GEO-UNESCO JOINT WORKSHOP
12-16Janyary, 2012, Nairobi, KENYA

Case Study of Tone River, JAPAN

Tadashige KAWASAKI

Japan Water Agency

Network of Asian River Basin Organizations (NARBO)

United Nations Educational, Scientific and Cultural Organization

International Hydrological Programme of UNESCO

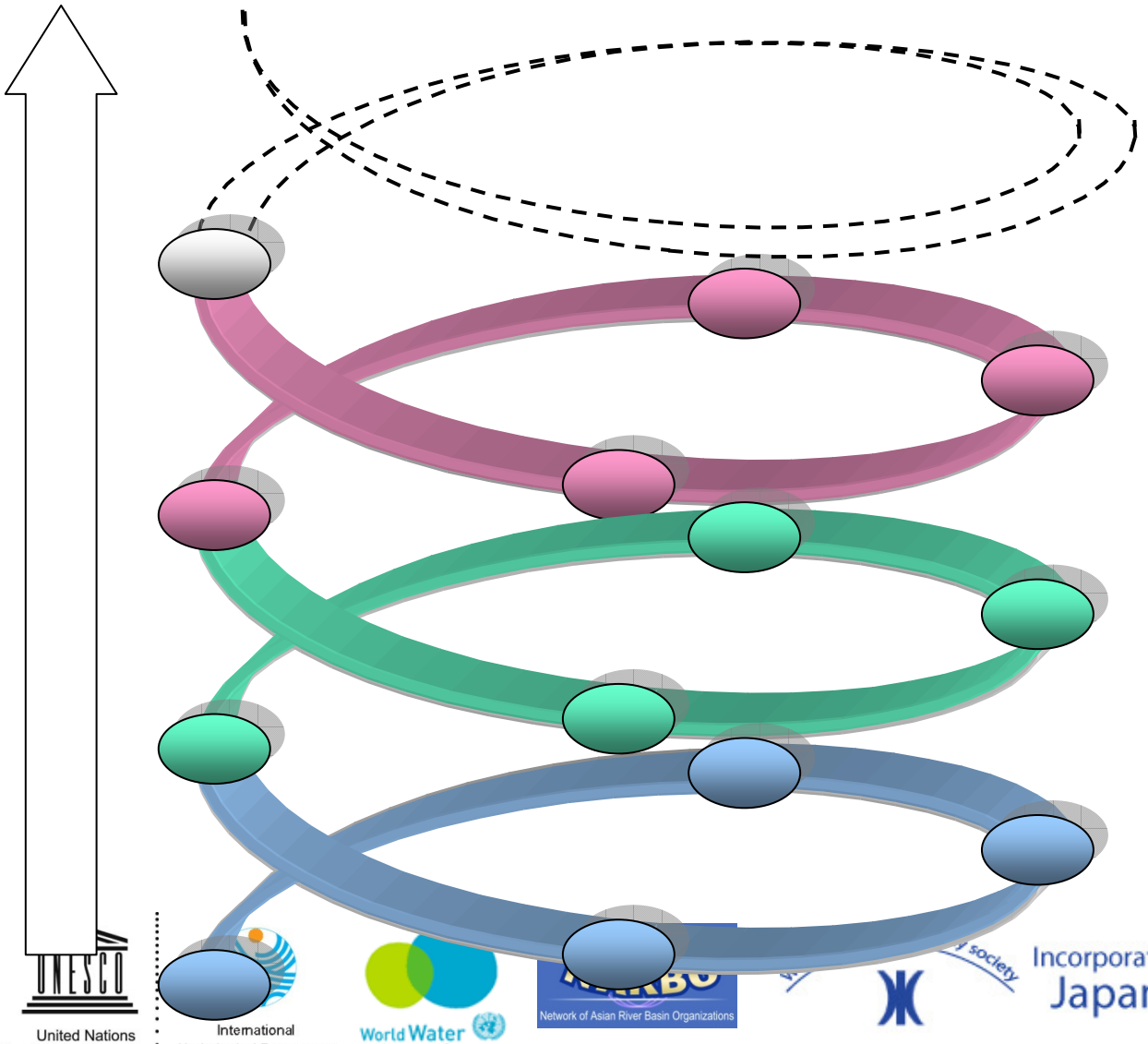
World Water Assessment Programme

NARBO Network of Asian River Basin Organizations

Water supports wealthy society

Incorporated Administrative Agency Japan Water Agency

"IWRM Spiral" concept model



United Nations Educational, Scientific and Cultural Organization

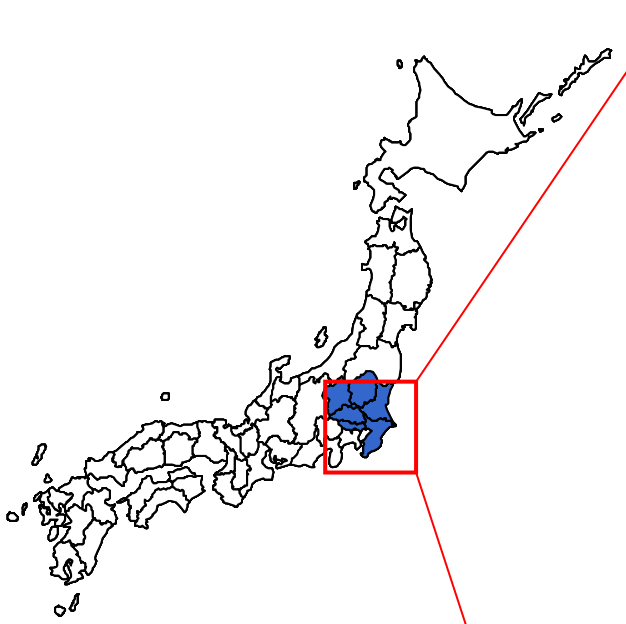
International Hydrological Programme of UNESCO

World Water Assessment Programme

Network of Asian River Basin Organizations

Incorporated Administrative Agency
Japan Water Agency

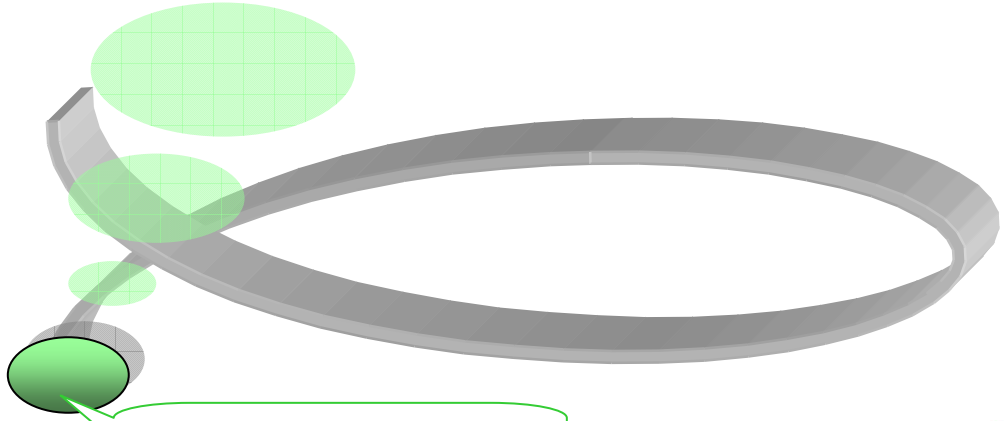
IWRM in Japan – Tone and Ara River Systems



Guidelines Part2-1 pp.138-148
5.9 Tone River (Japan)

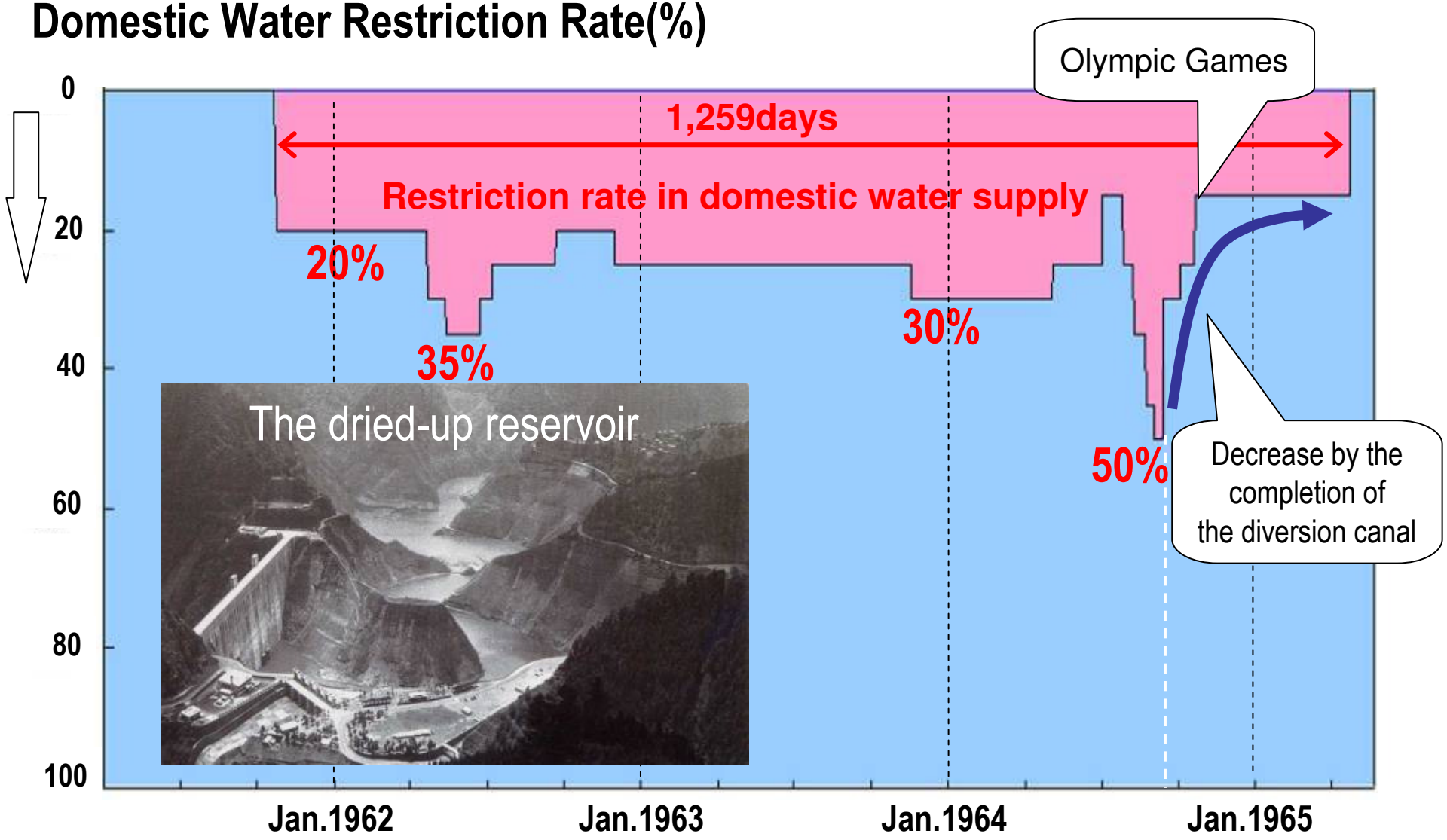
Identify problems

- Serious water shortage
  (domestic and industry)
- Pollution in Urban river
- Unreliable water intake facilities
  (irrigation)



