project



To promote this project provided the Water Resources Development Promotion law, to promote integrated development and utilization of water resources in the Designated Rivers in Japan.



Over View of Tone River



Outline of the Tone Canal Project



In order to meet with the rapidly growth of water demand in Metropolitan area, this project was carried out during 1963 to 1968. Intake water quantity from Tone river is max 138m³/s.



Three goals

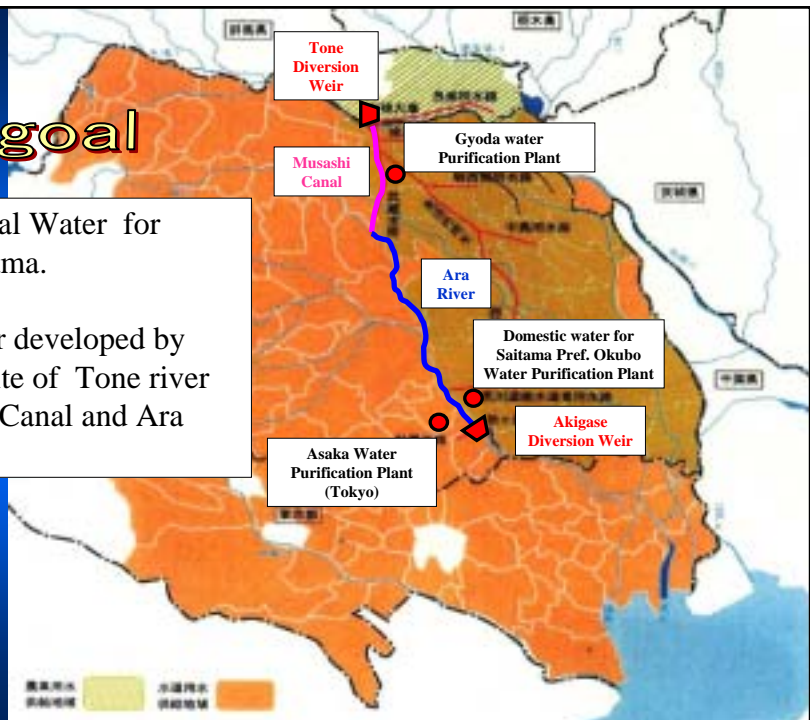
Three main goals of Tone Canal Project are ...



First goal

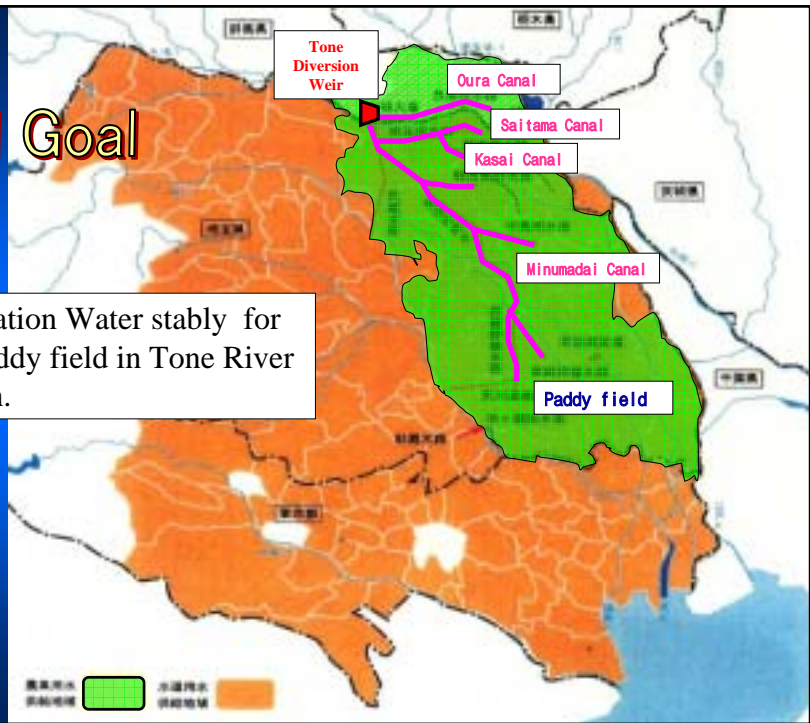
Supply Municipal Water for Tokyo and Saitama.

