Chapter 3
Contextual Factors Affecting the Modes of Interaction in Governance: The Case of Dam Removal in Japan

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Abstract This chapter discusses the first Japanese case of dam removal policy. The Arase Dam in Kumamoto Prefecture was built for hydropower generation as a symbol of economic development in 1955. After its construction, local residents came to realize the damage caused by the dam, such as flood damage and eutrophication of the reservoir. In parallel with the anti-dam construction movement, at another site in the same river basin, the local village and fishermen began to ask the prefectural government to remove the Arase Dam when the permit for hydropower generation expired in 2003. Until the governor of the prefecture decided to remove the dam, there had been a series of complex interactions among different levels of government, local residents, fishery cooperatives, and downstream farmers, with political dynamics from changes of top leaders in elections. This chapter focuses on the contextual factors in interactive governance and stresses the importance of resistance strategy, which has been discussed in case studies of local commons in Japan, rather than collaborative governance discussed in many water governance studies.

Keywords Dam removal · Arase Dam · Interactive governance · Collaborative governance · Resistance strategy · Power imbalance · Contextual factor · River policy · Japan

1 Introduction

The concept of governance has attracted scholarly attention over the last few decades. The relatively new concept of "interactive governance" has emerged as an alternative to traditional government practices (Torfing et al. 2012). Dating back several decades, researchers have noted the decline of trust in traditional government agencies among industrialized societies (Crozier et al. 1975) because they have difficulty in dealing with new and complex social issues, such as environmental

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protection. Hence, much attention has been paid to collaborative approaches toward natural resource management (e.g., Koontz 2004; Sabatier et al. 2005).

While the new types of governance have been studied in various countries, the applicability of those concepts has to be examined carefully in various social, economic, and legal settings. As democracy varies among countries and regions (Lijphart 1999), we can assume that the mode of governance also varies among countries and regions.

In this chapter, we examine the applicability of interactive governance as an emerging concept in the Japanese watershed governance issue. While interactive governance has been introduced in several studies in Japan (Hori 2011), it has not been applied empirically in Japanese cases. Watershed governance is one of the relevant issues to examine as it is a "wicked" problem (Rittel and Webber 1973) to govern. There are diverse stakeholders with occasionally countervailing interests in watershed governance. Complexity and scientific uncertainty of a watershed ecosystem also makes it difficult to deal with governance issues (Ohno 2013).

In 1997, Japan revised some fundamental legal structures for river administration to expand the scope of public involvement in planning stages of each river's fundamental management plan. Prior to this revision, the planning process had been almost exclusively under bureaucratic control, although several river-control works significantly influenced livelihoods within the targeted watersheds. Such government-centered governance often created severe disputes over river engineering works, such as dam construction, discharge channel works, and weir constructions. To cope with the widespread criticism over the river administration by the existing government, the River Law was revised in 1997. Another remarkable revision of the River Law in 1997 saw the inclusion of "environmental conservation" into the policy objectives for river administration. Those legal changes were positively evaluated with hopes for the transition to sustainable watershed governance. Some best practices of collaborative and interactive planning at the watershed have been reported (e.g., Obitani 2003); however, the realities of watershed governance after the legal reform have been critically examined (Ohno 2013). Some dams are still in dispute and are going to be built despite the strong opposition by inhabitants (Seki et al. 2015). The linkage between existing governance and emerging interactive governance is the topic to be studied further in the Japanese watershed governance context.

An interesting case in this regard is the removal of the Arase Dam, widely known as the first instance of large-scale dam removal in Japan. Residents near the site originally suggested removing the dam, and the prefectural government decided to proceed with the same in 2003. However, a newly elected prefectural governor reversed this decision, giving rise to a fierce campaign for its removal. Eventually, the governor changed his position, and the removal work was completed in March 2018. The case study of those complicated interactions between residents and government organizations will offer beneficial insights for the future directions of watershed governance in Japan.

