

**THEME 1-3 PUBLIC PARTICIPATION
AND DECISION-MAKING PROCESS:
MEETING DIVERSE NEEDS BY
BUILDING WATER GOVERNANCE**

ABSTRACT

It is essential to develop water governance with the consent of stakeholders to manage water resources based on basin-wide consensus. This cannot be achieved by government agencies using a top-down approach. Local communities, civil society, and stakeholders should be involved in decision-making processes from the planning stage.

In Japan, interest in the environment within civil society has grown since the 1980s and citizen movements questioning the need for public works and their environmental impacts are becoming an increasingly significant presence in society. The focus in water resources management has also shifted from a top-down governmental approach to stronger water governance involving all relevant stakeholders. As part of this process, Japan established laws and systems for information disclosure and project evaluation.

The River Law, revised in 1997, mandated that the opinions of concerned residents be reflected in the preparation of river improvement plans. However, bringing public participation into the planning process sometimes precluded finding common ground given the range of different opinions, and led to lengthy decision-making.

During activities to protect the environment and manage disasters, it is crucial for the public and private sectors to collaborate and fulfill their respective roles. Local communities have long formed flood fighting teams and created systems to protect themselves for the last several centuries. NPOs and other organizations are promoting activities that protect the water environment.

CHAPTER 1 INTRODUCTION

When implementing water resources management projects, it is necessary for water governance to reflect the actual situation in respective river basins. If projects are formulated and decided by the government and promoted unilaterally, they would be unable to meet the diverse needs of an increasingly complex society. In Japan, the River Law was revised to set out a mechanism for public participation. Various governance schemes have tried to tackle the Sustainable Development Goals (SDGs) through the collaboration of the public and private sectors and local communities.

Managing water resources requires establishing water governance to build a consensus among stakeholders. Such governance cannot be accomplished using a top-down approach by government agencies. The concept of water governance is defined to include not only water management for flood protection and water use, but also the basic values and visions of organizations and communities, such as the idea of respecting the will and human rights of the people, legality, reliability, and transparency.

Water has a vital impact on various interests and values, not only on people's lives and property, but also on economic activities, environmental resources, history, and culture. Since it spans many fields and involves various stakeholders, a joint working system should be established to implement projects. Civil society and residents occupy various positions: sometimes as beneficiaries, and sometimes as disadvantaged parties, taxpayers, or project collaborators¹. All the stakeholders should be involved to develop water governance. There is a need for residents to participate in the decision-making process. With properly established water governance, projects would be implemented as planned, the needs of local communities would be met, and the country would achieve growth. To facilitate such participation, the government should disclose information on projects to secure accountability. It may also contribute to the mitigation of potential conflicts between communities or regions.

This theme explains the issues experienced in Japan and the legislative changes, policies, and institutions to address these issues. After the high economic growth, along with income growth and the improvement of living standards, civil society focused increasingly on environmental and social issues. From around the 1980s onwards, a series of strong opposition movements emerged from environmental groups and residents against water resources projects. While demanding administrative transparency and accountability, they began to demand participation in decision-making.

Japanese processes regarding how public works became transparent are reviewed in detail below. It was a change in approach from a top-down approach by the government, to one incorporating the views of the public.

¹ In addition to "residents," similar terms such as "citizens" and "nationals" are frequently used in this theme. In this section, these are used according to the following definitions:

Residents: People who live in a particular region or basin, or who act in relation to local interests. In addition to the use of the single word "residents," the following terms are often used: resident participation, resident opinions, concerned residents, relocated residents, local residents, site residents, and watershed residents.

Citizens: An ordinary person who has neither privileges nor specific status, or a person who acts beyond a particular region. The single term "citizen" is often used. It is also used as civic participation, civic activities, civic movements, civil society, and civic organizations. The term "**Citizens**" also refers to the people of a country as a whole. It is used to refer to people's awareness and values.

The above definitions are not based on legal definitions but are the ideas of the working group members involved in preparing this document and define how they are used within this document.

The roles of residents at the utilization and maintenance stages of water resources, and disaster response are also explained. In Japan, the government and citizens collaborate to promote various initiatives such as water environment conservation and disaster prevention.

Water resources management is closely related to the Sustainable Development Goals (SDGs), and the relationships between participation and the decision-making process and the SDGs are shown in the following box.

Relationships between Participation and the Decision-making Process and SDGs:	
(1) Integrated Water Resources Management: SDG Target 6 “Clean participation and the decision-making process he water and sanitation for all”	
(2) In the scope of the preservation forests under the Forest Act, there is a preservation forest category called “Fishable Preservation Forest” that aims to conserve the aquatic environment and provide nutrition and feed for river and marine life: SDG Target 14 “Sustain rich life in the sea”	
(3) Various organizations, including the government, private sector, NGOs, and citizens are working together on forest conservation and forestation activities: SDG Target 15 “Sustain rich life on land”	
SDG Target 17 “Achieve the goals through partnerships”	

CHAPTER 2 TRANSPARENCY IN THE PUBLIC WORKS PROCESS

2.1 Public Works as an Opportunity for Water Governance Reform

Opposition by citizens has increasingly intensified questioning over the need for public works and environmental impacts. Opposition pressure over dam projects sparked the enactment of a new law that supports the affected people to restore their lives. Japan reviewed the systems of disclosing information and environmental protection. The review results were reflected in the relevant systems.

Since the 1950s in Japan, public works such as construction projects of dams and barrages have become social issues, with citizens questioning the need for projects and their environmental impacts. The backgrounds to such issues are the diversification of people's values, growing interests in the environment, and the use of taxes.

Three main projects sparked turning points in water governance (Figure 2.1). The first was the movement against constructing the Matsubara and Shimouke Dams, which became an opportunity to strengthen the supporting rehabilitation of the daily lives of affected people. The second is the Nagaragawa River Mouth Barrage, which impacted information disclosure and relations with civil society organizations. The third is the long-term movement opposing Yanba Dam, prompting scientific arguments and re-evaluations involving experts.

(1) Matsubara and Shimouke Dams

Matsubara and Shimouke dams were completed in 1973 amid 13 years of protests by residents. These protests significantly impacted the implementation of public works. The problem occurred in 1956 when the Ministry of Construction (presently the Ministry of Land, Infrastructure, Transport, and Tourism (MLIT)) tried to remove trees for the topographic survey. The residents became distrustful of the government, which led to the largest opposition movement in the history of dam construction in Japan. Ever since, in addition to the beneficiary areas downstream of the dam, the need to protect livelihoods and promote the local economy in areas affected by dam construction have become increasingly important. In 1973 when the dam was completed, the Act on Special Measures for Water Source Area was enacted to stabilize the lives and boost the welfare of people living in water source areas. This system has been applied to the construction of dams and helped to revitalize water source areas, such as forming tourist attractions at dams.

1953 to 1973

Matsubara and Shimouke Dams

- Act on Special Measures for Water Source Area
- Effected the rebuilding and restoration of residents' lives in the construction of the Kawabegawa and Yanba Dams

1968 to 1995

Nagaragawa River Mouth Barrage

- Improvement of the transparency and accountability of public works projects
- Effected residents' participation, such as the River Basin Committee

1970 to 2020

Yanba Dam

- Controversy on Policy, Science, and Technology
- Special measures bill to promote specific areas accompanying the abolition of dam projects
- Project re-evaluation involving experts

Source: Project Research Team

Figure 2.1 Three Public Works Projects that Affected Water Governance

(2) Nagaragawa River Mouth Barrage

The Nagaragawa River Mouth Barrage construction project was opposed twice. The first was the opposition by local fishermen in the Nagara River and Ise Bay who feared the environmental impacts of constructing the barrage in the 1960s and 1970s. They formed a wide network of opposition movements. However, the opposition movement declined after the flood disaster occurred in the Nagara River in 1976.

The second opposition was a nationwide movement that arose in the late 1980s to 1990s. When barrage construction began in 1988, the movement focused on ecological protection in the basin, the appropriateness of the project for flood protection, and the need of abstracting river water. The movement spanned multiple river basins rather than only the Nagara River and brought together actors, journalists, lawyers, photographers, and other outdoor groups. All joined the concerned parties, making it one of the most outstanding public works issues in Japan.

Right before the barrage operation in 1995, eight round table meetings were held to discuss issues among government and civil society organizations. They were unable to reach an agreement and the project was finally put into operation. Through the meetings, engineers in charge at the Ministry of Construction received direct feedback from residents opposed to the barrage and reaffirmed the need for consensus building among stakeholders at the planning stage. This feedback influenced the structure of the Yodo River Basin Committee and other committees. The details are described in 3.1.