To convey water developed by dams in upper site of Tone river through Musasi Canal and Ara River.



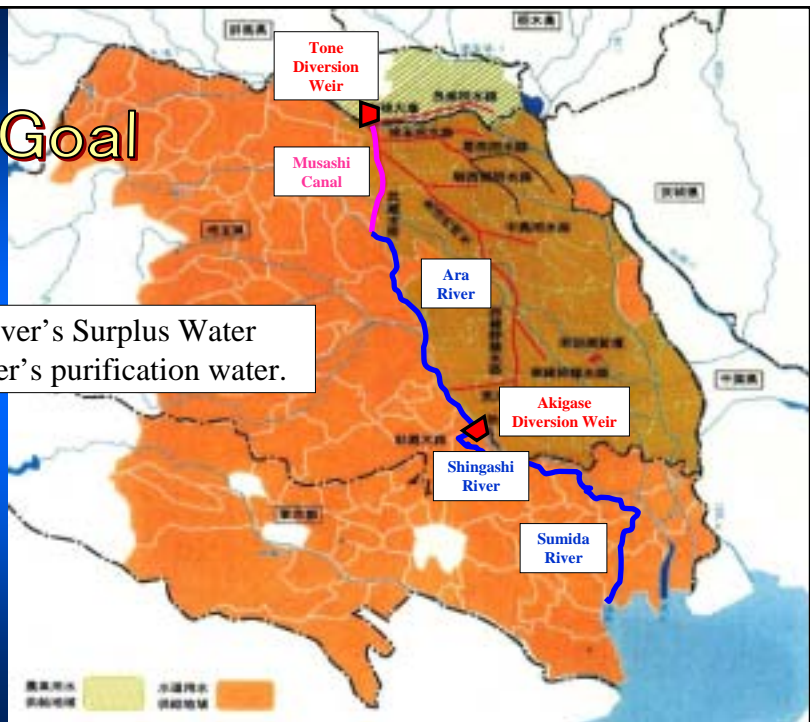
Second Goal

Supply Irrigation Water stably for 29,000ha paddy field in Tone River middle reach.