1960

Example of Problems - just before Olympic games



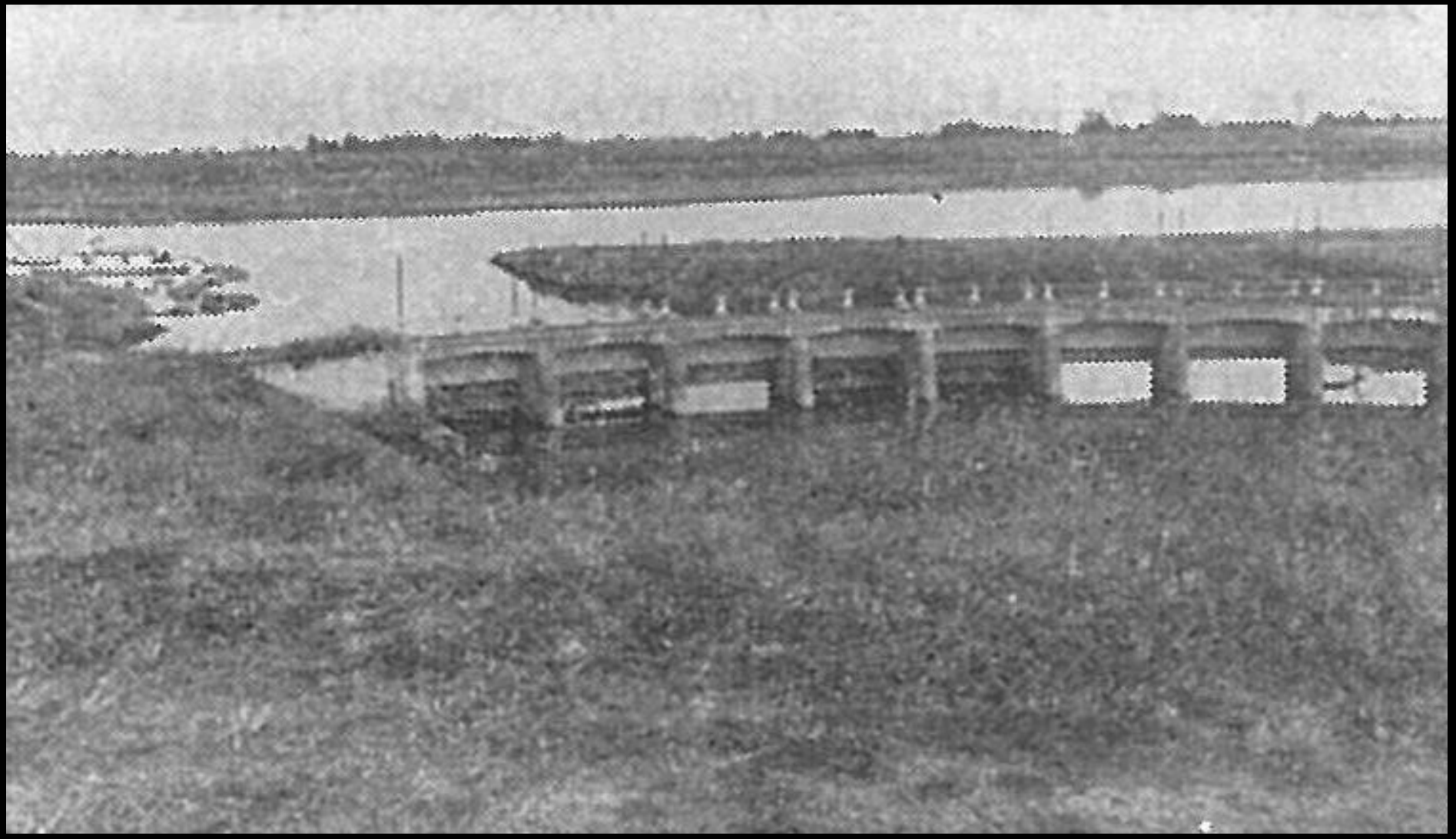
Serious Water Shortage in Metropolitan Area

- supply through water tank truck

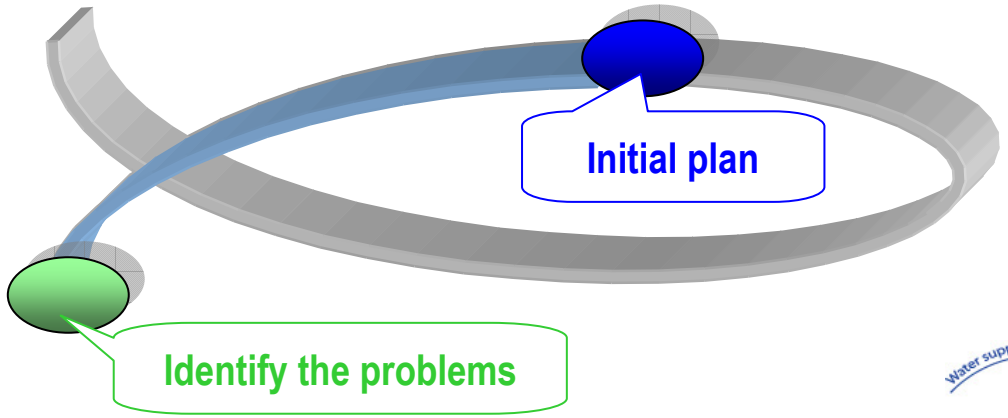
Pollution in Urban river

- smelled badly and no fish

Unreliable irrigation intake without barrage

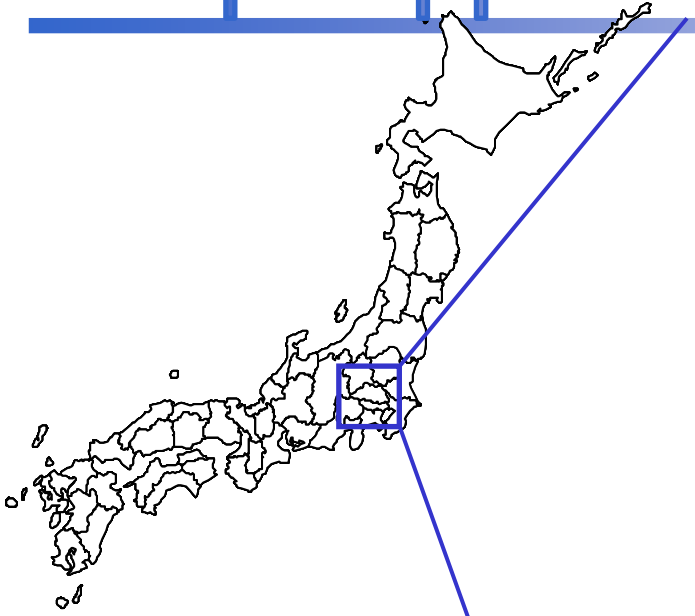


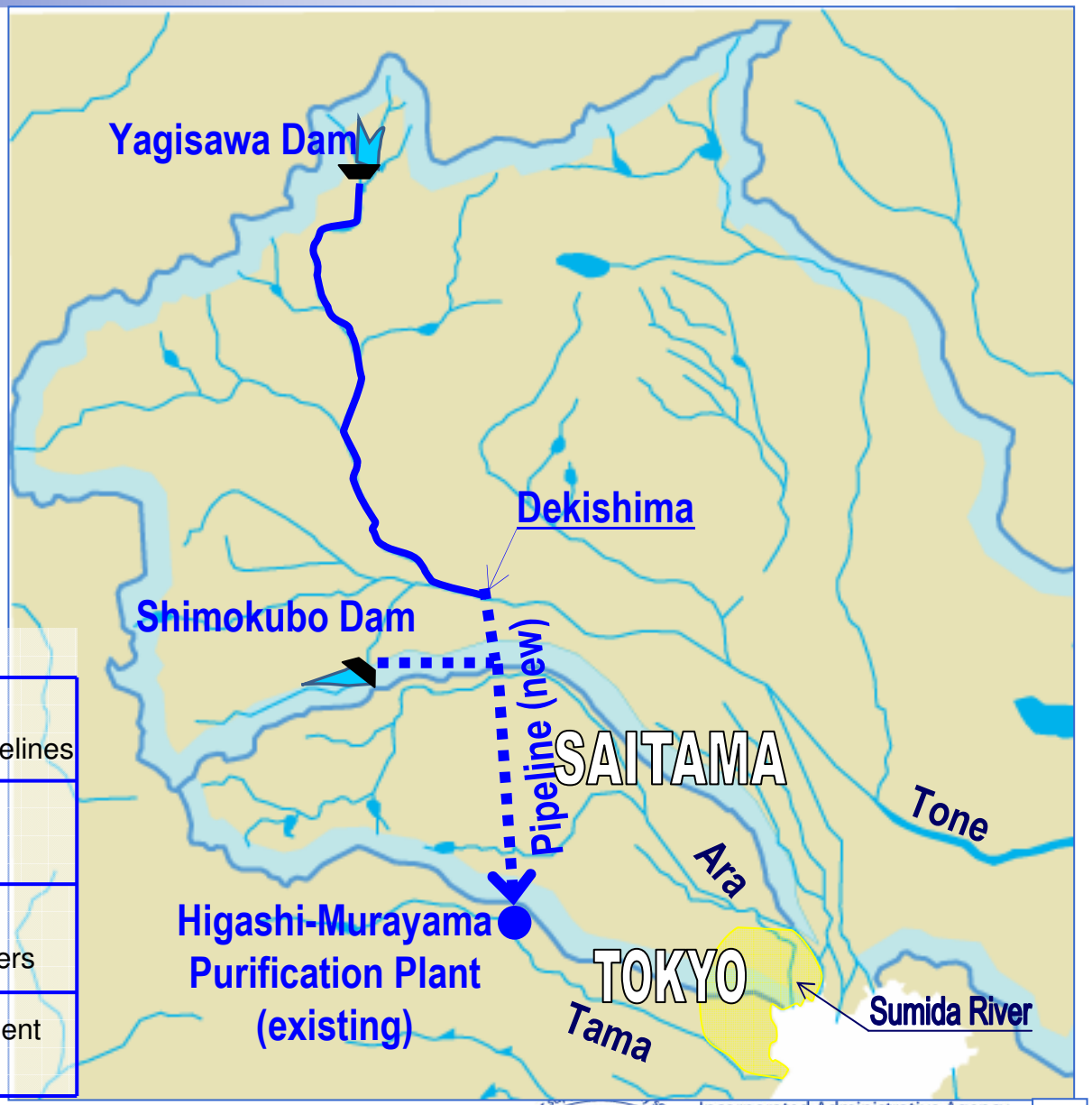
Drafting an initial plan



1960

Initial plan - pipeline from upstream to the purification plant



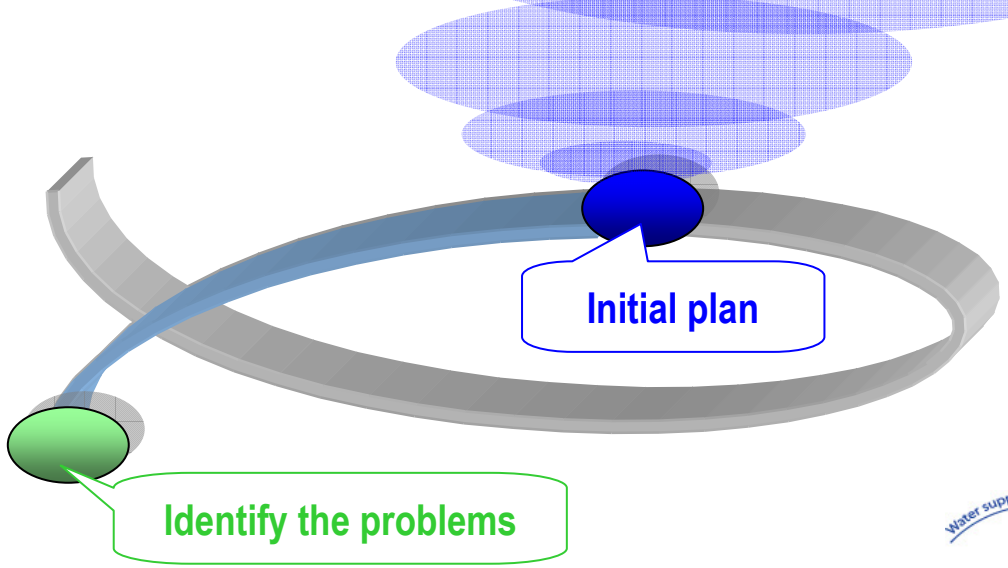


The Set of solutions

Technical	**hard**	Construction of Dams, barrages and pipelines
	soft	-
Financial	Cost Allocation between domestic and industrial water users	
Social	Laws (e.g. Water Res. Development Promotion Law)	