This movement increased criticism of large-scale public works such as dams and barrages. In 1995, the Ministry of Construction established the Dam Review Committee to review 14 projects. The purpose of the Committee was to gather feedback from residents, review the projects, and ensure increased transparency and accountability public projects.

In 1997, the River Law was revised to include the development and conservation of the river environment as the purpose of the Law. The system for planning river management was divided into two stages: the first stage of the Basic Policy of River Development, and the second stage of the River Improvement Plan replacing the previous Basic Plan of Implementation of Construction. The River Improvement Plan is formulated by reflecting the opinions of experts and concerned residents in river basins (Theme 1-1: Legislation and Organization, Section 2.6).

(3) Yanba Dam Project

The Yanba Dam was completed in the Tone River in 2020 after nearly half a century of opposition. Most of the residents living in the submerged areas joined the opposition movements against the dam in the 1960s and 1970s, primarily in the Kawarayu hot spring resort area. They accepted the dam plan in 1985 after Gunma Prefecture presented a livelihood reconstruction plan to promote regional development.

The government announced the cancelation of the dam project in 2009 after a political party opposing the dam construction policy came to power. The Act on Special Measures for Water Source Area enacted in 1973 promotes regional development projects in the dam areas, but does not include any support mechanism for local municipalities in the dam areas where public finances are expected to become even tighter resulting from dam cancelation.

The MLIT scientifically re-examined the need for dams. In 2011, the Science Council of Japan formed an examination committee at the request of the MLIT to assess the design flood volume of the Tone River. Opposition groups pointed out the excessive plans of the Yanba Dam for flood protection, over-assessed benefits for flood protection, as well as the over projection of water demand. The committee concluded that the project plan was scientifically sound. The MLIT compiled the Study Report on the Verification of the Yanba Dam Construction Project in 2013 based on the feedback from concerned residents and academic experts. The Report concluded that as a comprehensive evaluation, the most advantageous plan for flood protection and water development is the current plan (the Yanba Dam).

Reconstruction of Livelihoods under the Yanba Dam Project

The Yanba Dam is a concrete gravity-type dam and is located in the middle of the Agatsuma River in Gunma Prefecture (Figure 2.2). The residents were strongly opposed to the dam project for a long period of time, saying, “Our homes would be submerged for the benefit of a Metropolitan Area.” The purpose of the dam is flood protection, water supply, and hydropower generation. In the submerged areas, there are scenic sights such as Agatsuma isthmus and Kawarayu hot spring, and national highways and railways connecting the Metropolitan Area, as well as famous sightseeing spots in the Kusatsu and Manza areas.



Source: Tone River Integrated Dam Group Operation Office

Figure 2.2 Panoramic View of Yanba Dam

Gunma Prefecture developed the resettlement area and executed various supporting projects to revitalize the area, restore residents' livelihoods, and mitigate the impacts of prolonged construction. The prefecture has worked with the Kawarayu Onsen Association to promote tourism, subsidize lodging at Onsen facilities, and provide consultation services to relocated people. These activities have been conducted since 2008 as part of the livelihood-reconstruction project.

The Kanto Water and Land Management Bureau of the MLIT established the Yanba Dam Water Source Area Vision in 2020, targeting independent and sustainable development through cooperation between the upstream and downstream areas. The vision includes initiatives for the maximum use of the rich natural environment, tourism resources, and industries around the dam.

After half a century, the Yanba Dam was completed in 2020. The area around the dam is now a busy place and prospering with the construction of regional development facilities (roadside stations Michi-no-Eki, hot spring facilities, souvenir corners, and museums), and infrastructure tourism initiatives (bicycle trolleys and amphibious buses) aiming to promote the area and attract visitors (Figure 2.3).



Source: Gugutto Gunma Tourism Promotion Conference

Figure 2.3 Amphibious Bus

2.2 Information Disclosure

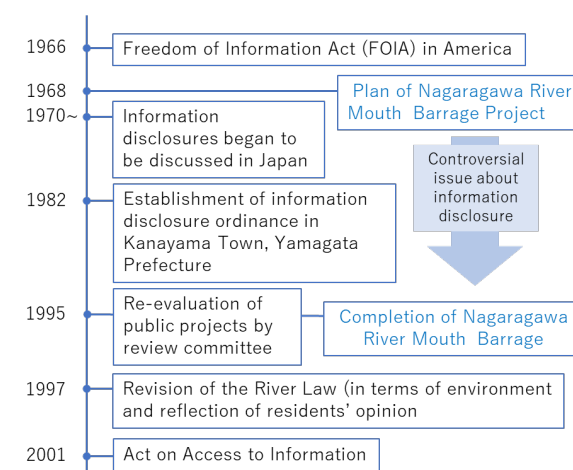
While there is no uniform method of consensus building, information disclosure is crucial for the establishment of water governance.

Governments need to be accountable for their projects by disclosing adequate information. Without information disclosure, it would not be possible to gain the understanding of civil society on a project, leading to mistrust toward the government. Toyoho Tanaka, who has worked on issues relating to the Nagaragawa River Mouth Barrage for many years, stated the following regarding information disclosure²: “There was almost no information available on the Nagaragawa River Mouth Barrage except for a pamphlet published by the Water Resources Development Corporation. At that time, there was not much discussion about information disclosure. We had no way of knowing what kind of planning the Ministry of Construction³ executed on the Barrage.” The MLIT disclosed all information such as water quality, hydrological data, environmental studies, and technologies to the public. Details are shown in the box article titled, “Innovations in Information Disclosure during Controversy on the Nagaragawa River Mouth Barrage” below.

(1) Ordinances and Acts of Information Disclosure

In Japan, the need for information disclosure was first discussed in the 1970s (Figure 2.4). Local governments led in establishing procedures for information disclosure, with Kanayama Town in Yamagata Prefecture⁴ establishing an ordinance in 1982, followed by Kanagawa and Saitama Prefectures in the following year. At present, all prefectures have enacted ordinances⁵.

The Act on Access to Information Held by Administrative Organs (called the Information Disclosure Act) was enacted in 2001. It stipulates that any person is entitled to request the disclosure of all administrative documents held by administrative organs. The MLIT and local



Source: Project Research Team

Figure 2.4 Background of the Act on Access to Information held by Administrative Organs

governments have established contact points for information disclosure and ensure that such information is properly and smoothly disclosed. Disclosure requests can generally be filed online. The MLIT formulated the Guidelines for Public Participation Procedures at the Conceptual Stage of Public Projects in 2003. Those who formulate plans have promoted public participation by actively disclosing and supplying information, and facilitated plan improvement in cooperation with the public and other related parties. The Guidelines for the Planning Process at the Conceptual Stage of Public Works were

² “Personal Reflection on Construction Issues of the Nagaragawa River Mouth Barrage”, Toyoho Tanaka, *Limnology in Tokai Region of Japan* 64, 2014.

³ Currently the MLIT.

⁴ Shunji Taoka is a journalist who reported extensively on the issue of construction bid rigging, and provided advice to Koichi Kishi, the then the mayor of Kanayama Town in Yamagata Prefecture. This led to the creation of the first information disclosure system.

⁵ Survey on the Enactment of Information Disclosure Ordinances by the Ministry of Internal Affairs and Communications

formulated in 2009, with the aim of increased transparency and fairer planning processes. The Guidelines show how information is to be provided according to the purpose and target party (Table 2.1).

Along with increasing internet extension, details of individual public works and their budgets for each fiscal year are generally disclosed and available on the respective websites. An accessible information disclosure system should be built by combining various methods as appropriate in accordance with the characteristics of the residents in the river basin.