Although studies on the dam removal would provide useful insights to governance literature, these studies in the context of governance studies are limited at

present. While a series of studies on the dam removal by political scientists (Lowry 2003, 2005, 2009; Mertha and Lowry 2006) focus on the politics and policy process leading to the dam removal, the theoretical contribution to governance literature has not been discussed clearly. With only a few exceptions, including Lowry's works, studies on dam removal have been conducted mostly in the natural sciences. This tendency applies to studies of the Arase Dam as well, which have included a geochemical assessment of how the dam removal impacted the mouth of the river and the adjoining sea (Young and Ishiga 2014) and overall reports on environmental changes anticipated after the removal (Tsuru 2013). Only Abe (2007) has studied this case from a social science viewpoint, discussing the history of the dam and its surrounding communities along with social movements advocating for its removal. However, Abe's analysis covers only the period up to 2005 and does not discuss the subsequent policy process that featured a withdrawal of the first decision to dismantle the dam and then the final decision to remove it. Despite the theoretical concern for understanding the linkage between the existing government and the emerging interactive governance in the Japanese watershed governance context, the processes and interactions that led to the decision to remove the Arase Dam have not previously been studied.

The subsequent sections are as follows. We first review the literature on interactive governance in Europe and environmental or resource governance in Japan. Since we can trace back the conceptual roots of interactive governance in Europe, we first review the literature in Europe. Considering the context-dependent nature of governance, surveying the literature not only in Europe but also Japan will be significant. Furthermore, the basic legal framework of watershed governance will be briefly summarized. After explaining the methods and data used in this study, the historical transition of the governance of Arase Dam will be described comprehensively. We will discuss the characteristics of watershed governance for the dam removal and the influences of contextual factors that determine the mode of governance.

2 Literature Review

2.1 Interactive Governance Literature in European Countries

Interactive governance as a new concept has been discussed mainly by scholars in EU countries. Kooiman (1993), a seminal work opening the field of governance literature, refers to the interactive features of new emerging governance. Kooiman (2003) also suggested that the interactions in the study of governance should be emphasized more. Kooiman used the term "interaction" to refer to "a mutually influencing relation between two or more actors or entities" (Kooiman 2003).

While several researchers define interactive governance in slightly different manners, the common denominator is the social problem-solving process with divergent actors. For instance, Kooiman et al. (2005) define interactive governance

as "the whole of interactions taken to solve societal problems and to create societal opportunities; including the formulation and application of principles guiding those interactions and care for institutions that enable and control them." In the comparative analysis of Dutch local governments, Edelenbos (2005) defines interactive governance as "a way of conducting policies whereby a government involves its citizens, social organizations, enterprises, and other stakeholders in the early stages of public policy making." As an introductory chapter of the encompassing book on interactive governance, Torfing et al. (2012) refer to interactive governance as "the complex process through which a plurality of actors with diverging interests interact in order to formulate, promote, and achieve common objectives by means of mobilizing, exchanging, and deploying a range of ideas, rules, and resources."

While the interactive governance literature offers several guiding principles, room remains for further scholarly development. First, the empirical application has been limited to case studies in European countries, such as Dutch regional development studies (Edelenbos 2005; Edelenbos et al. 2010). Fishery governance is a field where scholars have attempted to apply interactive governance theory in empirical investigation. Kooiman et al. (2005) and Jentoft and Bavinck (2014) mostly discuss the global trend of fisheries and the legal framework for fisheries in general. Their focus is not limited to specific countries; nevertheless, most of them are European scholars. Examining the interactive governance studies in a different political, cultural, and economic context will add a new insight into the past studies. Second, the similarities and differences between interactive governance and other new forms of governance are not clear enough. Some scholars discuss the similar forms of governance with interactive governance as "collaborative governance" (Ansell and Gash 2007) or "participatory governance" (Fisher 2012). A clarification of those new modes of governance is needed for conceptual development and would be a beneficial contribution to the governance literature as a whole. As interactive governance studies have been conducted in a relatively limited region, empirical investigation in other social and political contests would be a relevant research strategy.

2.2 Environmental and Resource Governance Literature in Japan

Governance has been a significant research topic in various academic fields also in Japan for a few decades. As the contribution to environmental studies from political scientists is relatively limited to Japan, environmental and resource governance has been studied by economists, sociologists, anthropologists, and so on.

One of the topics we should pay attention to among those studies is the collaborative governance of natural resources, especially those as the local commons. Inoue (2004) proposes the collaborative governance of the tropical forest in Indonesia with the collaboration of diverse stakeholders including indigenous resource users, local government, business enterprises, international NGOs, and global citizens.[1]

[1] Inoue (2004) also discusses that each stakeholder should have differentiated legitimacy according to their dependence on the targeted resource.