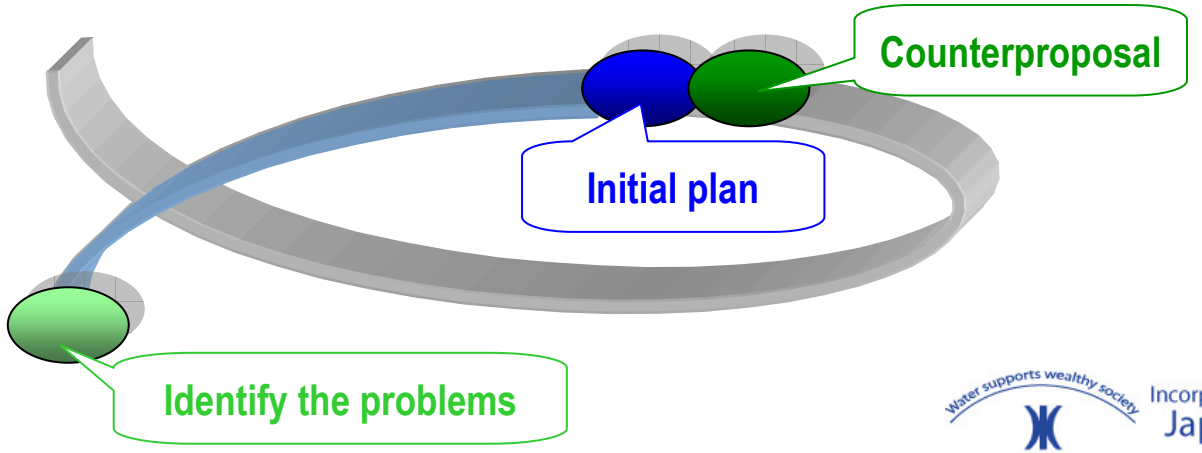
Stakeholders' reaction to the initial plan

Stakeholders	Reaction
➢Residents in Tokyo	: Happy as cleaner water from upper stream will be delivered.
➢Riparian residents (Urban river)	: Unhappy because pollution in the urban river will not be improved.
➢Riparian residents (Tone river)	: Moderately unhappy because river water flow will be decreased.
➢Farmers	: Unhappy because decreased water flow for their intake.



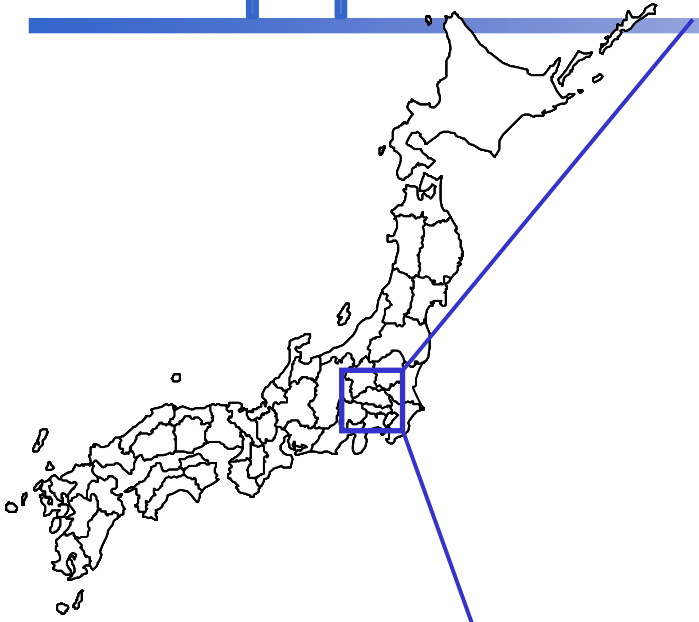
1960

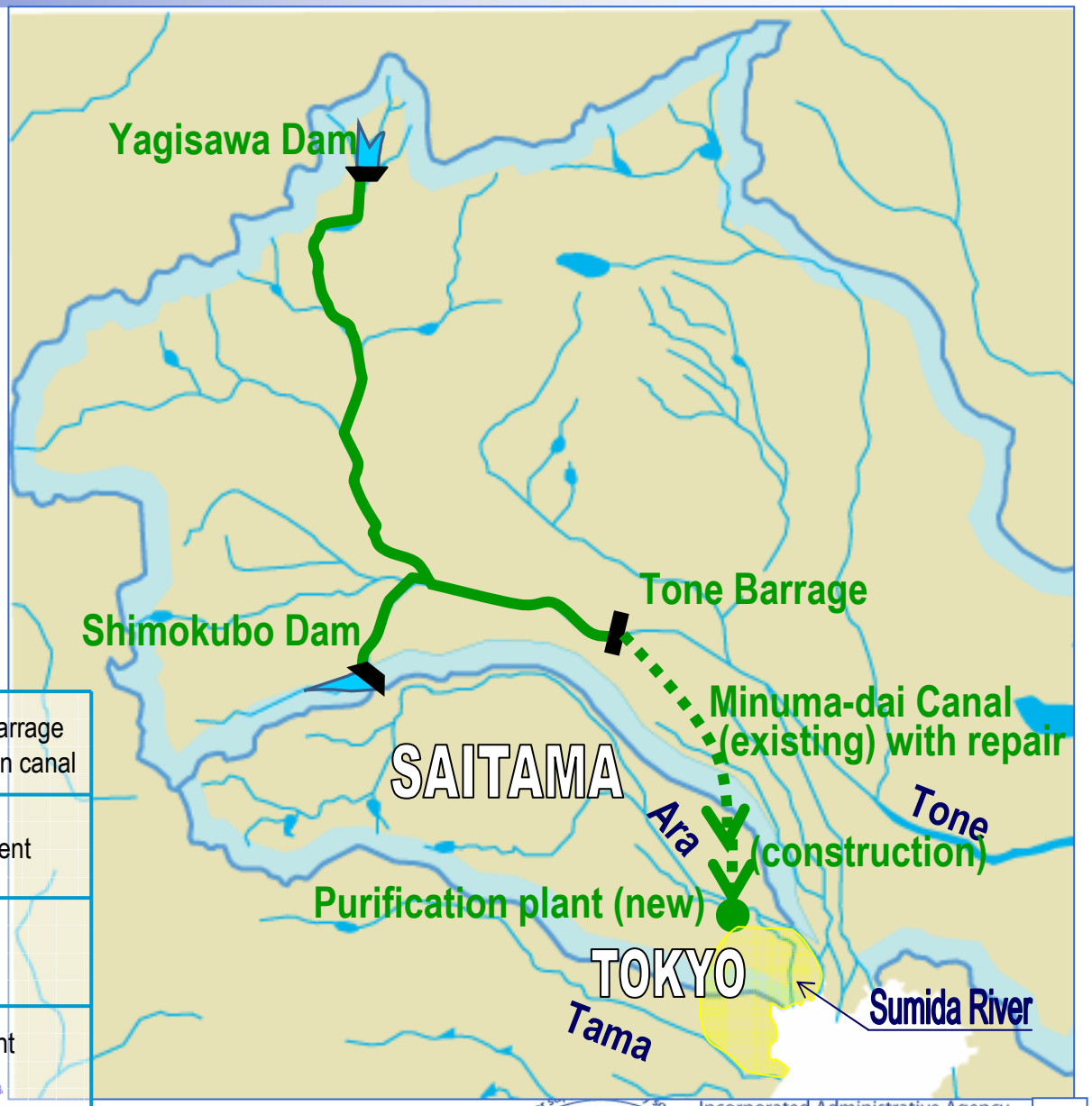
Counterproposal by Agricultural Sector



1960

Counterproposal - Construction of weir and reparing irrigation channel



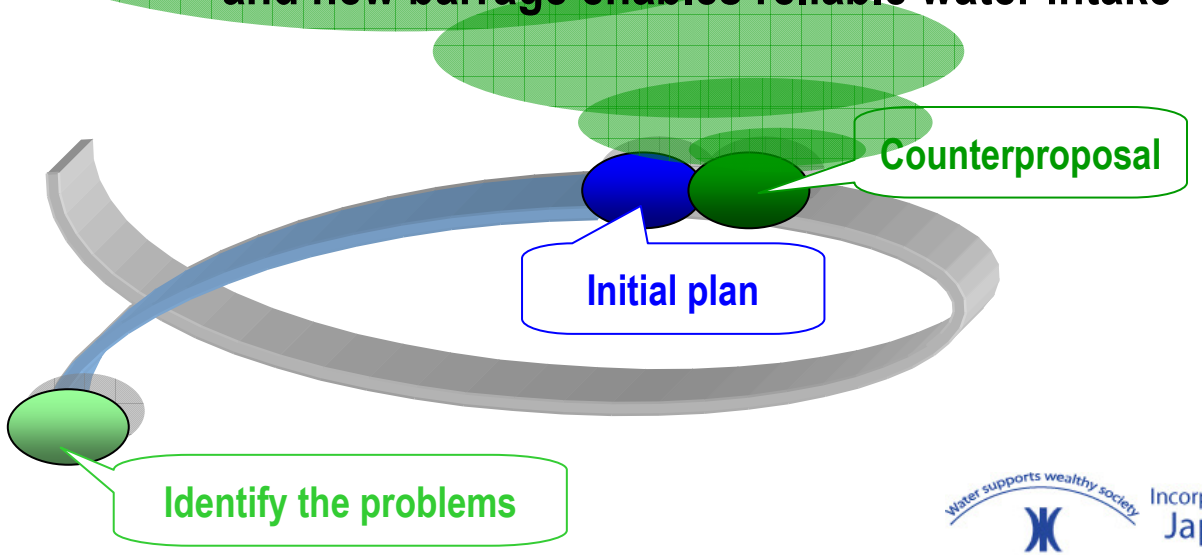


The Set of solutions

Technical	**hard**	Construction of dams, barrage Repair of existing irrigation canal
	soft	Integrated management
Financial	Cost Allocation among multi-purpose water users Due consideration to farmers	
Social	Laws (e.g. Water Res. Development Promotion Law)	

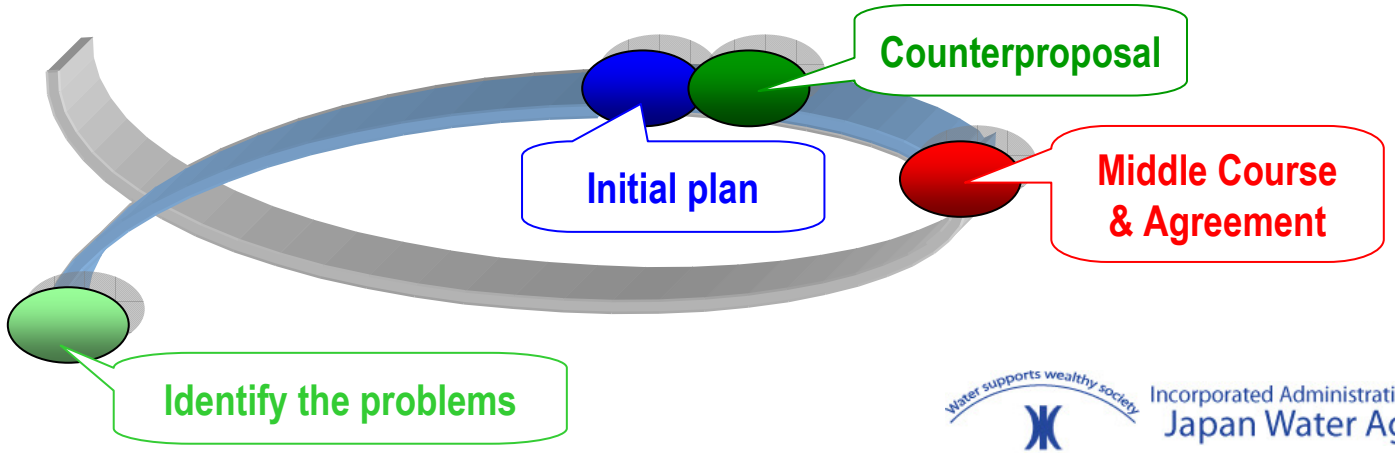
Stakeholders' reaction to the counterproposal