Table 2.1 Examples of Communication Methods by Objective and Target Party

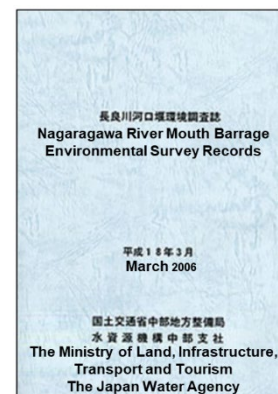
Objective	Communication Method*	Main Target Party
Provision of Information	Publicity materials (newsletters)	Residents of the distribution area
	Newspapers, magazines	Ordinary citizens
	Mass media (TV, radio)	Ordinary citizens
	Websites	Ordinary citizens
	Mailing lists	Ordinary citizens
	Information centers	Visitors to the Information Center
Collection of Opinions	Hearings to representatives of relevant regions and organizations	Residents of relevant areas and organizations
	Surveys (postcards, websites)	Residents of relevant areas and ordinary citizens
	FAX, toll-free phone, and e-mail	Ordinary citizens
	Public comment/consultation	Ordinary citizens
Examination of Opinions and Disclosure of Responses	Briefings and public hearings in relevant areas	Residents of relevant areas, concerned parties, and ordinary citizens
	Consultative meetings or round-table discussions with representatives of residents and concerned parties in the relevant areas	Landowners and residents
	Workshops with concerned and interested parties or their representatives	Related parties and ordinary citizens
	Open house-type explanations held in the concerned areas	Residents of relevant areas
	Participation in events held in relevant areas	Ordinary citizens
	Forums and symposia	Ordinary citizens

Note: * Prepared based on past cases (roads, rivers, ports) at the conceptual stage

Source: Guidelines for the Planning Process at the Conception Stage of Public Works, 2009, MLIT

Innovations in Information Disclosure during Controversy over the Nagaragawa River Mouth Barrage

Around the time of the groundbreaking ceremony of the Nagaragawa River Mouth Barrage project in 1988, opposition to the project spread nationwide. Media interviews with the Water Resources Development Corporation (WARDEC, presently the Japan Water Agency) became heated. Previously, the WARDEC had focused on explaining the project to interested parties but had not taken sufficient steps to provide ordinary citizens with easy-to-understand explanations, responding only to the points raised by opposition parties on an individual basis. Since the project was facing court cases, the WARDEC often refrained from responding to the opposition. The WARDEC failed to respond adequately to the mass media and the opacity of the project information prompted a constant stream of critical reports.



Source: Japan Water Agency

Figure 2.5 Environmental Survey Records of the Project

In response, the WARDEC turned to a systematic explanation with materials and evidence, rather than individual clarification. It explained the need for the flood protection and water utilization project. It also released pamphlets for public explanation, details of environmental studies, reports on additional environmental studies, technical reports, and evaluation reports by the Japan Society of Civil Engineers (Figure 2.5). From 1991, it held detailed explanatory meetings to explain the project to the mass media, opinion leaders, and ordinary citizens.

The MLIT also released original raw data. The MLIT initially presented only processed data despite requests from opponents for the disclosure of such data, which prompted distrust. More than 200 press releases were subsequently provided in a year (practically equating to the daily release of data).

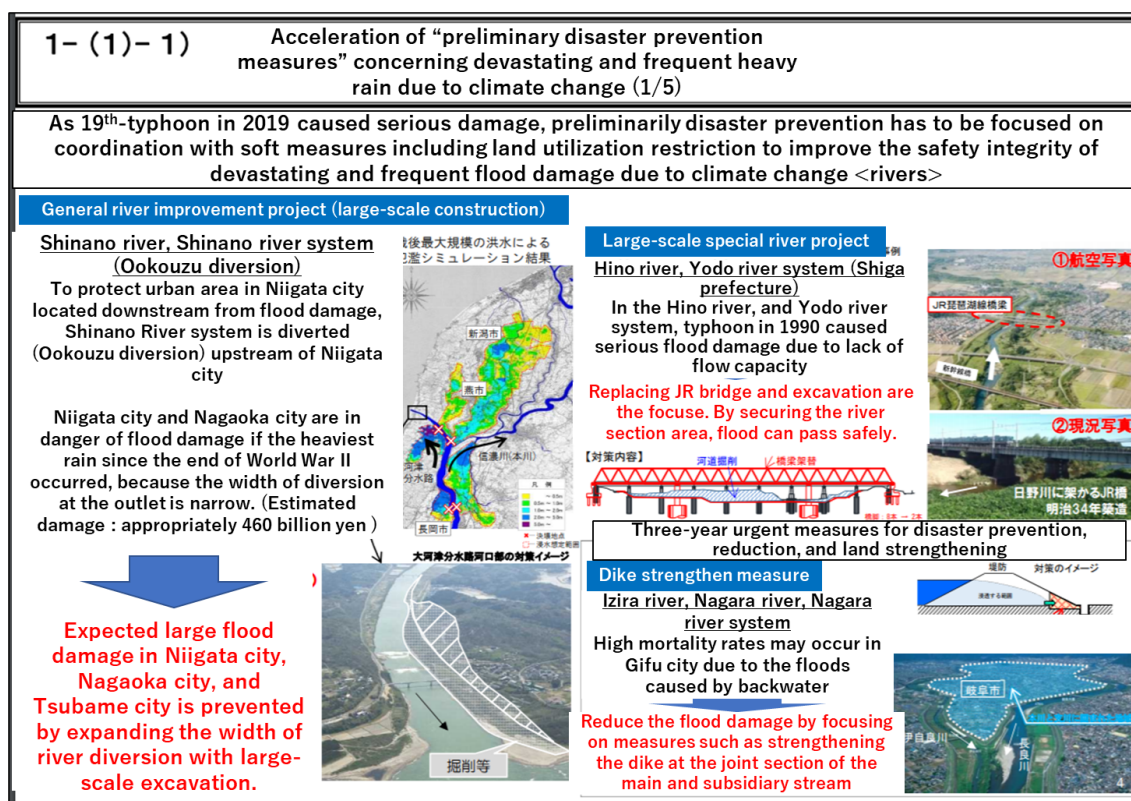
Source: Project Research Team, Interview with the government staff member in charge at that time.

(2) Disclosure of Information

There was a need to improve the governance of water resources and make it accountable to residents. The government have now made all information on the budget, various studies, hydrological information, risks of flooding, hazard maps, flood damage status, and recovery plans available online in Japan (Figure 2.6). The government also publicizes a basic plan to develop water resources in each basin, the status of committees for river development plans, materials on recent climate change, and countermeasures for large-scale flooding and dam management.

Frequently disclosing the relevant hydrological and meteorological information of disasters, such as floods, droughts, and landslides, is particularly crucial to safeguard people's lives. The MLIT is promoting the disclosure of information by developing hardware such as optical fiber networks, surveillance cameras (CCTV), and software such as river GIS, and the Water Information National Land Data Management Center. For example, information on radar rainfall, real-time river levels, real-time images, dam operation, and disasters is disclosed in the River Disaster Prevention Information. The data

on water storage levels, inflows, discharges, and the water quality of dams under the jurisdiction of the MLIT, the Japan Water Agency, and prefectures are publicized in the Database on Dams.



Source: MLIT website

Figure 2.6 Examples of Information Disclosure of the Study Group

2.3 Evaluation of Policies and Projects

Policies should be evaluated to ensure their efficiency and effectiveness.

The policy evaluation system in Japan was introduced with the following three objectives:

- To establish a high quality, efficient, and people-oriented form of governance;
- To promote output-oriented governance; and
- To ensure thorough accountability to citizens.

The policy management cycle (plan, do, check, action) is established specifically through three basic evaluation methods: 1) policy assessment, 2) policy check-up, and 3) policy review, and four evaluation methods: a) individual public works evaluation, b) individual research and development issue evaluation, c) policy evaluation of regulations, and d) policy evaluation of special taxation measures (Table 2.2). The effects and problems of the implemented policies and projects are always monitored and reflected in policy planning and budget application.

Table 2.2 Evaluation Method and Details of Policies and Projects

Evaluation Method	Evaluation Details
1) Policy assessment (pre-evaluation)	Method of evaluating the planning of new measures from the perspectives of necessity, efficiency, and effectiveness.
2) Policy check-up (post-evaluation)	Representative evaluation method used by the MLIT in which performance indicators and their target values are set for each policy, and performance is measured periodically to evaluate the degree to which the target has been achieved.
3) Policy review (post-evaluation)	Existing policies and themes of high public interest are selected, and the relationship between the implementation of the policy and its effects is analyzed and evaluated in detail, as well as policy effects with external factors in mind.
a) Evaluation of individual public works	For individual public projects, evaluation occurs at each of the following stages: i) when adopting a new project, ii) after a certain period has elapsed since adopting the project (re-evaluation), and iii) after completing the project (post-completion evaluation).
b) Evaluation of individual research and development proposals	Preliminary, interim, and end-of-term evaluations are conducted for each research and development theme.
c) Policy evaluation of regulations	Pre- and post-evaluations are conducted for the new establishment, revision, or abolition of regulations by law or government ordinance.
d) Policy evaluation for special taxation measures	Pre-evaluation is conducted when requesting a new introduction of special tax measures, expansion, or extension, and post-evaluation is conducted periodically for existing measures.