Mitsumata and Saitoh (2010), Miwa and Mitsumata (2010), and Mitsumata (2013) complement Inoue's concept of collaborative governance by emphasizing the possible adversarial effects outside the local community governing the natural resources in their own community. They discuss that a collaborative relation over the governance of natural resources is sometimes quite difficult to achieve in the case of an unfillable power imbalance between stakeholders. For instance, as briefly mentioned in the introductory section, several river development projects like dam constructions have been advanced by government agencies despite strong opposition and protest activities by inhabitants who receive negative effects from the projects. Many local commons under the external pressure for privatization and nationalization experienced their demise. As collaboration is difficult to realize in those situations, a series of Mitsumata and his colleague's articles proposes "resistance strategy" to complement collaborative governance strategy. They refer to resistance strategy as "the strategy that members of local commons save their own commons by earning the support from various entities, appealing their legitimacy, and protesting the outsiders who (1) have a precise intention to degrade or demise local commons or (2) unintentionally lead to the collapse of prerequisite for maintaining the commons" (Mitsumata and Saitoh 2010). In the case where prerequisites for a collaborative relation are not met due to external or adverse impacts to local commons, the resistance strategy would be possible for the members of the commons to protect their own resources and livelihoods. While the applicability of a resistance strategy has been examined in the case of property wards' resistant responses to local government entities to maintain their autonomy over own resources and institutions (Mitsumata and Saitoh 2010), few studies develop their arguments.

We can draw implications from those studies on governance strategies that collaboration is not the sole answer but one of the eligible modes of environmental governance. That eligibility is difficult to assess in general; however, it is certain that we should take its surrounding context as a prerequisite for collaboration into consideration.

3 Basic Legal Framework for Water Governance in Japan

In the Japanese legal system, there is no law that encompasses watershed governance as a whole. The River Law set the fundamental structure of river governance, although the scope is not an entire watershed area but limited only to the area within the river. Most of the rivers in Japan are subject to the River Law.

Under the River Law provision, government entities are generally designated as river administrators responsible for managing each river. The level of government entities differs from municipal government to national government according to the classes of rivers.[2] In case a river is regarded as very important socially and economically, it is designated as Class A. A river with moderate social and economic

[2] Japan has the two-tier local government system, including prefectures and municipalities. Municipalities include cities (Shi), towns (Cho), and villages (Son or Mura). For the details on Japanese local government, see Reed (1986) and Jacobs (2003).

importance is designated as Class B. Among the rest of the rivers, municipal mayors can designate secondary rivers if the need arises. The Ministry of Land, Infrastructure, Transport and Tourism (MLIT), a national government entity, is designated as a river administrator of Class A rivers (Article 9); the prefectural governor is authorized as a river administrator of Class B rivers (Article 10); and a municipal mayor is chosen as a river administrator of secondary rivers (Article 100). Those provisions on river administrators are considered to entitle encompassing power to government organizations in Japanese river governance (Miyoshi 2007).

With regard to water resource use, there are two kinds of water use rights in Japan. One of them is the "licensed water use right," which needs to be granted by the river administrator on the basis of the amount of water withdrawn from the river. These rights have been established according to the Article 23 of the River Law in 1896. These rights are relatively new as compared to "customary water use rights" as discussed below and often used for industry or urban water supply. As this right is a permission or license rather than property right, river administrators turn out to be influential in determining permissions and renewals of water use licenses.

The other one is "customary water use right," which has its legal basis on the Article 11 of Ordinance for the River Law in 1986. These rights are based on the customary rules for water use within or between village communities and mainly used for irrigation. This right is established to approve existing water use rules prior to the River Law in 1986 and is more a private property issue than a licensed water use right.

4 Method

Since governance in this case is relatively complex and has not previously been comprehensively studied, we adopted the process tracing method (Beach and Pedersen 2013), which involves describing the details of an event from related documents and interviews. To gain an overall understanding of the case, we collected newspaper articles comprising detailed information on the policy process and conducted interviews of key stakeholders.

4.1 Data Collection

Using five major newspaper databases, including Kumamoto Nichinichi Shinbun, Asahi Shinbun, Mainichi Shinbun, Yomiuri Shinbun, and Nikkei Shinbun,[3] we identified articles containing the key phrase "Arase Dam." To check the reliability of the information presented in these articles, we also visited the dam and the surrounding area, where we confirmed the present situation of the river environment and interviewed several key persons in the dam removal campaign. Interviews were

[3] Among those newspapers, only Kumamoto Nichinichi Shinbun is the local newspaper published at Kumamoto; the others are the nationwide newspapers.

conducted since 2013 with a total of 23 persons: 9 fishermen, 4 persons engaged in forestry, and 10 inhabitants along the Arase Dam site. Additionally, we collected related official documents including the recoded minutes of the Kumamoto prefectural parliament. We cross-checked the data collected so as to confirm the validity of the information.