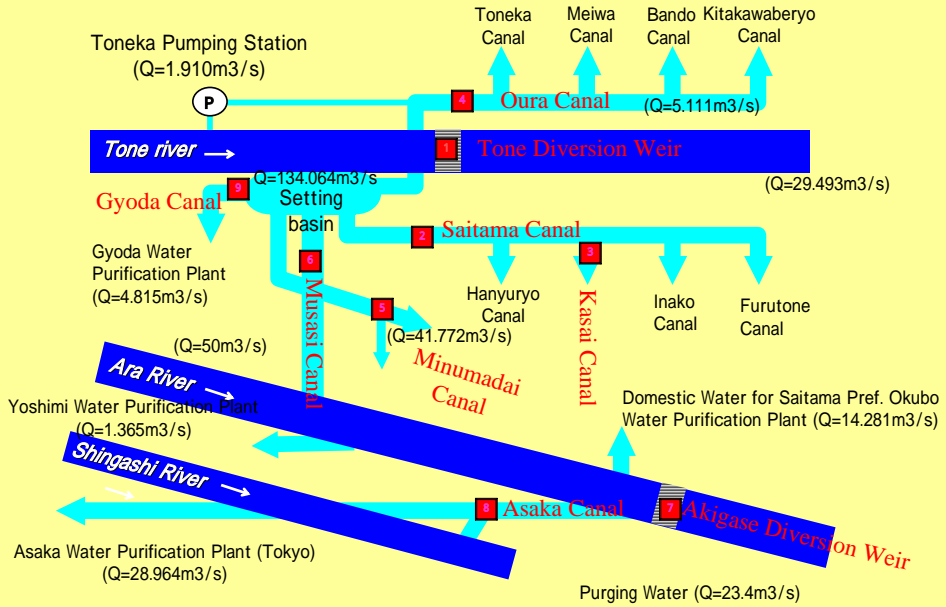


Third Goal

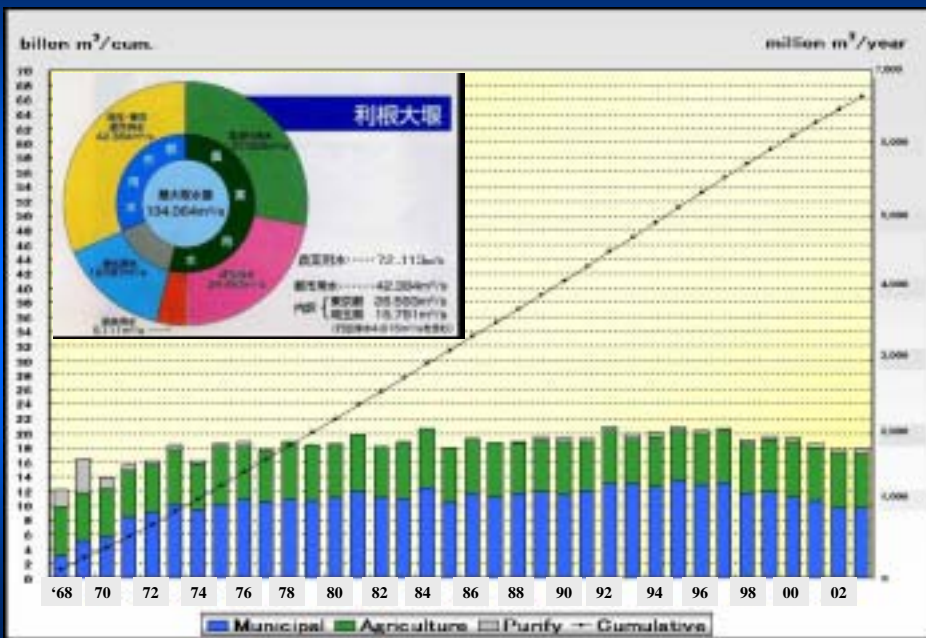
Supply Tone River's Surplus Water for Sumida River's purification water.



Outline of Facilities



Volume of Water Intake from the Tone Diversion Weir

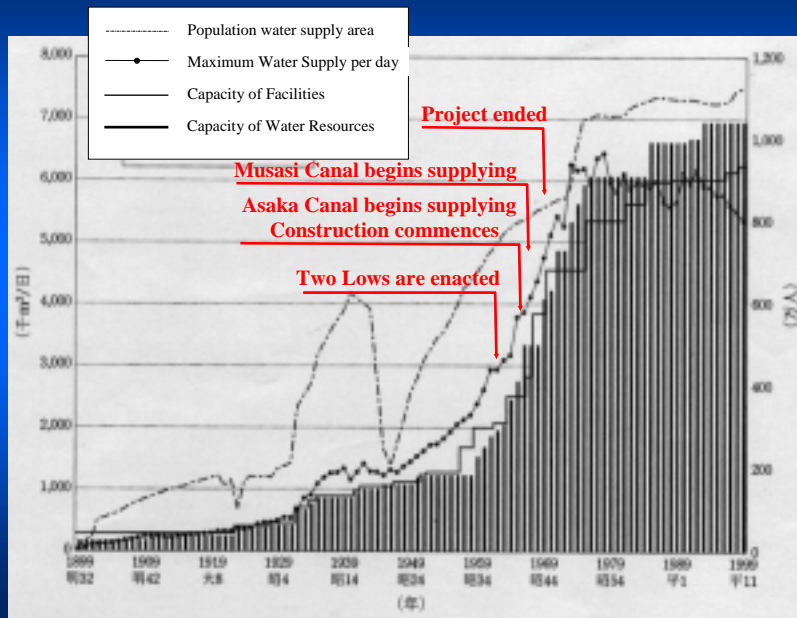


Historical Overview of the Tone Canal Project

1961	Two Lows are enacted.
1963	Project is added to Full-Plan.
1963	Project Plan is approved and construction commences.
1964	Work begins on the Musasi Canal.
1964	Asaka Canal begins supplying Metro's water.
1964	Tokyo Olympics is held.
1965	Musasi Canal begins supplying on a temporary basis.
1965	Construction works begins on Tone Diversion Weir.
1968	Water supplying begins by using Tone Diversion Weir and Tone Weir Operation Center is established.