Source: MLIT

2.4 Project Re-evaluation

Through project re-evaluation, projects should be reviewed due to changes in socioeconomic conditions. Only effective and efficient projects should be continued

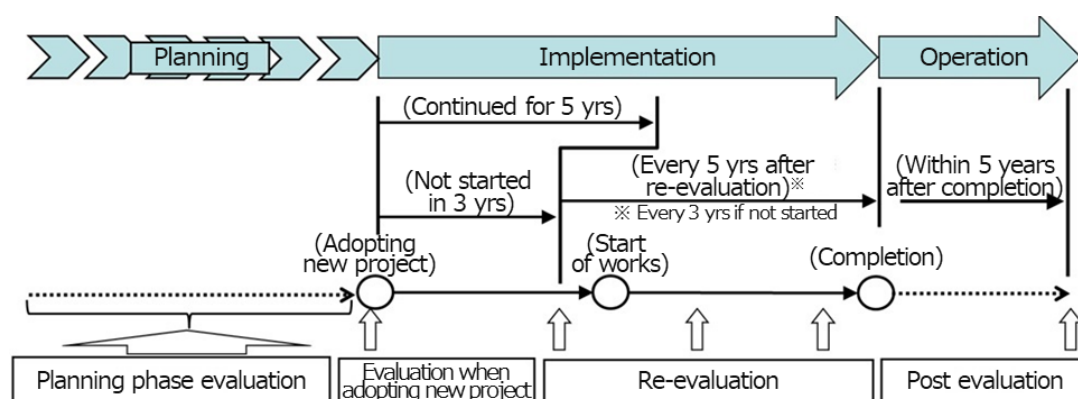
Even after a project is implemented, the details and need for the project should be reviewed frequently. The implementation of large projects often takes a long time during which the social conditions or need for the project might change. Introducing a review system could streamline the project and increase the transparency of the implementation process.

The evaluation of projects in Japan are classified into three stages: evaluation when adopting a new project, re-evaluation, and post-evaluation after completion (Figure 2.7). The government introduced the project re-evaluation system in 1998. Projects are re-evaluated when implementation is not started after a certain period of time (three years for national projects, and five years for subsidized projects⁶); ongoing projects of more than five years should be re-evaluated to decide whether to continue or cancel. The evaluation results and the reasons for the decision should be publicized. The perspectives for re-evaluation include 1) the need for the project regarding changes in socio-economic conditions, the investment effect of the project, and project progress, 2) prospects of the project progress, and 3) the possibility of cost reduction or an alternative plan.

⁶ There are four types of public projects: 1) projects under the direct control of the national government (direct control projects), 2) projects under the subsidy of the national government to local governments (subsidized projects), 3) projects in which local governments bear both the cost and maintenance work (local independent projects), and 4) projects undertaken by independent administrative agencies.

Re-evaluation is handled by 1) local branch offices of the direct control projects, 2) government agencies for their projects, and 3) local governments, local public corporations, or companies for subsidized projects, local independent projects, and independent administrative agency projects. The project re-evaluation does not require directly involving residents, but obtaining feedback from prefectures and ordinance-designated cities.

Improvements to project re-evaluation is proposed through the experience. To ensure the effectiveness of re-evaluation, in the event of any significant changes in project progress, re-evaluation should be executed promptly regardless of the re-evaluation interval (three or five years). Conversely, the review process should be simplified if there is no significant change in the project progress.



Source: MLIT website

Figure 2.7 Flow of Project Progress and Evaluation (Public Works Projects under Direct Control)

Reigniting the Debate over Whether the Kawabe River Dam Should be Built

The Kawabe River Dam is an arch-type concrete dam planned in the Kawabe River, a tributary of the Kuma River in Kumamoto Prefecture. The Kawabe River Dam is planned for multi-purpose development to control floods, promote irrigation, and hydropower. Strong opposition over compensation and the need for the project has occurred. Construction of the dam has not commenced. More than half a century has elapsed since the plan was first announced. There are three main reasons for this:

- i) **Compensation**: Once the plan was announced, Itsuki Village, which would be submerged, immediately expressed opposition. The dam was designated as a special area⁷. The project covers a livelihood restoration scheme. A total of 55 requests submitted by Itsuki Village were broadly agreed to and all the negotiations for compensation with residents was completed after 18 years.
- ii) **Arguments in favor of the dam**: Questions arose about the effectiveness of the dam. The MLIT explained its purpose by citing scientific data from the perspectives of flood protection effectiveness, power generation output, and environmental impact. The MLIT also explained from a flood protection perspective that the water retention capacity through forestation might be limited.
- iii) **Water use plans**: One of the purposes of the dam was to supply irrigation water, but the Ministry of Agriculture, Forestry, and Fisheries withdrew from the project after failing to gain the understanding of some

⁷ Dams are designated under Article 9 of the Act on Special Measures for Water Source Area: Dams with a particularly large number of submerged houses; ones with a particularly large area of submerged farmland; ones where the fundamental conditions of the water source area have significantly changed unlike others; and the water source area of dam is not included in those prefectures that significantly benefit from the dam.

target farmers. The Electric Power Development Corporation also withdrew from hydroelectric power generation. The Kawabe River Dam was then repurposed as a flood protection dam.

A series of committees and debates were held for open discussion, as shown in Table 2.3:

Table 2.3 Timing and Frequency of Various Discussions

Year	Kawabe River Dam Construction Project Council	Review Committee of Flood Protection on the Kawabe River System	Project Re-evaluation	Residents' Discussion Meeting on the Kawabe River Dam	Meeting for Studying Flood Protection without Dams	Kuma River Flood Protection Measures Council
1995	9 times					
1996						
2001		3 times		9 times		
2003						
2006						
2008						
2009		● Project Cancelled				
2011					12 times	
2015			5 times			
2017						9 times
2019						
2020	A large-scale flood occurred in July 2020 in the southern part of Kumamoto Prefecture.					

Source: Project Research Team

- Kawabe River Dam Construction Project Council: The council comprised academic experts, heads and councilors of the prefecture, and related municipalities. Feedback from the residents was solicited, and public hearings were held.
- Review Committee of Flood Protection on the Kuma River System: The committee comprised academic experts and the MLIT. In addition to disclosing scientific and objective information, explanations for the ordinary citizen were also discussed.
- Project Re-evaluation: The dam project was re-evaluated five times. Although the MLIT announced in 2009 that the project would be cancelled, it was finally decided to continue the project activities, limiting them to maintaining the submerged area and dam-related facilities.
- Residents' Discussion Meeting on the Kawabe River Dam: The meeting was organized by the prefectural government attended by the MLIT, residents, civil society organizations (CSOs), and academic experts. The disputed issues, namely, flood protection and the environment, were addressed.
- Meeting to Study Flood Protection without Dams: The governor of Kumamoto Prefecture in 2008 stated that the prefecture would target "dam-free flood protection," expressing opposition to dams. A meeting was then held that was attended by the director general of the Kyushu Regional Development Bureau of the MLIT, the governor, and the mayors of municipalities in the river basin.
- Kuma River Flood Protection Measures Council: This council was formed by the director-general of the Kyushu Regional Development Bureau of the MLIT, the governor of Kumamoto Prefecture, and the municipal mayors in the river basin. A discussion was held on dam-free flood-protection measures for the Kuma River. Ten alternative plans were prepared, combining river channel excavation, raising the height of river dikes, and the construction of a flood-retarding basin in 2019. However, the project cost of each alternative was huge and the construction time too long. The final policy remains undecided.

- Flood in the Southern Part of Kumamoto Prefecture of July 2020: Torrential rains occurred in the southern prefecture. Severe damage was caused with dozens of fatalities, resulting from the overflow and dike breaks in 12 sections of the Kuma River. The governor announced a plan to scrap the policy started in 2008 and decided in 2009 to request that the national government construct a dam of the water-flowing type⁸.

2.5 Turning Conflict into Cooperation: Consensus Building in Inter-basin Water Supply

The conflicting interests among individual regions or basins hindered the inter-basin water supply in the Yoshino River System, but the entire region succeeded in harmonizing all interests by setting a common development goal.

For the Yoshino River System, interests among the stakeholders were coordinated. By targeting the economic development of the whole Shikoku region by overcoming the conflicting interests between prefectures, the final goal was achieved. The development plan for the Yoshino River Basin is explained in Theme 2: Plan-based Management 2-1 Management Planning. The case of the Yoshino River Basin is introduced below from the perspective of building consensus among the basins.

(1) Background

Since the Kagawa Water Development Project spans across multiple river basins and prefectures, the interests of prefectures conflict with each other and finding consensus among the prefectures was difficult (Figure 2.8). Kagawa Prefecture was unable to manage sufficient water supply for agriculture and daily life within the prefecture. It has been envisaged to divert water from the Yoshino River which flows in Tokushima Prefecture and has abundant water volume. The Yoshino River Comprehensive Development Project was formulated in 1996, including water diversion for the Kagawa Water Supply Project. However, Tokushima Prefecture, the main water supplier, expressed its opposition.