Stakeholders	Reaction
➢Residents in Tokyo	: Unhappy as delivery of water from upper stream will be delayed.
➢Riparian residents (Urban river)	: Unhappy because pollution in the urban river will not be improved.
➢Riparian residents (Tone river)	: Happy as the water flow is kept as before.
➢Farmers	: Happy as water flow for their use is kept intact and new barrage enables reliable water intake

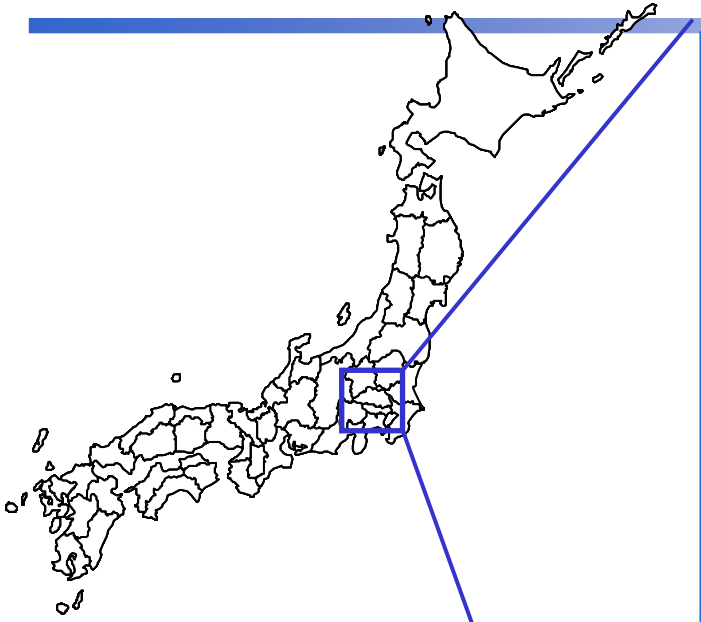


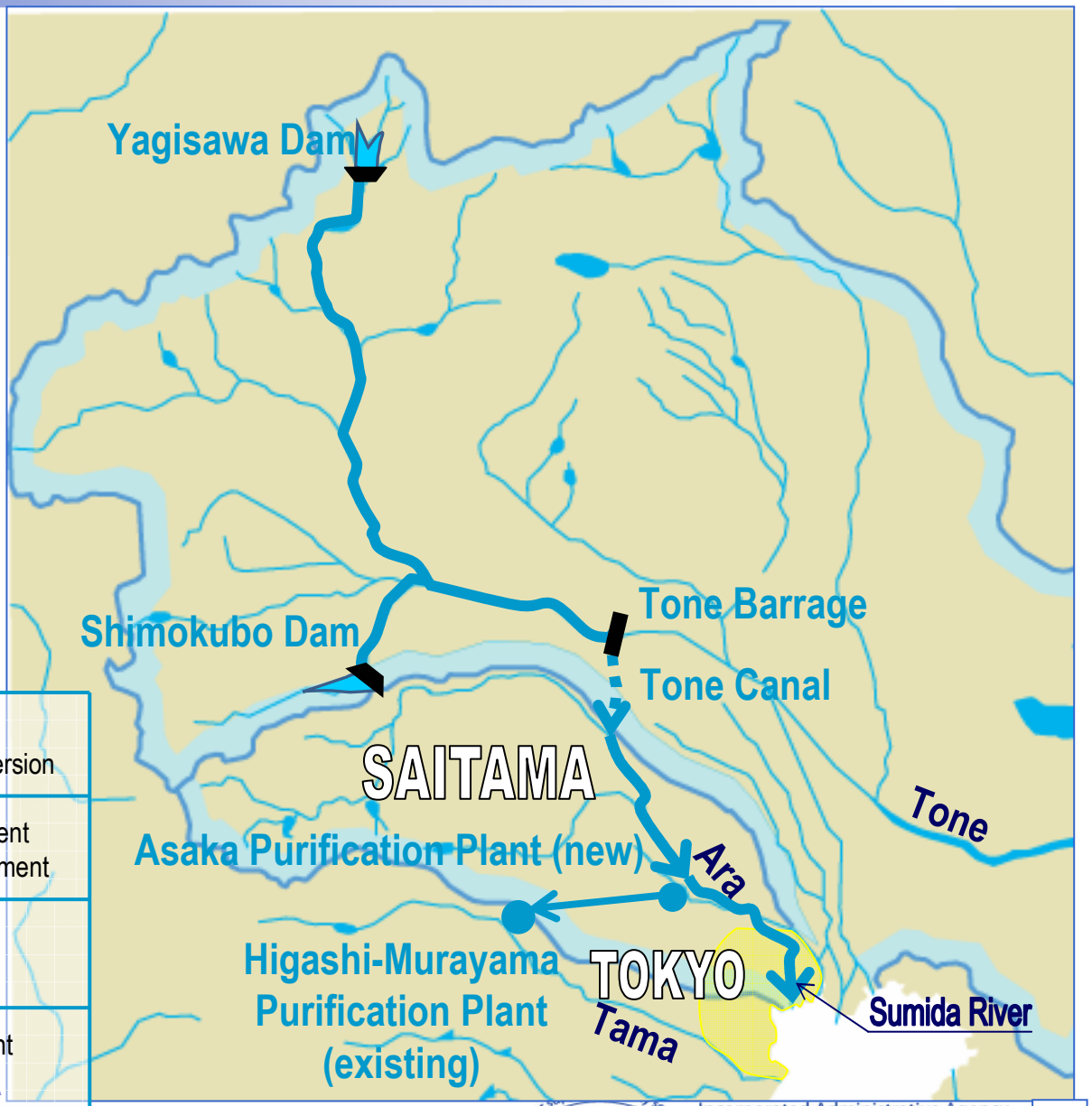
1960

Middle Course proposed by Coordinator



Middle Course - Construction of weir and connecting channel



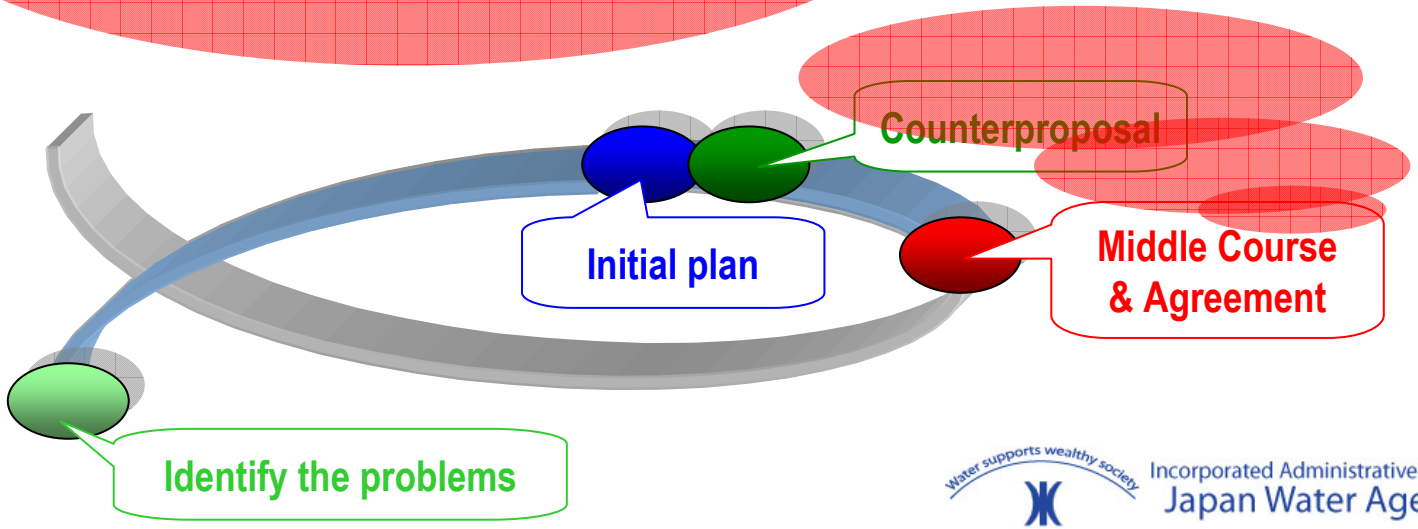


The Set of solutions

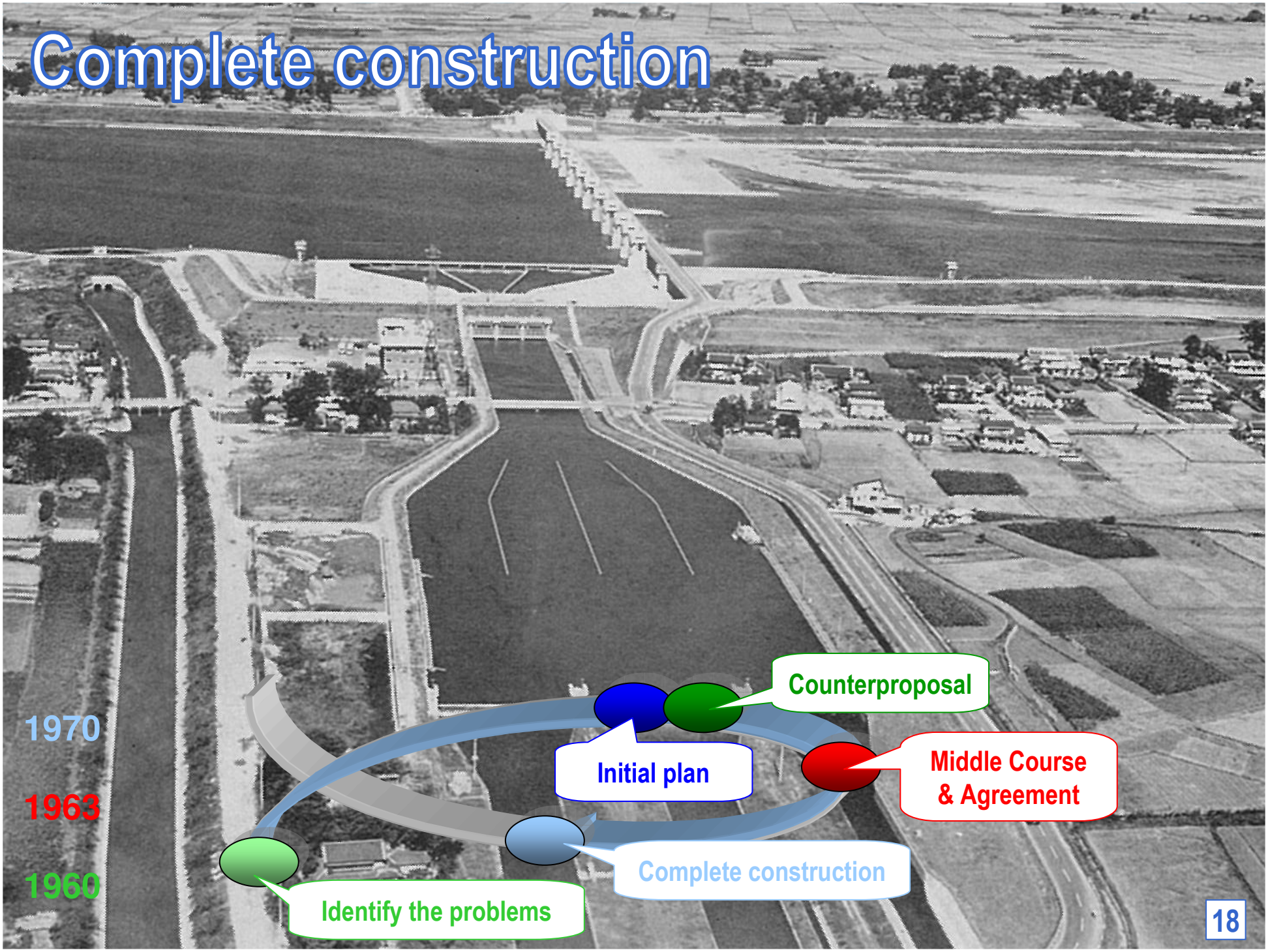
Technical	**hard**	Construction of Dams, barrage and diversion
	soft	Integrated management Supply flow for environment
Financial	Cost Allocation among multi-purpose water users Due consideration to farmers	
Social	Laws (e.g. Water Res. Development Promotion Law)	