4.2 Overview of the Targeted Area

The Arase Dam is located in the midstream of the Kuma River, Kumamoto Prefecture, Japan (Fig. 3.1). The Kuma River extends for 115 km and has a watershed area of 1880 km^2, or almost 25% of the area of Kumamoto Prefecture. The Kuma River is designated as a Class A river. The total population living within the watershed is about 250,000 now, but it peaked at around 350,000 during the 1950s and 1960s (Fig. 3.2). The Kuma River is famous for its yield of sweetfish [*Plecoglossus altivelis*]. Figure 3.3 illustrates the percentage of workers engaged in primary industries, such as fisheries, forestry, and agriculture, in each municipality in the watershed. The average percentage employed in the primary industries of these municipalities is 20.9%, which is higher than both the national average of 5.1% and the prefectural average of 10.5%. Although the percentage in Hitoyoshi is much lower than in other municipalities in the watershed, Hitoyoshi has a higher percentage of tertiary industry workers and is famous for its tourism industry, including hot springs and riverboat recreation, which depend largely on ecosystem services from the Kuma River. We often observe the uneven rate of workers in

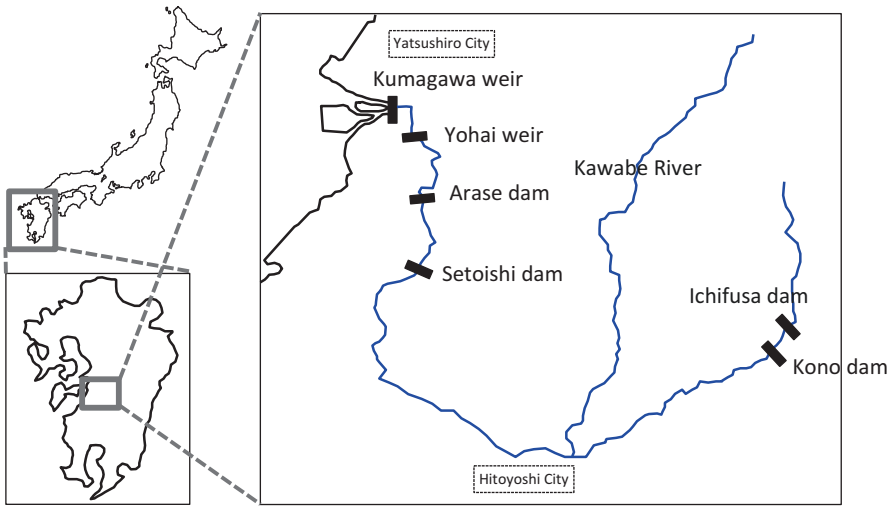

Fig. 3.1 Kuma River watershed map
Source: Compiled by the author based on the map provided by the Ministry of Land, Infrastructure, Transport and Tourism

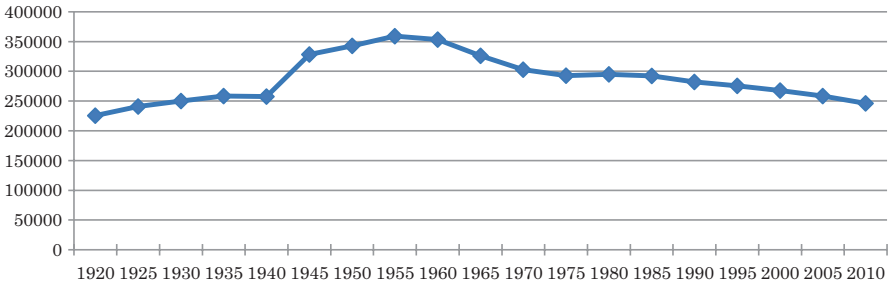

Fig. 3.2 Population changes in the Kuma River watershed area, 1920–2010
Note: Total population is calculated by adding the populations of Yatsushiro City, Hitoyoshi City, Ashikita Town, Nishiki Town, Taragi Town, Yunomae Town, Mizukami Village, Sagara Village, Itsuki Village, Yamae Village, Kuma Village, and Asagiri Town. The data source for each municipality's population is the Population Census for each year
Source: Compiled by the author based on the data