Source: Kagawa Canal Management Office, JWA

Figure 2.8 Yoshino River Comprehensive Development Plan

(2) Various Conflicts of Interests

The Tokushima Prefectural government argued both the merits and demerits of water utilization and floods of the Yoshino River for Tokushima Prefecture. Tokushima opposed water diversion to Kagawa. There were also concerns that the water diversion would worsen the river environment by reducing the volume of water in the Yoshino River.

The Sameura Dam in Kochi Prefecture would divert water to Kagawa. A total of 387 ordinary households and 56 public buildings would be submerged. Opposition in Okawa Village was particularly strong, since they considered that the dam construction had no advantages at all for the Village.

⁸ These are dams that specifically aim at flood protection and do not require water storage during normal times. During floods, they temporarily store floodwater to reduce flood damage in downstream areas.

Consensus building faced difficulties even in Kagawa Prefecture, the recipient of the water resources. Farmers would establish Farmers' Associations (an agricultural irrigation area improvement and management association called a Land Improvement District in Japanese) to bear part of the costs of supplying irrigation water. Establishing the Farmers' Associations required the consent of two-thirds of farmer households. Some farmers opposed the construction of the Kagawa Water Canal since they could manage water from existing ponds and other water sources even during droughts (Theme 1-2: Water Rights).

(3) Critical Path Toward Implementing the Project

Tokushima Prefecture proactively applied to become an industrial city under the Act for Promoting Establishment of the New Industrial Cities⁹ enacted in 1962. An industrial city is required to secure a stable water source. It was agreed to construct the Sameura Dam in 1966 following negotiations with residents in the submerged area (three towns/villages in Kochi Prefecture) for compensation. It took more than a decade. Negotiations continued even during the initial impounding of the dam. An agreement was finally reached on the condition that the government would guarantee to replace the village roads, construct resettlement land, compensate for public facilities and household buildings, and take other financial supporting measures. Over the course of approximately two years, Kagawa Prefecture explained the project to farmers, the Farmers' Associations, and others on approximately 400 occasions in total and eventually obtained their consent.

(4) Current Status of Water Source Area

The controversy and opposition movement were extended over the dam construction. The compensation negotiation for resettlement finally reached an agreement. However, issues of depopulation¹⁰ and the aging population continue to arise. The issues were spurred by the closure of the flourishing mine and residents' relocation from the water source area after completion of the Sameura Dam. The population of Okawa Village was 1,300 when the dam was completed in 1975 but decreased to 366 as of 2020. It became the village with the second lowest population in Japan. To coexist with the downstream areas, efforts to renovate the village are being made, including a tree thinning project to grow a water-retaining forest. The residents are the project owners. With support from the agencies concerned and securing a budget from the Water Source Area Development Fund, the project is ongoing.

⁹ The act aimed to contribute to the balanced development of the country and national economy by improving the infrastructure conditions for locating new industries and building urban facilities, thus preventing excessive population and industry concentration in large cities, correcting regional disparities and stabilizing employment.

¹⁰ Depopulation: A social phenomenon in which the population decreases mainly in mountainous areas; it is difficult to maintain settlements.

CHAPTER 3 REFLECTING RESIDENTS' VIEWS IN PROJECTS

3.1 Establishment of Water Governance for Each River Basin

Water governance should involve experts, civil society, and residents in addition to the relevant public agencies. The mechanism should be established and adapted to local conditions in each basin.

Establishing water governance facilitates meeting the diverse needs of each sector and local communities. Since the circumstances differ from basin to basin depending on their socioeconomic conditions, activities of civil society, history, and culture, the mechanism of water governance should be established so that it best fits the basin. Needs cannot be managed on a top-to-bottom basis by ministries that have clear responsibilities and laws under their jurisdiction (Figure 3.1). (Theme 2-2: River Basin Planning)



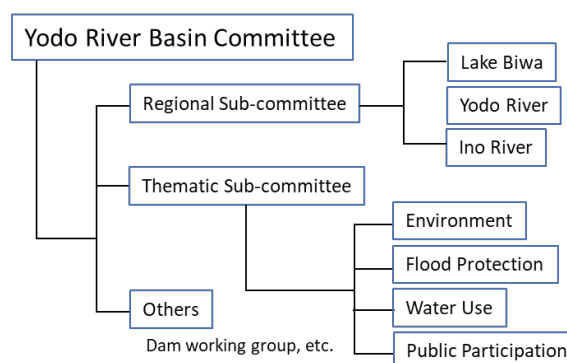
Source: Japan Water Forum Takemura Kotaro

Figure 3.1 Vertically Segmented Administration Model

The River Law was revised to require feedback from academic experts as well as public hearings to reflect the opinions of the people concerned¹¹ regarding river improvement plans. Various consultation forums (committees, councils, round table meetings within the basin) have been established. The timing to establish forums, forum frequency, and the composition of the forum members vary significantly from river to river. Four models of characteristic committees are introduced below.

(1) Innovative Approach: Yodo River Basin Committee

In the Yodo River Basin, various concerned parties, including academic experts and residents, were involved from the early stages and discussed various issues keeping in mind transparency and objectivity. Under the committee, three regional sub-committees, four thematic subcommittees (environment and water use, flood protection, water use, and public participation), and several other working groups and various study groups were established (Figure 3.2).



Source: Project Research Team prepared based on "The background of Yodo River Basin Committee, Kinki Regional Development Bureau"

Figure 3.2 Composition of the Yodo River Basin Committee (Feb. 2001–Jan. 2005)

¹¹ At a Diet session held on May 7, 1997, the Director General of the River Bureau of the Ministry of Construction stated as below. There were 109 Class A river systems and approximately 2,700 Class B river systems; in the future, basic policies would be set for all of these systems and development plans would be made accordingly. In Class B river systems in particular, depending on the characteristics of the river, it was possible that little or no work would be done. In such a situation, this clause was put in place with the idea that those hearings were not always necessary for all rivers. For those river systems that included large-scale structures such as dams and weirs, it was natural to have hearings on the opinions of residents and others.

The MLIT did not take on a secretariat function, such as selecting committee members, managing the committee, and preparing drafts for the committee. The selection of committee members was discussed in 2000 at a preparatory meeting by four academic experts to ensure neutrality. The committee members were selected from researchers, lawyers, NGOs, and residents following an open process. A consultant company functioned as the secretariat. The audience could express their views at any time and in various ways (Figure 3.3), all of which were later disclosed via committee documents and online. The committee were open to the public and the papers, documents, and minutes were posted on websites. Workshops, group discussions, and round table discussions were held to ensure that both academic experts and residents could join the discussions. Instead of discussing specific projects, the participants first recognized the issues in the basin and then discussed potential solutions. The committee discussions provided opportunities to learn and raise awareness. On one occasion, even academic experts changed their opinions about dams.



Source: Yodo River Basin Committee

**Figure 3.3 The 85th Committee
(April 8, 2009, Hirakata City)**

The opinions of the committee and government were in conflict. Even after six years, the basic policy of river development remained undecided. The committee was suspended in 2007. The Review Committee in the Yodogawa River Basin Commission established by the Water and Land Management Bureau of the MLIT reviewed the basic policy for river development and the river improvement plan.

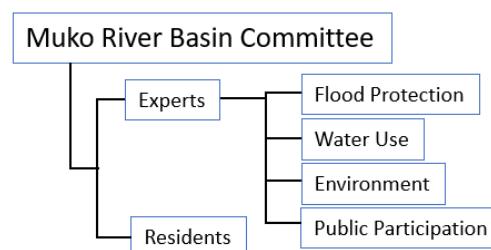
(2) Resident Participation from the Basic Policy Stage: Muko River Basin Committee

The Muko River featured an example of a basin committee that involves residents from the beginning of basic policy. The River Law does not require local residents' opinions when formulating a basic policy for river development. However, Hyogo Prefecture recognized that residents should participate and discuss the plan from the basic policy stage. The committee worked on comprehensive flood protection measures from the perspective of the entire basin including urban areas. The preparatory meeting composed of the concerned agencies, representatives of academic experts, and residents prepared the concepts of the River Basin Committee including its members and discussion processes, and disclosure method. The Muko River Basin Committee was established in 2004 with academic experts and publicly recruited residents as members (Figures 3.4 and 3.5).