Reach to the agreement

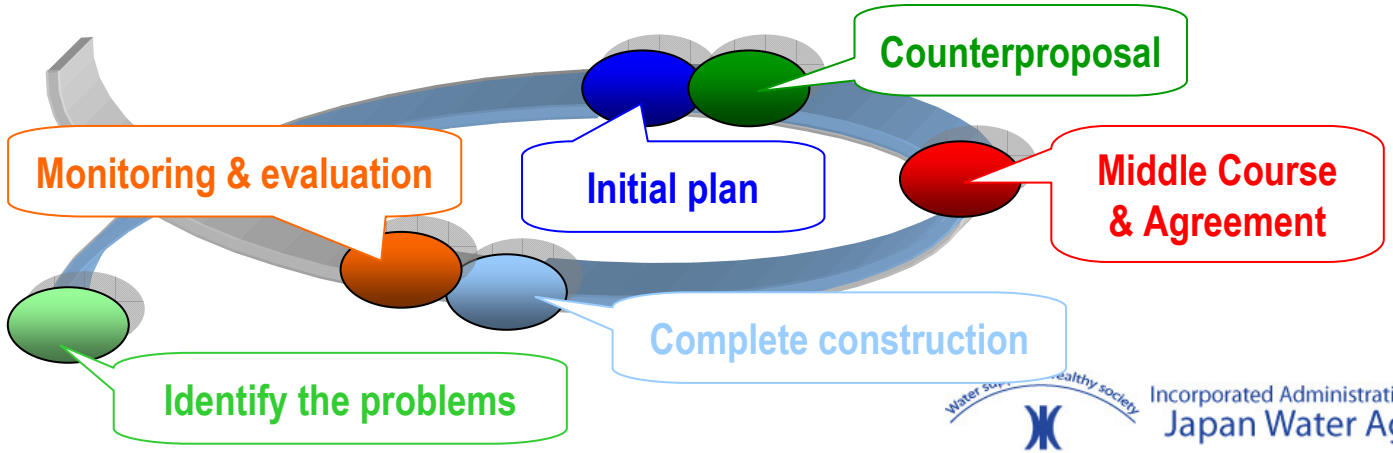
Stakeholders	Reaction
➢Residents in Tokyo	: Moderately happy still as the demand for water is met.
➢Riparian residents (Urban river)	: Happy as river environment is improved.
➢Riparian residents (Tone river)	: Happy as the water flow is kept as before.
➢Farmers	: Happy as water flow for their use is kept intact and new barrage enables reliable water intake.



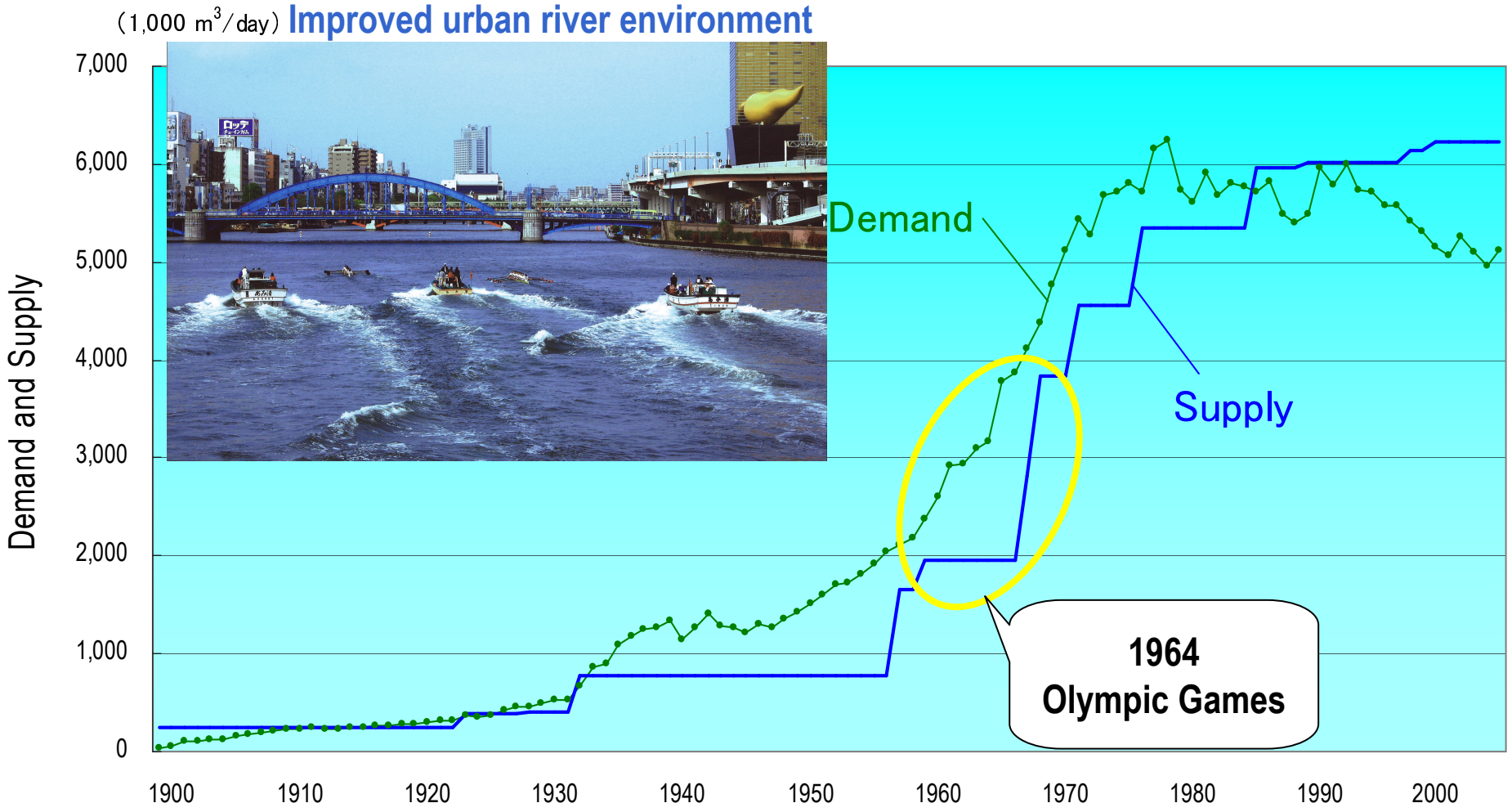
Complete construction



Monitoring & evaluation



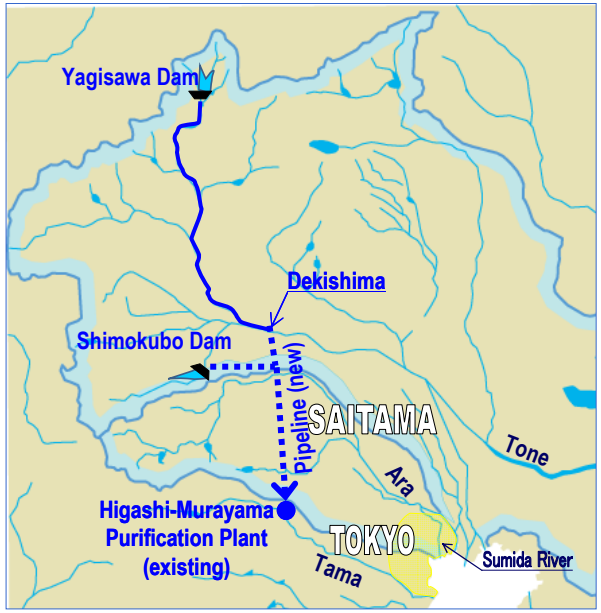
Domestic Water Demand and Supply for Metropolitan Area