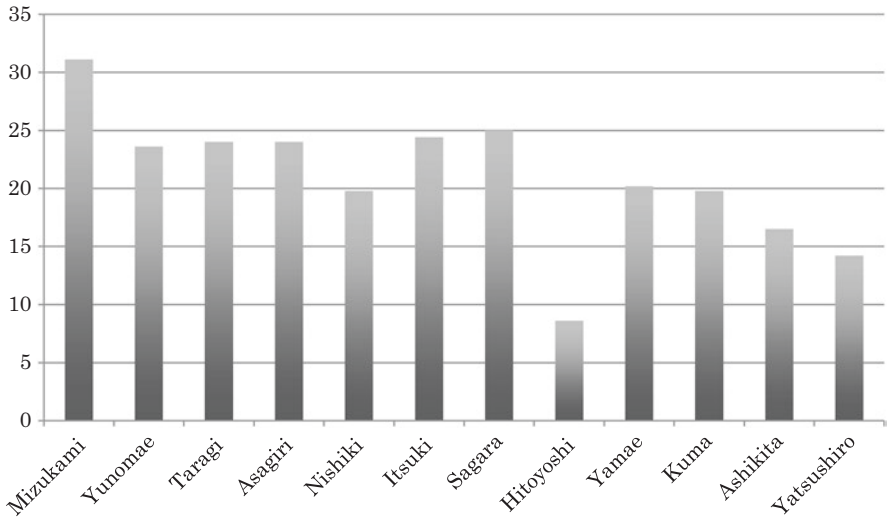

Fig. 3.3 Percentage of workers in primary industries
Note: The data source is Population Census 2010. The municipalities are listed in order from upstream (left) to downstream (right)
Source: Compiled by the author based on the data

primary industries between upstream (high rate) and downstream (low rate); however, those statistics indicate that people's livelihoods, including those at midstream and downstream areas, rely more heavily on the river ecosystem in this watershed than in most other areas.

The Kuma River General Development Project was initiated in 1951. Four large dams, including the Arase Dam, were constructed along the Kuma River for hydropower generation or flood control. The Kawabegawa Dam, which was to be

installed on the Kawabe River, a branch of the Kuma River, attracted nationwide attention because of the campaign against its construction.

The Arase Dam was built in 1955 for hydropower generation at Sakamoto Village, which merged with Yatsushiro City in 2005. Arase is a concrete gravity dam,[4] 25 meters high and 210 m wide. The dam's operating body is the Kumamoto Bureau of Enterprise, a branch of the Kumamoto prefectural government responsible for public utilities.

5 Results[5]

5.1 Dam as a Symbol of "Development" (1960s)

During the construction of the Arase Dam in the 1950s, Kumamoto Prefecture was suffering from a shortage of electricity, especially for industrial use. Hydropower was the main source of electricity then. Newspaper articles reported that power outages frequently occurred in Kumamoto,[6] and their electricity supply depended entirely on the amount of rainfall.[7] To deal with the electricity supply problem, Kuma River, known as its abundant river flow, received remarkable prefectural-wide attention. Governor Sakurai decided to start a regional economic development project at Kuma River watershed with reference to the experiences of the TVA (Tennessee Valley Authority) project in the United States. His basic idea of the development project as a "small TVA" was to install several hydropower generation plants and enable invitations from industrial factories in that area.[8] This project was entitled the "Kuma River General Development" project. Its first step was the construction of the Arase Dam.

The building of the Arase Dam was viewed as a symbol of "development" like other dams built in the same period. The prefectural government made a documentary film about the Arase Dam construction,[9] portraying the prefectural-wide expectation for industrial promotion and the magnificence of construction works, and included a lavish ceremony for celebrating the completion of the dam construction.

A publication on local history (Sakamoto Village History Editorial Committee 1990) recorded that the dam project was painful for those who were forced to move away from their long-established residences as the construction work rapidly completed with the help of inhabitants around the dam site. The Arase Dam was

[4] It is made from concrete and is "called a gravity dam because gravity holds it down to the ground stopping the water in the reservoir pushing it over" (The British Dam Society 2010).

[5] See Appendix for the overall process of Arase Dam construction and removal from the 1950s to 2010.

[6] *Kumamoto Nichinichi Shimbun*, May 25, 1951.

[7] *Kumamoto Nichinichi Shimbun*, February 11, 1951.

[8] *Kumamoto Nichinichi Shimbun*, December 23, 1954.

[9] This film is available at the following website (http://www.kagakueizo.org/create/other/5533/).

built in merely 22 months even though the project influenced its surrounding communities in various ways, such as by the relocation of 119 households, compensation for fisheries and log rafts, and new road construction as an alternative to the former use of river transportation. We cannot find any record of fierce opposition to the construction of the dam then; its completion was celebrated throughout the prefecture as a sign of the area's economic development.