Source: Muko River Basin Committee News 32

**Figure 3.4 The 68th Committee
(Sept. 16, 2010, Itami City)**



Source: Project Research Team prepared based on "Hyogo Prefecture website"

**Figure 3.5 Structure of the Muko River
Basin Committee**

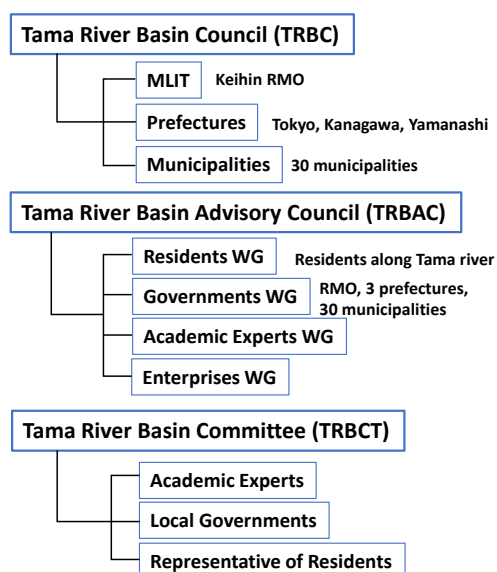
The basin committee organized a total of 49 meetings. The consultation process was opened to the public to obtain feedback from residents, and discussions were continued until most of the members agreed. Complete consensus was not achieved on some parts of

the development plan and construction of a new dam. The decision was made to adopt comprehensive flood protection measures in urban areas including a flood retarding basin and rainwater storage.

(3) Three Consultation Forums: Tama River Basin Committee

In the Tama River in the Tokyo metropolitan area, CSOs have actively conserved the river environment since around 1970. Based on these activities, three forums were formed to discuss river plans (Figure 3.6).

- 1) Tama River Basin Council (TRBC): Following the Tama River Summit¹² in 1986, the Council was established in 1987 consisting of local governments in the basin with the Keihin River Management Office (RMO) of the Kanto Water and Land Management Bureau of the MLIT as the secretariat.
- 2) Tame River Basin Advisory Council (TRBAC): The Council was established in 1998 by CSOs, companies, academic experts, local governments in the basin, and the Keihin RMOs of the MLIT and prefectures to exchange opinions. After the river improvement plan was formulated, the exchange of opinions continued.



Source: Project Research Team prepared based on "Tama River System Improvement Plan, MLIT"

Figure 3.6 Structure of Tama River Basin Conferences

- 3) Tama River Basin Committee (TRBCT): The Committee was established in 1999 to discuss the draft of the river improvement plan. It comprises 16 academic experts, 7 citizen representatives, and 11 officials from prefectures and municipalities. The Keihin RMO of the MLIT serves as secretariat.

The river improvement plan was formulated based on feedback from these three forums. As part of the program of the TRBAC, residents, CSOs, members of local governments, academic experts, and the RMO staff jointly walked along the river and frequently exchanged opinions. This was the first case in which various Tama River stakeholders came together and discussed the matter from the same perspective (Figure 3.7).



Source: Keihin RMO

Figure 3.7 Joint Monitoring and Opinion Exchange in the Tama River Basin Consultation

The TRBAC established rules of dialogue at the initial stage of the planning process to achieve a loose consensus between planners,

¹² In 1986, at the behest of the Ministry of Construction (now the MLIT), the Tama River Summit was held with the Minister of Construction, the governors of Tokyo and Kanagawa Prefectures, and the mayors of municipalities related to the river basin. Since then, similar enlightening activities are actively held on rivers everywhere.

residents, stakeholders, and others. The dialogue featured the Three Principles and Seven Rules. The Three Principles are 1) free speech, 2) thorough discussion, and 3) consensus building. The Seven Rules are 1) the views of participants should not be interpreted as official standpoints of their organizations, 2) no one should disturb others talks, 3) discussions should ensue in the spirit of fair play, 4) data with actual proof should be respected, 5) a consensus should be pursued after clarifying problems, 6) litigation issues should be treated as examples from an objective standpoint, and 7) when formulating programs, long- and short-term solutions should be distinguished and feasible recommendations should be pursued. The term “loose consensus” was the keyword to facilitate deepening discussion. If “complete unanimity” is targeted, the discussion would be difficult.

The collaboration of the TRBAC and TRBCT achieved consensus building on the basic policy. The MLIT generally considers whether the recommendation of the basic policy for river development by the TRBC are socially recognized. The TRBC and TRBAC worked together using the same materials for the preparation of the basic policy. The TRBC referred to the discussion results of the TRBAC and then returned the discussion results of the TRBC to the TRBAC for further discussion. Members of the TRBC also participated in discussions at the TRBAC and TRBCT.

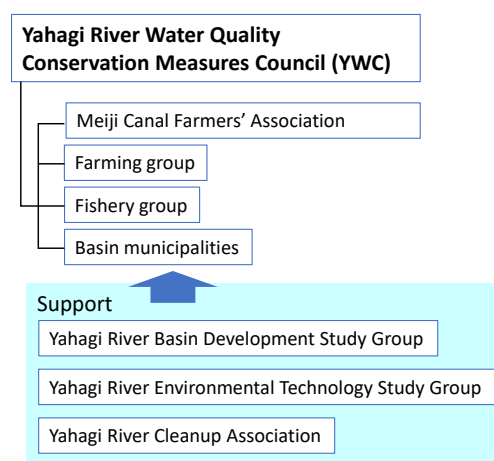
(4) Bottom-up Approach: Yahagi River Water Quality Conservation Measures Council

A consultation forum was established under the initiative of the residents in the basin of the Yahagi River. This is an advanced example of a bottom-up approach and is referred to as the Yahagi River Method. Along with economic growth, the river flow became muddy due to sand and gravel mining in the upstream reaches, while the water quality was polluted in the middle to lower reaches due to industrialization in the 1960s. The water pollution began to adversely affect downstream agriculture and fisheries.

The Agricultural Experiment Farm of Aichi Prefecture and the Meiji Canal Farmers' Association launched the Yahagi River Coastal Water Quality Conservation Council (YWC) to resolve the water pollution in 1969.

The Council was a semi-governmental and semi-private organization, comprising six organizations related to agriculture, seven related to fisheries, and six related municipalities (Figure 3.8).

Beginning with a petition to the national and prefectural governments to establish water quality environmental standards, the YWC monitored contractors suspected of generating pollution and conducted a water quality survey. The activities were supported by the following organizations: 1) the Yahagi River Basin Development Study Group launched by the municipalities in 1971, which raised awareness through training sessions; 2) the Yahagi River Environmental Technology Study Group launched in 1986, which researched turbid water treatment technology for construction work; and 3) the Yahagi River Cleanup Association launched by downstream residents in 1973 taking the initiative in education activities and periodically visiting factories and development sites. The Yahagi River Basin



Source: Project Research Team

Figure 3.8 Structure of Yahagi River Water Quality Conservation Measures Council

Committee was established in 2003 to formulate the river improvement plan. The chairman of the YWC participated in the Yahagi River Basin Committee as a member.

3.2 Trial and Error to Improve Decision-making

There is no single correct solution to achieve consensus. It is necessary to keep pursuing various consultation systems to achieve better water resources management.

The system for incorporating residents' opinions has been established in accordance with local conditions in Japan, but not everything has progressed smoothly. In some cases, reaching a consensus took a long time or even proved impossible. It is difficult for people with diverse interests and concerns to reach a unanimous consensus. Consensus building should not aim at complete unanimity of opinion but at a state where everyone can accept and allow differences in opinions.

It is necessary to adopt appropriate measures by selecting the most suitable method for reflecting opinions, taking into consideration the purpose, target group, budget, and time constraints. Many river basin committees invite public comments on the draft plan to reflect the opinions of residents. To facilitate smooth communication, various consultation systems should be established (Table 3.1). The methods of public feedback include posting on the websites and public relations of the RMOs, holding public hearing and briefing sessions, public notices, and the distribution of briefing materials. People can express opinions, and opinions are collected from the public via email, postal mail, fax, and posting to an opinion box. The opinions received and responses are also published on the website. While the public comment system has the advantage of allowing anyone to participate, it is difficult to deepen the discussion. The Yodo River Basin Committee received more than 1,000 opinions from residents and local governments before formulating the river improvement plan, all of which were posted on the website. The Committee explained to the public how the residents' opinions were reflected in the recommendations or in what form the opinions were referred to in the discussions on the river improvement plan.