Population growth and Water supply capacity in Tokyo

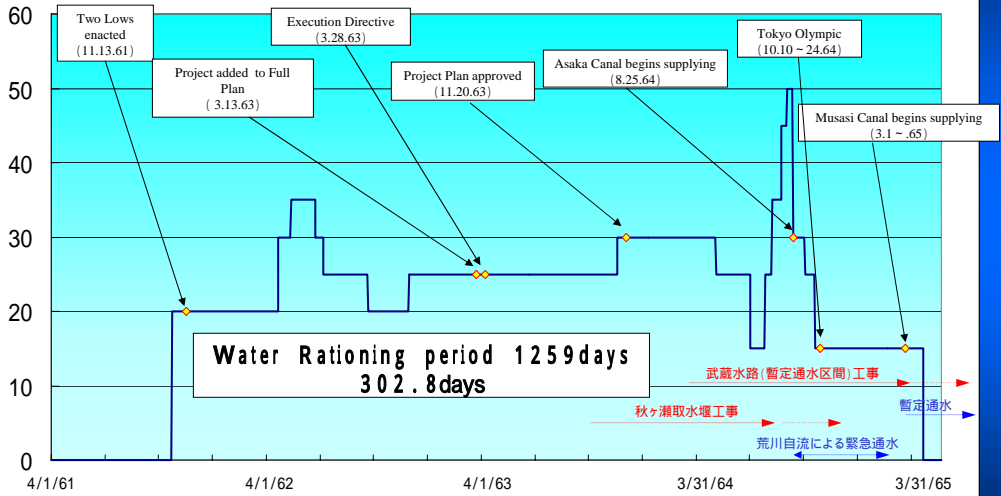
(東京都水道局“東京近代水道百年史”平成10年より)



Water Rationing in Tokyo

(1996.10.20 ~ 1965.3.31)

制限率 (%)



Tokyo Desert or Olympic Drought





Akigase Diversion Weir in construction (photographed in 1964
(Jpn))

Akigase Diversion Weir

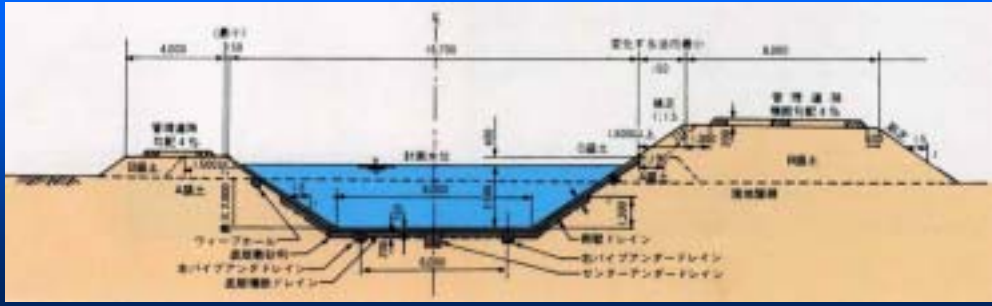
Begins water supplying 1 and half months before Tokyo Olympic



Musasi Canal



Constructed in 1 year and two months , begins water supplying 1965.3.1 on a temporary basis.
Max. quantity is 50m³/s.