5.2 Dam as a Source of "Nuisance" (1970s–1990s)

Since the construction of the Arase Dam, local residents have reported various types of damage attributable to the dam. The first trigger of change in the inhabitants' attitude toward Arase Dam was the flood damage caused by heavy rainfall in 1965. A resident along the Kuma River told that the flood in 1965 was entirely different from the previous ones in terms of its "quality." According to him, the previous flood flow was clean and gradually increasing; however, it turned muddy containing the sludge in the reservoir and rapidly increasing due to Arase Dam.[10]

This flood was critically reported in local news published by the community center in the Sakamoto Village. It described the flood damage as a consequence of the inappropriate operations of the existing three dams at Kuma River, including Arase Dam. According to the local news article, flood damage worsened after the construction of the dam, and, as a result, inhabitants within the watershed were suffering.

Inhabitants along the dam reservoir were also experiencing flood damage due to the rising water level of the reservoir. The water level rise during floods was considered to be a result of the accumulation of sands and soils at the dam reservoir. It caused flood damage to the housing area around the reservoir where no such damage had previously occurred. The grounds of some housing areas around the reservoir were raised up by embankment works to cope with the new flood threats.[11]

Inhabitants along the Arase Dam organized an association to advocate the flood damages caused by the dam and negotiate with prefectural government being the administrator of the dam for a compensation of those damages. Nevertheless, their activities did not come to fruition due to the political pressures placed on the association.

Moreover, it became apparent that Arase Dam had harmful impacts on the ecosystem around the dam site. The dam's disruption to water flow caused a decrease in the number of migratory species of fish, like eel and sweetfish, which were well known for their abundance in the Kuma River.[12] The Ministry of Construction

[10] Interview, March 6, 2016.

[11] Details of flood damage are described in detail in the interview report (Kumagawa ryuiki jyumin kikitorichosa hokokushu henshuiinkai 2008).

[12] Since sweetfish caught in the Kuma River had been highly valued for their size and taste (Hanaoka 1934; Kosaki 1960), it is regarded as a symbol of the Kuma River.

installed fish ladders at both the Arase and Setoishi dams in 1999, but these did not prove to be adequate countermeasures (Abe 2007).

Furthermore, the dam caused the eutrophication of its reservoir. Inhabitants informed that they were suffering from an offensive smell emanating from the polluted water in the reservoir. Ground vibrations that occurred during discharges from the dam caused cracks in the walls of houses along the dam site.

5.3 Dam Removal Stimulated by Dam Construction Controversies (2000–2007)

The Kawabegawa Dam planned for the Kawabe River, one of the branches of the upper Kuma River, became a nationally prominent controversy in the 1990s.[13] The Kawabegawa Dam was planned for irrigation and flood control; however, it was criticized for being based on an excessive demand prediction by environmental advocates. In spite of those criticisms, both prefectural and national governments and politicians belonging to the Liberal Democratic Party (LDP), the ruling party both at national and prefectural level, strongly promoted these construction projects.

All the cities and towns in the Kuma River watershed had also favored construction, but some residents of the Sakamoto Village who had suffered from the negative impacts of the Arase Dam voiced their opinion that the people in the Kuma River watershed should have the chance to clearly express their attitudes for or against the Kawabegawa Dam. They campaigned for a local referendum ordinance and collected enough signatures to have the proposed ordinance discussed at a village assembly. The assembly members discussed it at an unusually heated meeting and then rejected the proposal by a 7 to 6 vote in 2001.

Furthermore, in 2001, around 20 members belonging to Kuma River Fishery Cooperative Association organized the voluntary association named "Sakamoto Village Fisherman Association" to advocate against Kawabegawa Dam construction.[14]

Coincidentally, the permit for hydropower generation at the Arase Dam granted for 50 years in 1953 had an expiration date of March 2003. Since the hydropower generation at Arase Dam has been run by Kumamoto Prefecture, the prefectural government needs a permit to withdraw water from Kuma River. The permit has been granted by the national government as the River Administrator of Kuma River on condition that its water use does not make adversarial effects on other users. As that date approached, residents of the Sakamoto Village began expressing objections to the permit renewal and to request the removal of the dam instead. They organized the association for advocating the dam removal. Fishermen along the

[13] For more details on the Kawabegawa Dam issues, see Takahashi (2009) or Kumamoto Nichinichi Shimbun shuzaihan (2010).