Table 3.1 Examples of Various Consultation Structures

Communication Method	Purpose	Target
Public hearing	Gathering citizens' opinions by governments (to be held in general before decision-making).	Residents
Committees (study/review meetings and management meetings)	Setting the issues and goals, and combining all the opinions and study results	Key stakeholders, representatives, and academic experts
Workshop	Extracting ideas through collaborative work and discussions, and identifying the key points for consensus building	Citizens with a strong motivation for participation
Task force	Proposing solutions to specific practical issues	Citizens with an interest in the issue and representatives of concerned groups
Briefing	Preventing the spread of incorrect information, and providing accurate information to key stakeholders	Main parties concerned and the media
Mediation	Mitigating of conflicting interests with the assistance of a third party	Stakeholders with conflicting interests

Source: Role of Information Disclosure in Consensus Building for Public Project, Journal of Construction Management Vol. 5, 1997

CHAPTER 4 COMMUNITY AND PRIVATE SECTOR PARTICIPATION

4.1 Water Environment Conservation Activities through Public–Private Partnership

The public and private sectors should cooperate in water environment conservation. The public sector offers institutional and financial support. Voluntary actions by local communities, residents, NGOs, and companies are essential for daily on-site activities, which government organizations cannot cover.

(1) NGOs, NPOs, and River Partner Organizations

In basins of the Tama and Tsurumi Rivers where civic activities are advanced, there are many CSOs. As the common platform to bring these CSOs together, the network organizations Tama River Center and NPO Link Tsurumi River Basin Networking (npoTR Net) have been established. The npoTR Net serves as the secretariat and conducts the following projects in cooperation with local governments, companies, and various schools:

- Survey, research, planning, and implementation of projects in relation to the water cycle, ecosystems, environmental conservation, and safety in rivers and basins;
- Preservation of water culture and historical assets, and river-oriented urban development projects;
- Development of human resources;
- Provision of information and support to school education and civic activities; and
- Promotion of projects for communication, partnership building, and public relations.

The MLIT institutionalized river cooperating organizations in 2013 (Figure 4.1). These organizations contribute to river maintenance and conserving the river environment. By establishing mutual trust between the MLIT and each organization, these organizations promote river management in a manner befitting the regional conditions. Private organizations such as NPOs apply to the RMOs as river cooperating organizations. The advantages of working under this status include improved social credibility, simplification of the procedures required for exclusive use of part of the floodplain, and cooperation among government organizations.



Source: MLIT website

Figure 4.1 Logo of River Cooperating Organizations

(2) Citizen Participation through Workshops

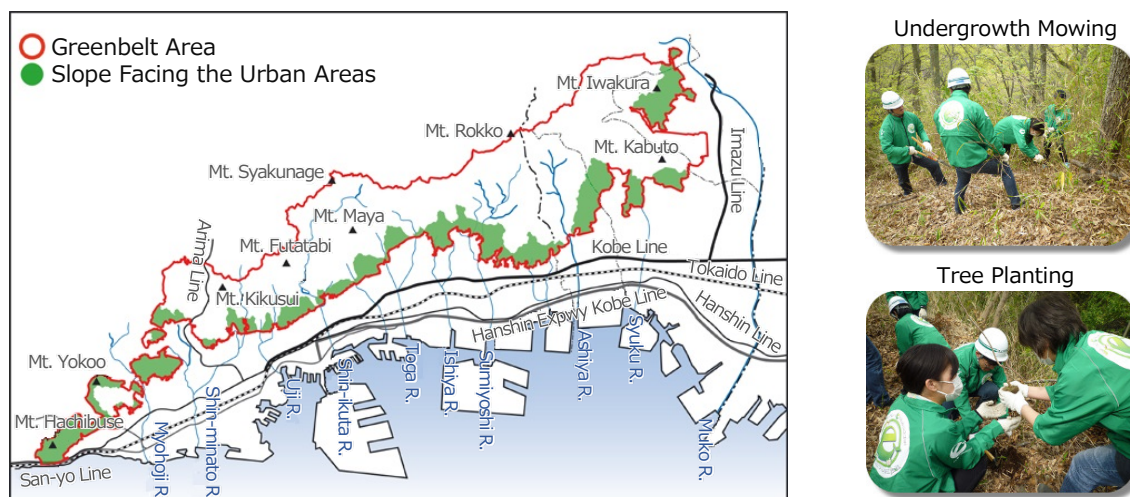
Workshops on the water environment are held throughout Japan by various entities, including NPOs and other CSOs, local governments, and RMOs of the MLIT. The National Water Environment Exchange Association, an NPO, organizes the Good Rivers and Creating Good Rivers workshop in which CSOs, the MLIT, and local governments discuss rivers and the water environment nationwide. This is an open selection-type workshop, which attracts more than 50 applications from all over Japan at a time, bringing together 400–500 people. The participants present and discuss the objectives and contents of initiatives implemented in their respective regions. Good initiatives are selected and awarded. The event started in 1998 and reached the 22nd iteration in 2019, with a total of approximately 1,200 applications.

Tamakazu Aquarium, a club mainly comprising elementary school students, won the grand prix for its activity titled Protecting the Akashi River: Nurturing the Clear Flow of the Akashi River. The club has surveyed the Akashi River since 2007, removing non-native species and cooking with them so as to reduce waste, and releasing native and endangered species. It introduced the aquatic organism survey and works to remove alien species.

(3) CSR Activities by Companies

There are also cases where companies are involved in environmental conservation as part of their Corporate Social Responsibility (CSR). The Rokko Sabo Office of the MLIT and Hyogo Prefectural Government are promoting Green Belt Forestation in cooperation with CSOs and companies that are engaged in forestation as part of their volunteer, recreational, and CSR activities (Figure 4.2). As of 2020, 26 CSOs and 20 companies are engaged in forestation activities. The main activities of the companies are logging, seed collection, rising seedlings, tree planting, surveying, and observation. The Rokko Sabo Office provides support by lending shovels and other equipment, providing technical guidance, and other means in addition to providing the activity sites.

Water Stewardship promotes water sustainability by encouraging companies to not only manage water related to their own operations, but also to actively steward water in their local communities. Suntory Holdings Limited launched the Natural Water Forest Program in 2003 to grow a forest that nurtures water; they have expanded the program to 21 locations in 15 prefectures, covering approximately 12,000 hectares. The company achieved its goal of recharging more than twice the amount of groundwater pumped by Suntory Group factories in Japan in 2019.



Source: Rokko Sabo Office of the MLIT

Figure 4.2 Forest Development Activities in Rokko Mountain Range Greenbelt

4.2 Activities for Water–Environment Conservation

Japan continues to preserve the water environment by valuing the wisdom and experience passed down from one generation to the next. These activities are based on the United Nations Sustainable Development Goals and the Paris Protocol.

In recent years, a strong will to solve various social, economic, and environmental issues in an integrated manner has been shared internationally. It includes the SDGs, Education for Sustainable Development to achieve the SDGs, and the Paris Protocol which indicates a change from low carbon to decarbonization. As public awareness of the environment is enhanced, a variety of initiatives to conserve the water environment have been implemented by various entities.

(1) Forest–Village–River–Sea Project

The Third National Biodiversity Strategy¹³ approved by the Cabinet in 2007 covers the linkage of forests, villages, rivers, and oceans as the core objective. The government policy promotes the conservation and restoration of forests, villages, rivers, and oceans as a continuous space. The Ministry of the Environment (MOE), acting as the secretariat, launched the Let's Connect and Support Forests, Villages, Rivers, and Seas Project in 2014. This project promotes the conservation of the local natural environment. It aims to contribute to the local society and economy. The project also promotes the creation of a regional recycling symbiosis zone (Figure 4.3).



Source: Forest–Village–River–Sea Project website

Figure 4.3 Symbiotic Sphere with Inter-Region Circulation

The Forest, Village, River, and Sea Project provides various forms of support for activities undertaken by local governments or private organizations. For example, the MOE helps organizations in setting a clear image with recognition of issues and countermeasures for implementation. It is important to support the formulation of new plans and initiatives, and utilize existing budgets and mechanisms as far as possible. The project aims to realize regional recycling that strives toward a favorable balance among the environment, economy, and society. The project contributes to SDGs 7 (Energy for All and Clean),

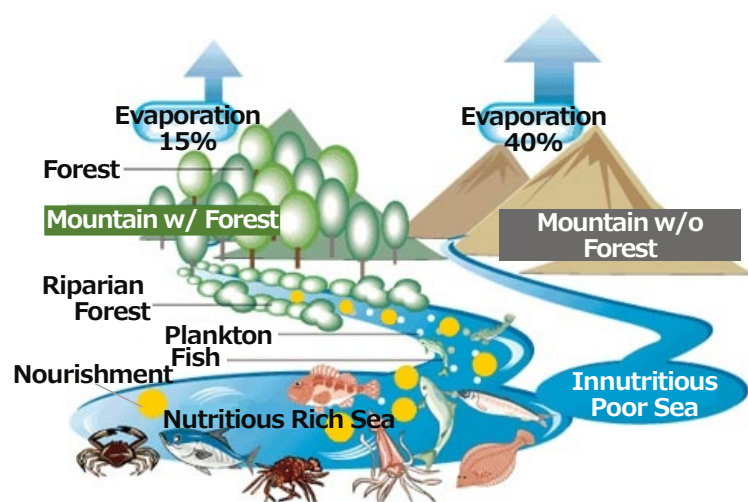
¹³National Biodiversity Strategy: A basic national plan for the conservation and sustainable use of biodiversity based on the Convention on Biological Diversity and the Basic Act.