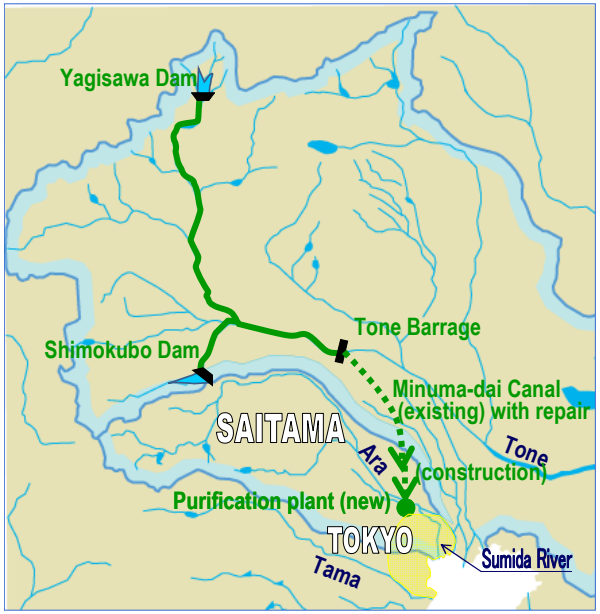
IWRM Pentagram of the plans

Guidelines Part2-1 p.189
6.1 Pentagram

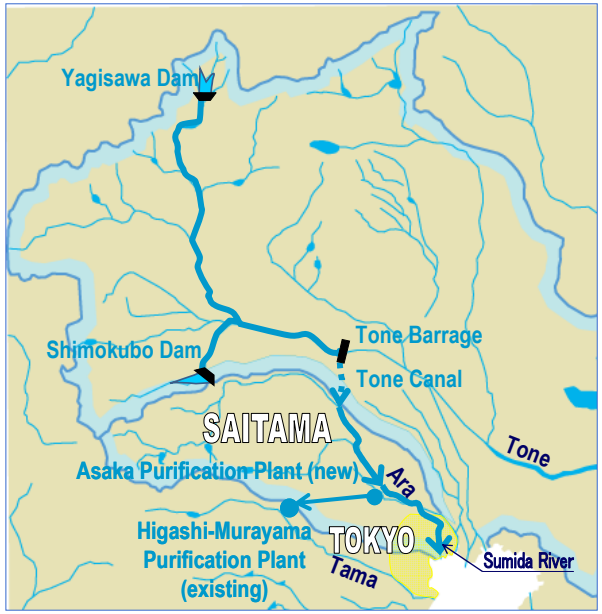
Initial Plan

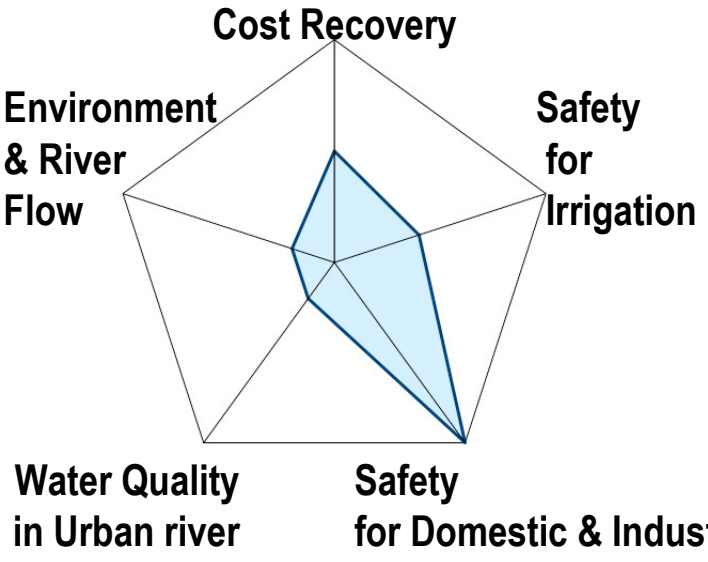


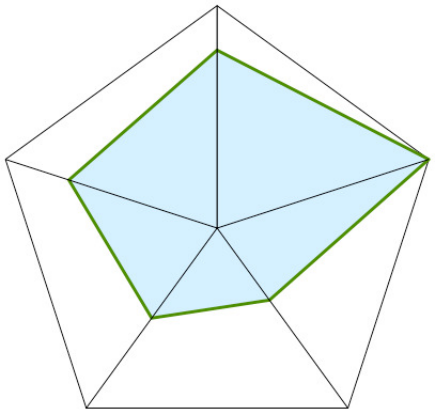
Counterproposal

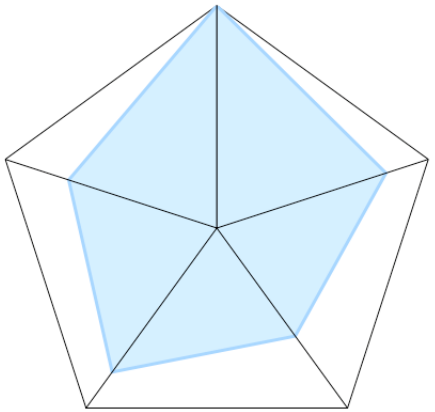


Middle Course





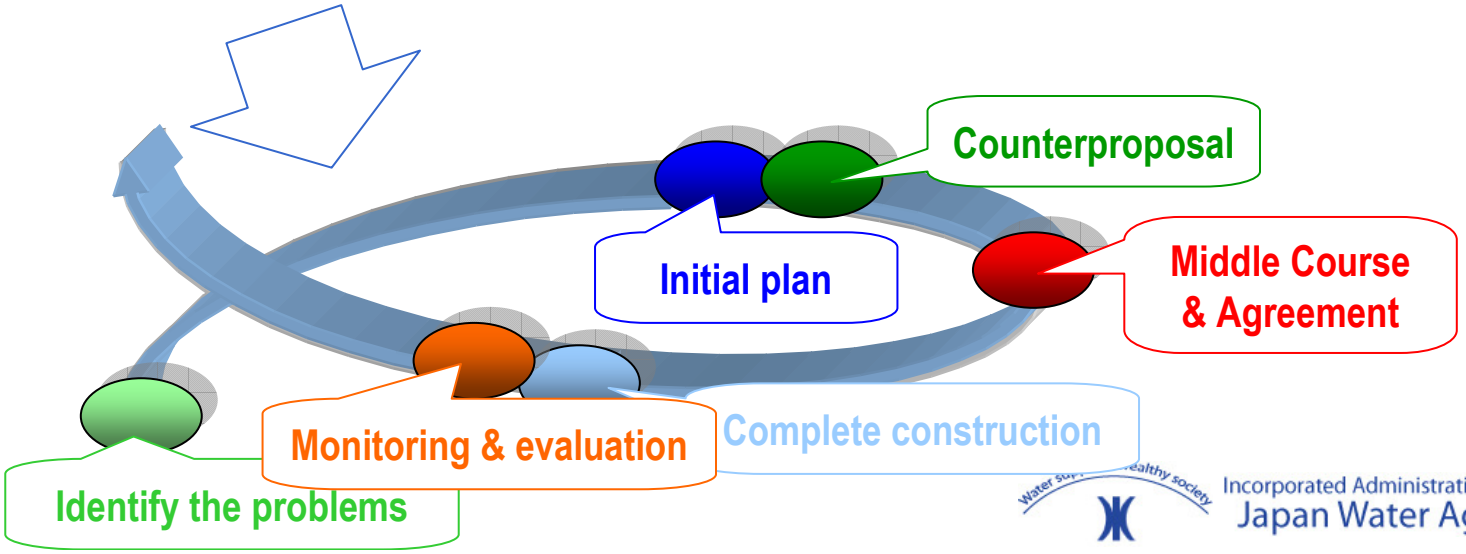




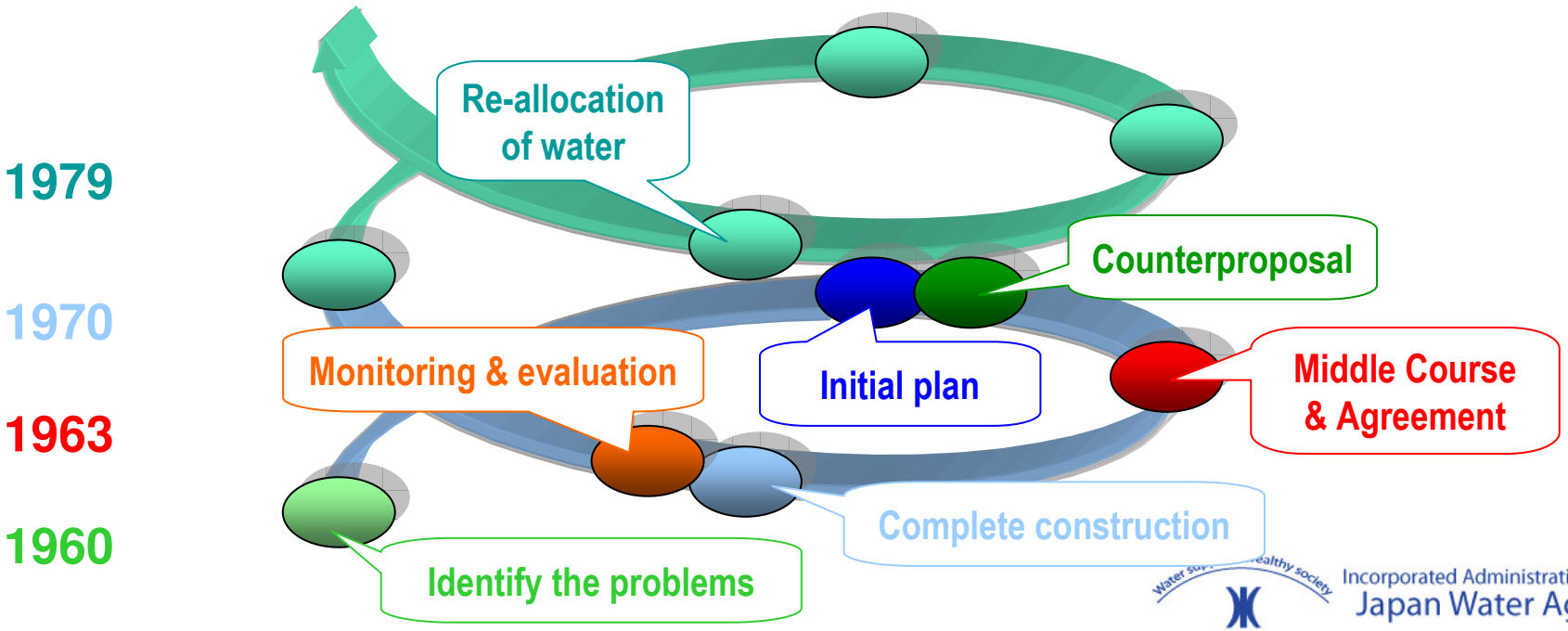
Social Impacts and the stage shift

Social Impacts

- ✓ Increasing demand of urban water
- ✓ Decrease of farmland

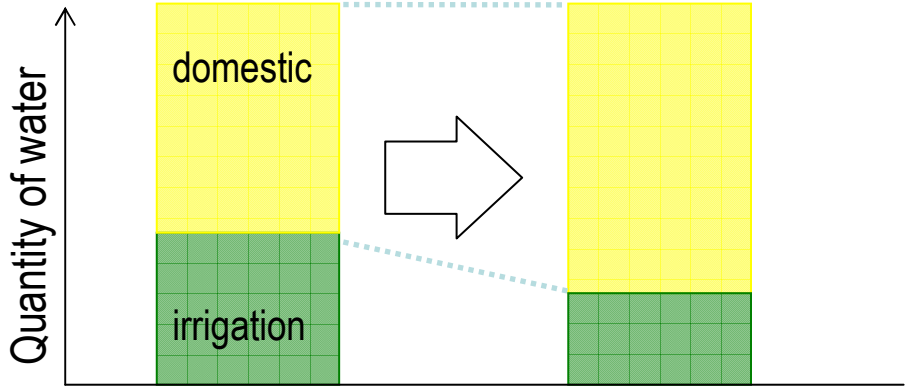


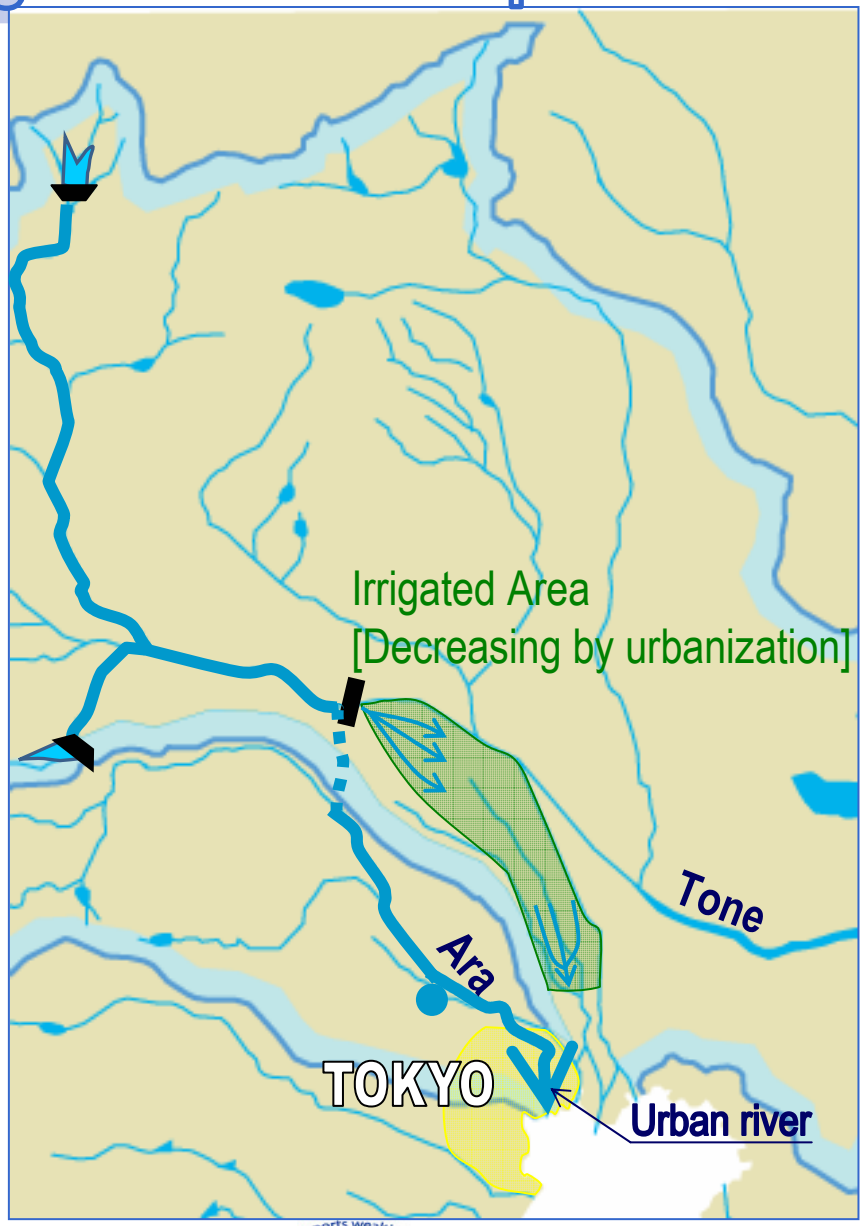
Next Spiral: Re-allocation of water



Re-allocation of water by irrigation canal improvement

Conversion of irrigation water right to municipal use was planned.