[14] *Yomiuri Shimbun*, June 16, 2001.

Yatsushiro Sea, including the river mouth of the Kuma River, also requested the prefectural government to remove the Arase Dam.[15]

At first, the Kumamoto prefectural government wanted to renew the license and keep the dam in existence. The prefectural government held a meeting at the Sakamoto Village to explain the position of the prefecture in favor of renewal; at this meeting, a great number of participants objected to the dam and to the permit renewal.[16]

In September 2002, the village assembly adopted a statement requesting removal of the Arase Dam. The statement is sent to the national government and the prefectural government, insisting that Arase Dam caused (1) flood damage, (2) water quality degradation, (3) accumulation of sand and soil, (4) vibration nuisance, (5) loss of downstream river flow, and (6) loss of fishing grounds. The statement clearly described "we strongly request that water license renewal and continuation of Arase Dam should be abandoned." The statement was adopted by unanimous vote at the village assembly.

Those movements at Sakamoto Village influenced the prefectural governments' attitude. Governor Yoshiko Shiotani told that the accepted statement should be in serious consideration and the prefectural government should not stick to the renewal of water license and be flexible.[17] The Sakamoto Village mayor and assembly members visited the governor and directly told that consensus of the village was against the existence of Arase Dam.[18]

The Kumamoto prefectural chapter of the Liberal Democratic Party (KLDP), which held a majority of seats in the assembly, also considered the possibility of the removal in a task force and submitted an opinion brief requesting removal to Kumamoto Prefectural Governor Shiotani. In December 2002, Governor Shiotani announced her decision to remove the Arase Dam at the prefectural assembly, noting that the cost of removal (approximately 4700 million yen) would be less than that of the renewal and maintenance of the existing dam and its associated hydropower generation facility (approximately six billion yen). Governor Shiotani also decided to renew the water license limited only in 7 years and continue the hydropower generation to cover the removal cost in part.[19]

The position of Arase Dam for the Kumamoto Prefecture and Sakamoto Village had largely changed from what it was at 1950s when dam was built. The prefectural share of electricity generated at Arase dam became 0.7%, whereas it was 16% at the initial period where Kumamoto is suffering from electricity shortage.[20] The Sakamoto Village's tax revenue from Arase Dam and the related subsidy from national government was just 0.6% (approximately 24 million yen) of the total annual budget.[21]

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[15] *Kumamoto Nichinichi Shimbun*, July 16, 2002.

[16] *Asahi Shimbun*, August 11, 2002.

[17] *Kumamoto Nichinichi Shimbun*, September 27, 2002.

[18] *Kumamoto Nichinichi Shimbun*, October 18, 2002.

[19] Kumamoto prefectural assembly meeting minutes, December 10, 2002.

[20] *Kumamoto Nichinichi Shimbun*, October 30, 2002.

[21] *Kumamoto Nichinichi Shimbun*, November 4, 2002. Unfortunately, the amount of related tax revenue and subsidy remains unclear due to the limited available documents.

5.4 Change of Local Government Policy and Citizen Protests Against It (2008–2010)

After Governor Shiotani's decision to remove the Arase Dam, a committee of experts discussed specific procedures for the dismantling and decided on a method and schedule for the project. The process seemed to progress smoothly but then underwent a drastic change along with a change of governor.

In April 2008, Ikuo Kabashima was elected as Kumamoto prefectural governor. Although both Governor Kabashima and his predecessor were supported by the LDP and the Arase Dam's removal was not a topic of debate during the election, the new governor suddenly decided in June 2008 to stop the Arase Dam removal project. The primary reason for his decision was the cost of removal, which had increased to 5400 million yen from the original estimate of 4700 million yen. Since Governor Kabashima made this decision without consulting stakeholders even within the prefectural government, his action caused considerable confusion. Governor Kabashima later said that another reason for halting the removal process was that he had received a request to retain the dam from the Future Energy Collegium, an association of former bureaucrats from the Ministry of International Trade and Industry that had formed to promote hydropower generation during the postwar period.[22]

Residents of the Sakamoto Village and members of the Kuma River Fishermen's Cooperative strongly opposed the governor's decision of not removing the Arase Dam and initiated a campaign against it. They directly lobbied the governor and bureaucrats in charge of the Arase Dam operation several times.