Tone Diversion Weir

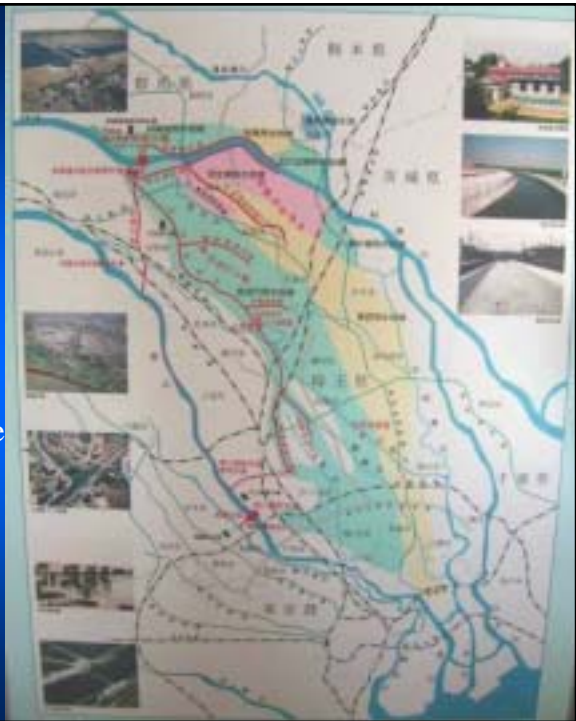


Constructed during 1965.10.30. to 1968.8

Begins water supplying by using Weir 1968.4.1

Agricultural water's Intake Unification

Irrigation water's intakes, which were developed and used 400 ~ 300 years ago, are unified to intake water stably.



Link Canal

Saitama Canal



Oura Canal



Link Canals, which link Tone Diversion and existing agricultural intakes, are constructed during Nov.1965 ~ March 1968. Unified water intake began on '68.

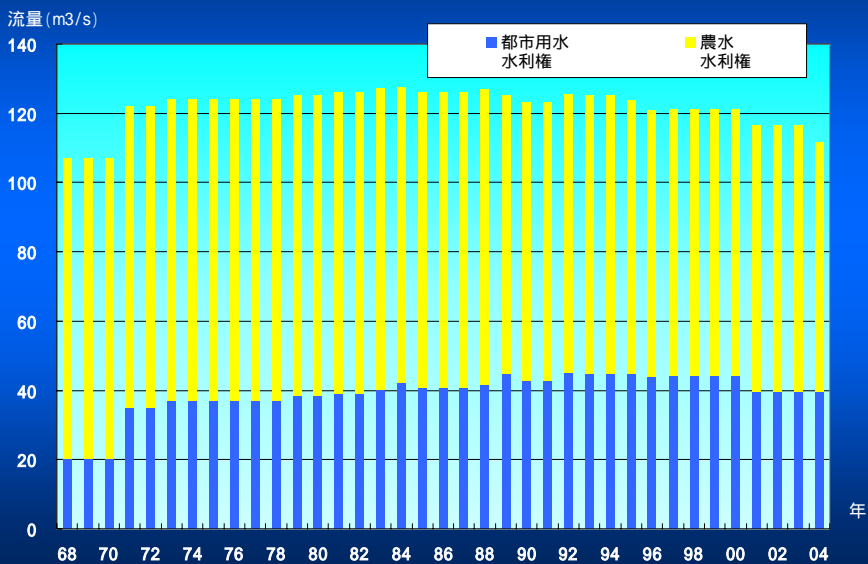
Saitama Second Stage Project

	用水路	水路名	通水量
事業実施前	農業用水	見沼代用水路	44.600m ³ /s
事業実施後	農業用水	見沼代用水路	37.509m ³ /s
	都市用水		4.263m ³ /s