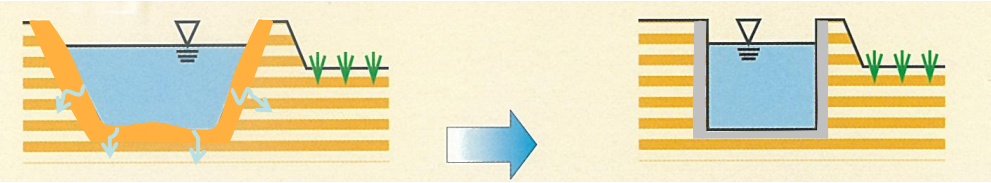




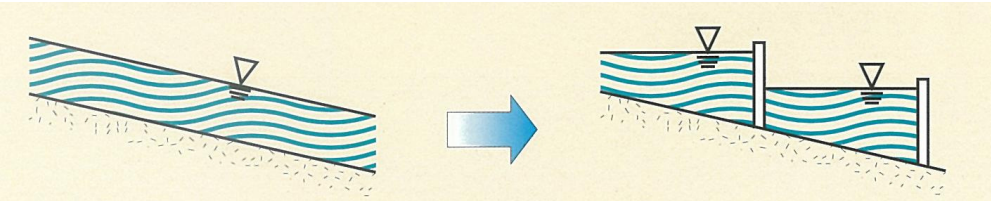
Re-allocation of water by irrigation canal improvement

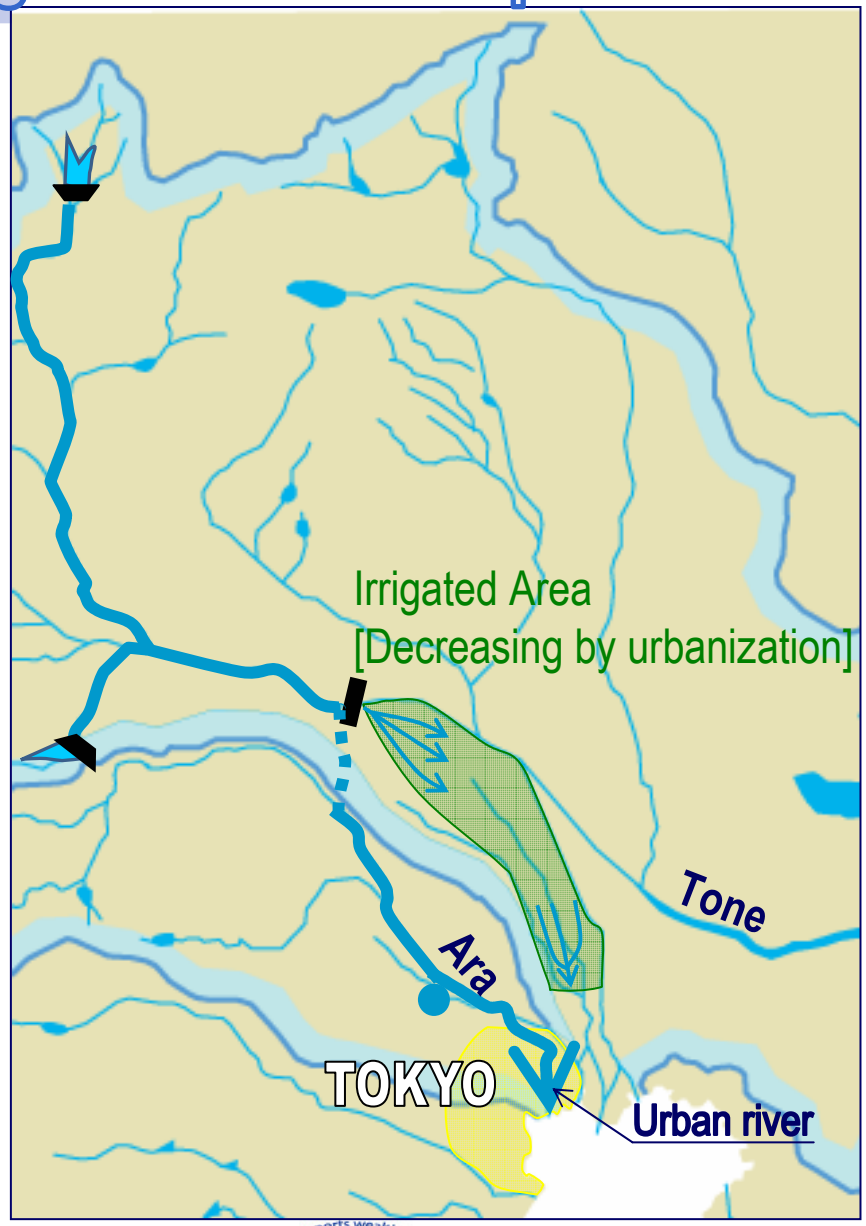
Cost for improvement is paid
by domestic water users.

➢Lining to decrease seepage loss

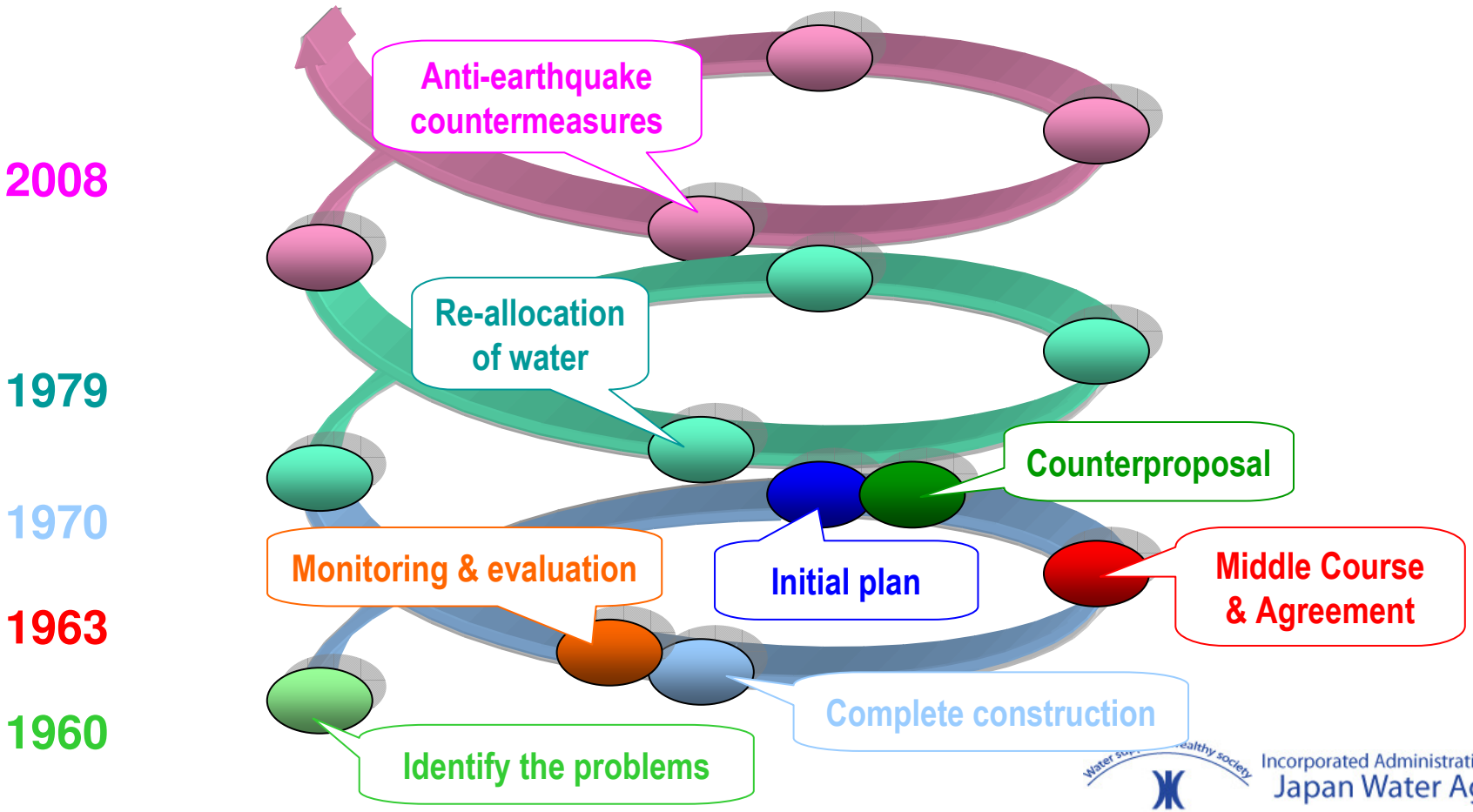


➢Constructing check gates
in order to raise the water level in the canal.





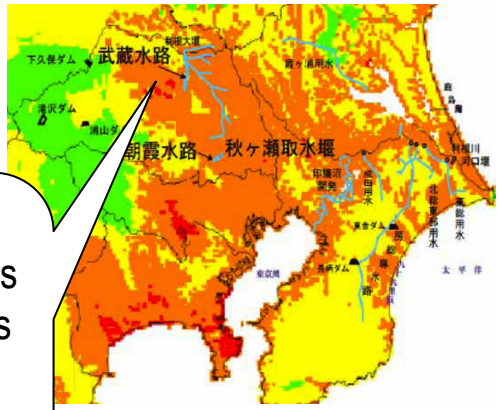
Next Spiral: Anti-earthquake countermeasure



Anti-earthquake countermeasures and special care for the environment

Possible seismic intensity map

Level 7 Maximum
Level 6(H)
Level 6(L)



- Anti-earthquake countermeasures are urgent needs
- Lifeline for 12 million people in metropolitan area