11 (Building Communities that Permits Long Living), 14 (Protecting the Abundance of the Oceans), and 15 (Protecting the Abundance of Land) among the 17 SDGs.

(2) Forests with Fish

The term “Forest with Fish” or “Uo-tsuki-rin” in Japanese is a unique activity. The term has existed since the Edo period (1603–1868). It is one of the Preservation Forests designated by the Forest Act¹⁴. As of 2018, approximately 60,000 hectares have been designated as Forests with Fish. The functions of Forests with Fish are 1) preventing sediment runoff and turbid river water, 2) providing clear fresh water, and 3) providing nutritional substances and feed for river and marine life. When rain falls on a mountain without a forest, most of the water evaporates or flows into the river without nutrients for fish and shellfish, leaving the nutrient-poor sea downstream. Forests with Fish are maintained in a wide range of land in a basin, including coastal areas, along the upper reaches of rivers, mountain slopes, and along the lower reaches of rivers (Figure 4.4).

Hokkaido's Increasing Fish by Tree Planting Campaign was inspired by the Forests with Fish concept. Fishermen in Hokkaido launched a regional campaign with the catchphrase “100 years to regain the natural beach of 100 years ago” in 1988. This campaign attracted attention to the fishermen's tree-planting activities in the mountains. Recently, fishermen and ordinary citizens have enhanced Forests with Fish in the upper reaches of rivers nationwide (Figure 4.5).



Source: UMI & NAGISA Foundation (former Marine Blue 21), OPRI, Ocean Newsletter No. 23 (July 2001)

Figure 4.4 Fish Breeding Functions of Forest



Source: Tree Planting for Fish Breeding Campaign Regain the 100-year-ago Natural Beach

Figure 4.5 Tree Plantation

¹⁴ The purpose of the Forest Act is to preserve and cultivate forests and promote forest productivity, thereby contributing to the preservation of national land and development of the national economy. It stipulates forest planning, protected forests, and other basic matters concerning forests.

4.3 Individuals and Companies in Disaster Management

Governments should promote initiatives to involve residents, local communities, CSOs, and the private sector in disaster management.

Based on lessons from the disasters that have occurred in Japan in recent years, governments, residents, and companies are all expected to share their knowledge of disaster risks and prepare for various disasters, such as floods, earthquakes, and landslides. Governments are promoting a conversion to Society with Water Hazard Awareness. All of society should prepare for large-scale flooding beyond the capacity of existing facilities. The government formulated the Vision for the Society with Water Hazard Awareness in 2015, and promoted multilayered measures consisting of both hard and soft aspects in a systematic manner.

(1) Roles of Individuals in Rebuilding Flood-conscious Societies

Residents should prepare for disaster management plans with enhanced disaster information. Municipalities and RMOs are promoting an evacuation action plan called My Timeline by providing online template sheets and support videos. Municipalities and NGOs are holding courses on My Timeline preparation for residents (Figure 4.6). The plan helps people consider how to evacuate and save their own lives. By utilizing hazard maps prepared by municipalities, people should recognize their own flood risks and evacuations. People should review their plans with their family members in daily life. Studying at a workshop is recommended because others' opinions are informative.



Source: MLIT

Figure 4.6 Course on My Timeline Preparation (March 2019, Ryugasaki City)

(2) Response by Local Communities and Companies

Flood fighting teams, who protect their own communities from flooding, can be traced back several centuries and remain in operation to date; there are approximately 14,000 members nationwide. During floods, flood fighting teams work on-site to mitigate flood damage by patrolling levees, issuing warnings, calling for evacuations, guiding residents in evacuations, reinforcing levees, installing flood prevention facilities, and operating gates (Figure 4.7). During normal times, training, patrols and inspections are conducted regularly. The teams are volunteers and usually work in their own occupations. In an emergency, they are engaged in flood prevention activities under the status of part-time staff of the local government. This status facilitates providing allowances for engaging in activities and compensation in the event of an accident. Since the establishment of the modern state, a legal system was established to support these activities, such as financial support for equipment and materials, and the provision of disaster information. In recent years, the number of members has decreased due to urbanization and industrialization. Maintaining the teams and succession of flood fighting technology are becoming problematic (Theme 6: River Management, Chapter 5).

Companies are expected to contribute to disaster management by utilizing their human, land, and building resources and materials. The Flood Fighting Act was revised in 2005 to institutionalize the

participation of companies to provide logistic support, patrolling, and the transportation of sandbags in coordination with flood fighting teams. Companies are flood protection partners with municipalities. Based on an agreement between municipalities and the construction industry association, local construction companies execute flood protection activities, such as installing large sandbags, mobilizing their own heavy equipment, and emergency recovery.



Source: MLIT website

Figure 4.7 Flood Protection Activities and Training

(3) Inclusive Disaster Countermeasures

It is necessary to strengthen the supporting measures for disaster-vulnerable people. The number of elderly victims of disasters has increased in recent years. For example, 260 people were killed in the 2018 torrential rains in western Japan; 70% of the victims were aged 60 or older. Medical institutions and welfare facilities are suffering due to floods. There is a need to improve the evacuation preparedness of the elderly and people with disabilities. As to the location of medical institutions and facilities for the elderly and people with disabilities, it is necessary to regulate construction in dangerous areas and strengthen disaster preparedness. In evacuation shelters, there are issues such as ensuring privacy, preventing violence, providing women's goods, providing baby and nursing supplies, and accepting people with disabilities.

4.4 Award System

Awarding private organizations and individuals may motivate them to conduct disaster management and environmental conservation.

Governments and related organizations have established the following award systems:

- (1) **Award System of Flood Protection Activities:**
The Flood Control Act stipulates the Award to Flood Protection Meritorious Person by the Minister of Land, Infrastructure, Transport, and Tourism (Figure 4.8). The Prime Minister and MLIT award organizations or individuals who achieve distinguished flood protection. Governors, mayors, and the heads of Water and Land



Source: MLIT website

Figure 4.8 Vice Minister Presenting the Award Certificate

Management Bureau RMOs of the MLIT also provide these awards.

- (2) **River Contributor Awards:** The Japan River Association awards individuals and organizations who contributed to society from the perspectives of culture, environmental protection, international contributions, academic research, regional development, flood protection, and water use. In 2020, 56 individuals and 45 organizations were honored. More than 4,000 awards have been awarded since its establishment in 1949.
- (3) **Japan Water Prize and Japan Stockholm Junior Water Prize:** The Japan Water Prize was established in 1998 to support various activities conserving the water cycle and managing flood disasters. The award ceremony is held in the presence of His Imperial Highness Prince Akishino, the honorary president of the award. The Japan Stockholm Junior Water Prize was established in 2001 as part of the prize to select Japanese representatives to the Stockholm Junior Water Prize, an international competition for young researchers in Sweden. To date, Japanese representatives have won the Grand Prix or Runner-up Grand Prix three times.

CHAPTER 5 LESSONS LEARNED

- (1) **Water resources could be managed by establishing water governance that involves local communities and stakeholders from the planning stage.** Japanese experience shows that a top-down approach driven by government organizations cannot respond to various needs of local communities. A legal framework also needs to be established to arrange governance. The River Act was revised to promote public participation in the decision-making processes of policies and plans for river basin improvement in Japan. Access to information through a variety of means is a prerequisite for the consensus building process.
- (2) **Governance should be established in each river basin according to local conditions.** To reflect a wide range of opinions from academic experts and residents, a committee or forum should be formulated. It may take a long time to reach a consensus among a wide range of stakeholders. There is no single right answer for how to reach a consensus. The Yodo River Basin Committee and other river committees took innovative approaches. A comprehensive understanding of the situation and issues is needed.
- (3) **Mechanism of reviewing projects may improve transparency and accountability.** Changes in socioeconomic conditions may reduce the necessity of projects. Governments need to review and revise project activities according to changes.
- (4) **It is important to strengthen cooperation among the public and private sectors and local communities for environmental conservation and disaster management.** Local communities and residents need to prepare for disasters in accordance with local conditions. The private sector may provide solutions to various issues by utilizing its resources. The government may support these activities through financial support, training, and awards.