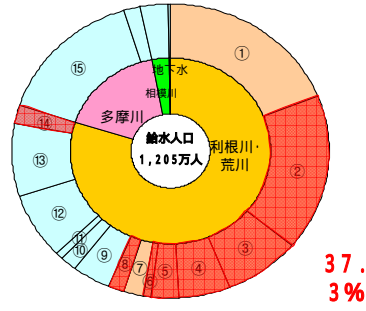
事業工期：昭和54年度～平成6年度



Water Right of Tone Weir



Water Resource Ratio of Tokyo's Domestic Water



水源区分	水系等	施設等	水源比率	施設管理者
地表水	利根川・荒川水系	(1) 利根河口堰	19.0%	水機構 (56.4%)
		(2) 下久保ダム	17.1%	
		(3) 草木ダム	7.7%	
		(4) 矢木沢ダム	5.4%	
		(5) 奈良俣ダム	2.8%	
		(6) 埼玉合口二期	0.8%	
		(7) 霞ヶ浦開発	2.0%	
		(8) 浦山ダム	1.6%	
		(9) 北千葉導水路	3.8%	
		(10) 霞ヶ浦導水	1.9%	
		(11) 渡良瀬遊水池	0.7%	
		(12) 中川・江戸川導水路	7.2%	
		(13) 江戸川水利統制	8.0%	
		(14) 荒川調節池	1.9%	
		(15) 小内内ダム	15.4%	
地下水	相模川	自流	1.6%	国交省・東京都等 (43.6%)
		原水取水	2.9%	
計			100.0%	

注1) 水系等比率は、H16事業報告書(東京都水道局)による。

注2) 施設等比率は、水系等比率及び許可水利権水量を基に水資源機構にて算出した。

Maintenance Work

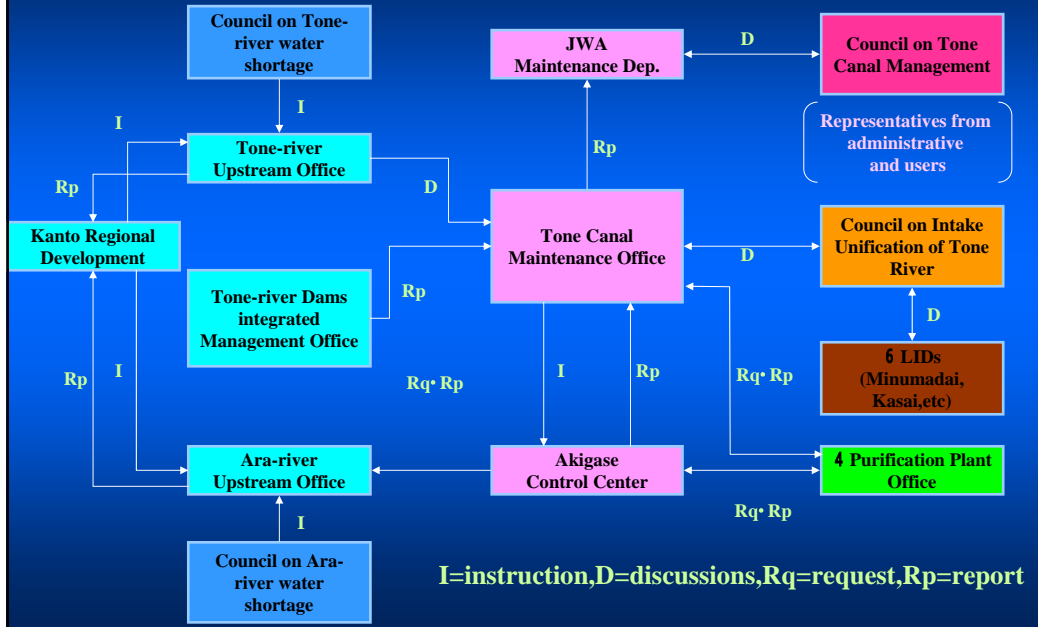
Water was for

Agriculture 6 LID 29,000ha

Domestic 6 purification plant.

Industry

Water Intake Coordination



Water supply for Users properly, safely, stably



Maintenance on Preventing Disaster



Flood time operation at Operation-room



Facility Patrol at flood time



Oil-fence setting for Water quality accident



Flood-time Operation

Information Changing with Users



Council on Tone Canal Management



Council on Tone Canal Management



Meeting with purification offices



study-meeting on water quality

Exchange of Regional people



Meeting with dam region's and middle region's people



体験交流会 竹細工教室



Challenge to quizzes on water



Observation E vent at Simokubo-dam (T op of dam)

Exchange of Regional people(2)



Facility Observation meeting among wives



Working event 2004 in Ara-river



Observation meeting on Salmon



Observation meeting on S almon inspection

Salmons Coming-up Number at Tone Diversion Weir (1983 ~ 2003)