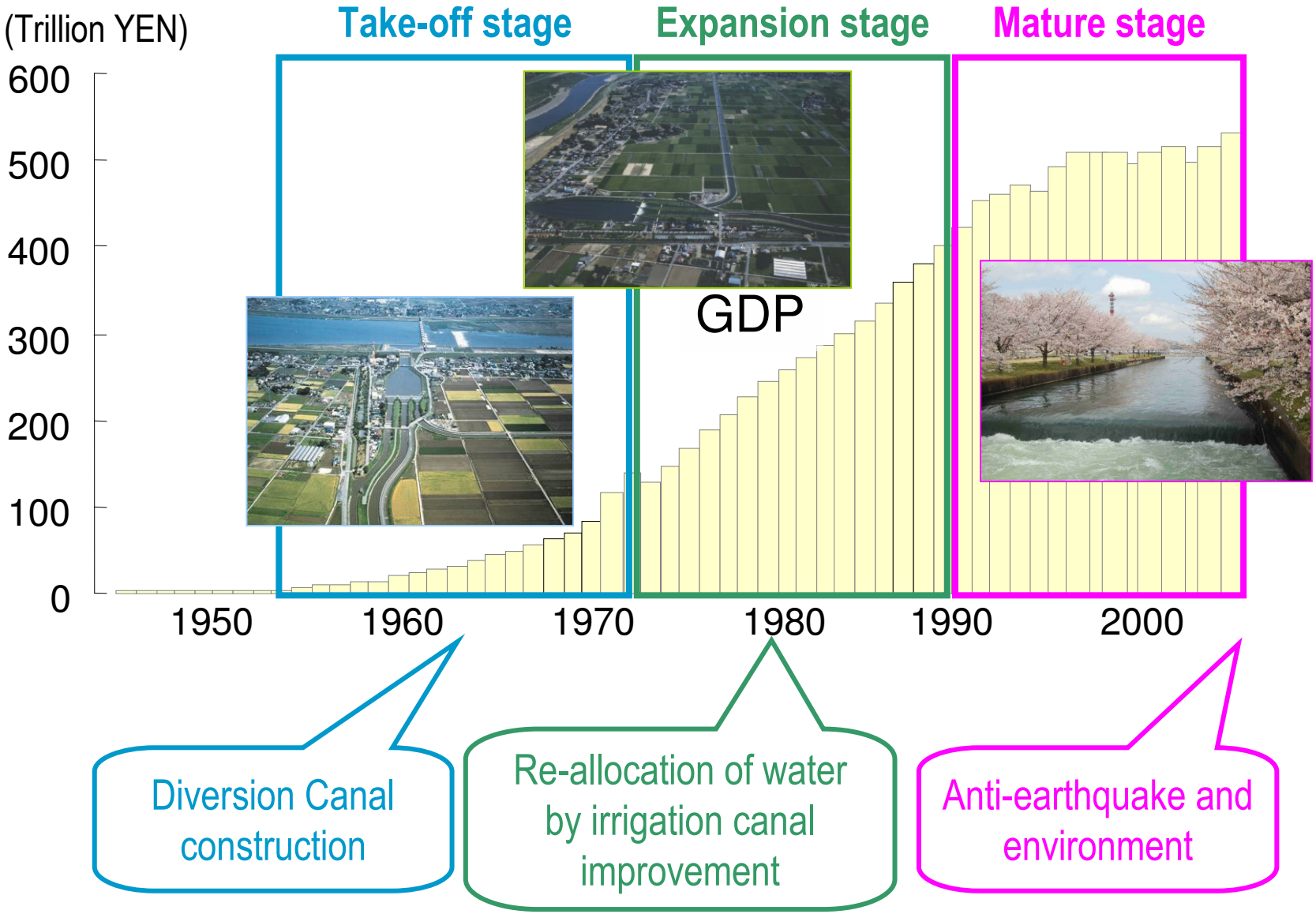
Deterioration by aging

Subsidence of embankment

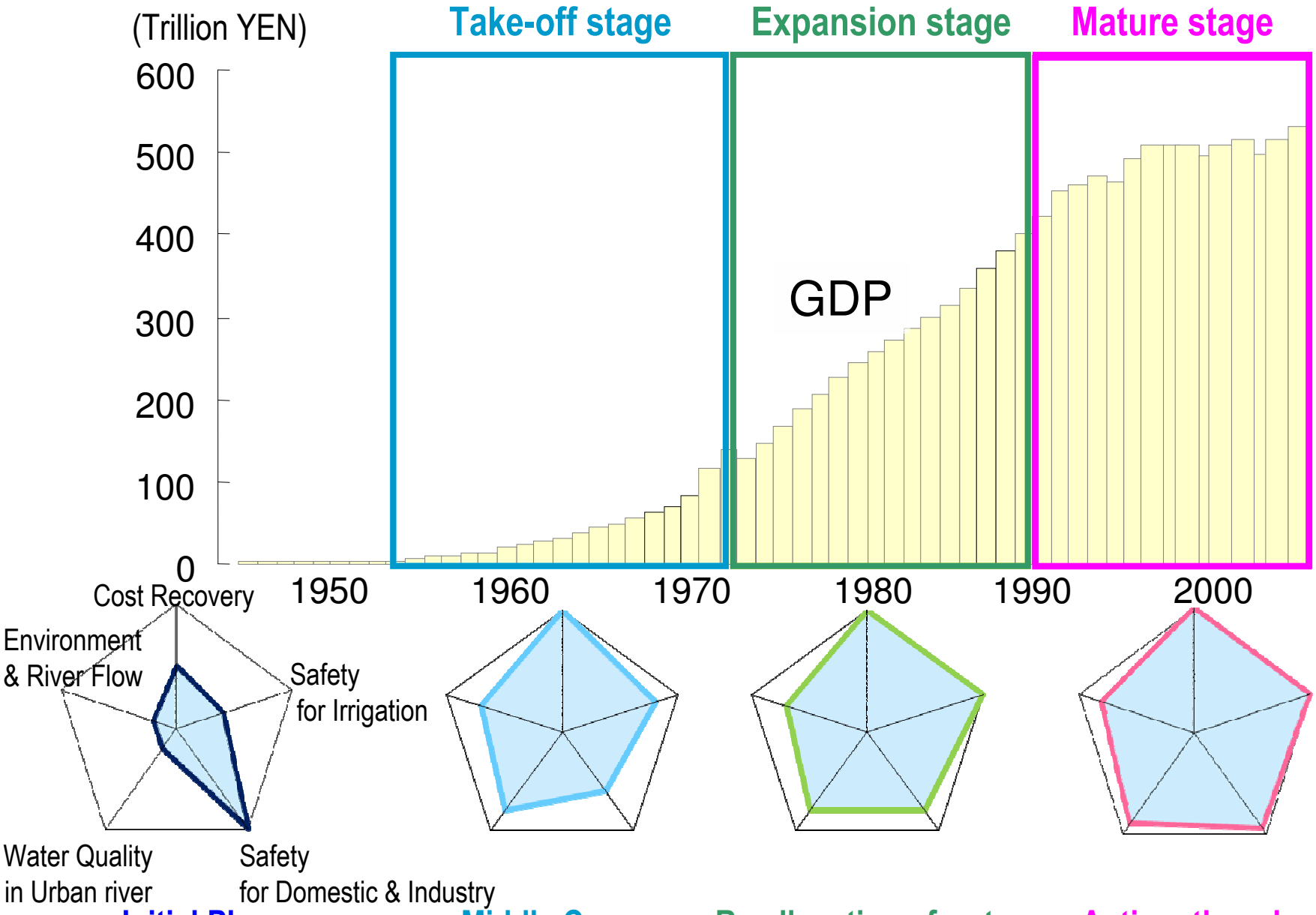
Increasing inland floods by urbanization

Making the best use of existing good scenery

IWRM is not static but dynamic



IWRM is not static but dynamic



Extracted Key for Success

Guidelines Part2-1 pp.59-60
5. Good Examples

[Case Stories]

Facts	Ref. to KFS
2. Management phases and institutional strengthening (top-down but bottom-up enablement) … Public education was seen as an important part of the process… Educational programmes were implemented to enhance public awareness and to help increase understanding of the people in the communities. A programme that has been particularly successful is 'Special Forever', which was…	KFS-5.5.2 (2)

Fig. 5.1 Format and Example of Case

[Extracted Key for Success]

[Title] **Enhancing public awareness**	Type of problem to solve
[Situation] **Ensuring public awareness and support in implementing policy changes…**	Description of the situation
[Problem] **It was important to ensure that people in the basin understood the importance of the changes being implemented to the basin's water resources management…**	Problems encountered
[How the problem was overcome] Public awareness was enhanced through an environmental education programme implemented at primary schools…	Measures taken to overcome the problem
[The key] **Interactive educational activities targeting primary school children facilitated greater awareness on environmental issues in the basin, not only among children but also among their families.** [1.3.2]……	Wisdom behind the measures taken in a generalized terms
[Conditions and limitations in applying the KFS] The programme can be effectively implemented through an organization such as a teaching association…	Conditions and limitations, tools to enhance the application of the KFS, etc

Fig. 5.2 Format and Example of Extracted Key for Success

Case Story lays out the facts in a sequential manner and illustrates the pathway towards the 'Key for Success' (KFS). The Case Story includes links to the 'Extracted Key for Success' so that one can understand how the Key for Success fits into the overall story.

The Extracted Key for Success illustrates why the 'Key for Success' was implemented and what the thought process behind it was. In order to ensure the relevance of keys for success to users, 'the Key' is explained in a generalized manner together with conditions and limitations for its application.

Key for Success [3.2.1]

Guidelines Part2-1 p.35
3.3.2 Coordination

3.3 Coordinating and detail planning
3.3.2 Coordination

Key ☞

[3.2.1]
Coordinate in such a way so that resulting changes will be favourable for and equitable among stakeholders.

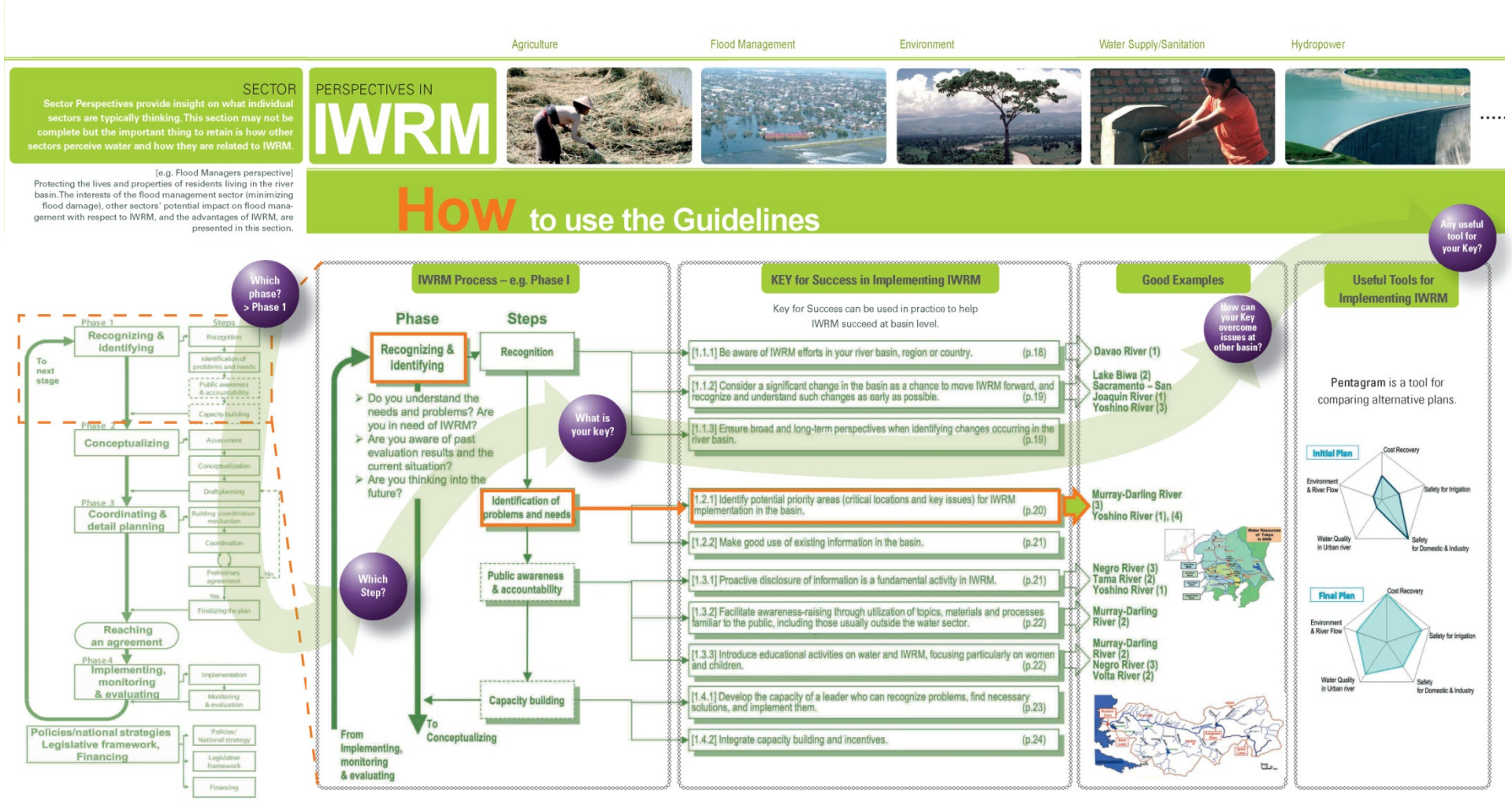
Why?☞

- and its resulting changes need to be convincing for and as equitable as possible among stakeholders. Consensus will not be reached among stakeholders if the plan is biased towards specific stakeholder groups.

How?☞

- In order to build consensus among stakeholders, the level of satisfaction achieved needs to be as equitable as possible. Thus, it is important to coordinate in such a way that the resulting changes are favourable for and as equitable as possible among stakeholders.
  - o Prepare several alternative proposals based on the needs of stakeholders, their degree of physical and psychological satisfaction, social backgrounds and future prospects. When choosing the most appropriate solution, the coordinator must be able to clearly explain that the overall situation will improve.
- When coordination runs into extreme difficulties, the coordinator must patiently and continually negotiate with stakeholders in accordance with the principles outlined above. Depending on the situation, a step-by-step approach may work best although this may be
- time and resourceconsuming.

How to use the Guidelines



Thank you for your participation!

United Nations
Educational, Scientific and
Cultural Organization

International
Hydrological Programme
of UNESCO

World Water
Assessment Programme

NARBO
Network of Asian River Basin Organizations

Water supports wealthy society

Incorporated Administrative Agency
Japan Water Agency

Session 4-1 Good Examples in Asia and PR China

Q & A

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Session 4-1 Good Examples in Asia and PR China

Discussion

Q1: Do you have good examples of IWRM in your country?

Q2: Which Phase and Key for Success can be applied to your good examples?

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