These advocacy activities softened Governor Kabashima's attitude toward the dam's removal. Initially, shortly after announcing his decision to withdraw the previous governor's removal request, he said, "Please abandon the idea that we should complete what we had previously decided. We should reconsider when the overall situation has changed.[23]" However, he subsequently indicated in July 2008 that removal was still a possibility, stating "We will deal with the issue flexibly, and the possibility of the conclusion that we will remove the dam after all is not zero.[24]"

On the contrary, downstream farmers at Yatsushiro City started to insist on the maintenance of Arase Dam. Despite the fact that irrigation water is not from Arase Dam but from Yohai Weir located downstream from Arase Dam, farmers worried about the loss of upstream reservoir. The Land Improvement District organized by farmers submitted the statement for maintaining Arase Dam to the city assembly, and it was adopted in September 2008.

Governor Kabashima appointed a project team in the prefectural government to examine the decision about the removal of the Arase Dam. After a month of examination, they reported that the cost of removal would be much more than the cost of maintenance. According to their estimation, the removal cost is 9100 million yen or more than double compared with the original estimated removal cost at the time of Governor Shiotani's administration.

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[22] *Kumamoto Nichinichi Shimbun*, July 3, 2008; May 5, 2009; March 7, 2010.

[23] *Asahi Shimbun*, June 7, 2008.

[24] *Asahi Shimbun*, July 1, 2008.

In November 2008, the Governor again reaffirmed keeping the dam in place, observing that, "we would need to inject a vast amount of public funds from the prefectural general account into the removal project. The continued existence of the Arase Dam is the best choice so as not to leave Kumamoto Prefecture in need of fiscal reconstruction." The Governor also proposed the conditions for the dam removal as follows: (1) securing of financing for the dam removal, (2) safety of revetment and roads around the reservoir, (3) alternative solution after removing the dam site that also works as the bridge, and (4) established technology for the removal. At this point, the focus was firmly on the burden imposed by removal costs.

Yatsushiro City Mayoral Election

While the policy for maintaining Arase Dam was reconfirmed in late 2008, opponents continued to lobby for the dam's removal. Two elections in 2009 changed the situation again.

In August 2009, Kazutoshi Fukushima, running on a promise to remove the Arase Dam, won the Yatsushiro City mayoral election. Following this, Yatsushiro City started to actively lobby for the removal. Some members of the Yatsushiro City assembly organized a voluntary confederation for the dam removal in November 2009.[25] The confederation expanded its number of members to about 60, including Diet members and prefectural assembly members.[26]

Opponents' protest movements for the dam removal also became active during this period. The kinds of actors lobbying the prefectural government became even more diverse. Citizen groups mainly comprising Sakamoto Village residents lobbied not only the prefectural government but also both prefectural and national political parties and the Ministry of Land, Infrastructure, Transport and Tourism (MLIT), which is in charge of water-related permits.

Request for the National Government's Financial Support with Removal Costs and Its Refusal

In 2009, the Japanese general election resulted in a change of government from the LDP to a new coalition government including the Democratic Party of Japan (DPJ) and the Social Democratic Party (SDP). Since several principal members of both the DPJ and SDP had visited the Arase Dam before the general election and indicated that they would request financial support for the removal from the national government, the DPJ's Kumamoto prefectural chapter submitted an opinion brief seeking a subsidy in the amount of half of the removal cost to Prime Minister Yukio Hatoyama, a DPJ party leader.[27] Governor Kabashima also raised his expectation for the national government's financial support to remove the dam. He visited Seiji Maehara, Minister of the MLIT, to request the financial support in October 2009.[28] However, Minister Maehara expressed reluctance to provide such a subsidy.

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[25] *Kumamoto Nichinichi Shinbun*, November 25, 2009.

[26] *Kumamoto Nichinichi Shinbun*, December 15, 2009.

[27] *Asahi Shinbun*, September 14, 2009.

[28] *Kumamoto Nichinichi Shinbun*, October 15, 2009.

As the prefectural government was seeking financial support from the national government, the permit for the Arase Dam was approaching its new expiration date—March 2010. The permit had been extended for 7 years in 2003 on the presumption that the dam would be removed during that time, pursuant to Governor Shiotani's decision. In January 2010, Minister Maehara expressed his view that the existing license would expire in March end and the new license would need more than 6 months to investigate. He also directly refused a request for financial and technical support on the national level for the removal during a conversation with Governor Kabashima.[29] Then, Governor Kabashima faced a challenging situation that he could not have either the financial support or the possibility to renew the existing water license.

In February 2010, Governor Kabashima expressed his policy that the prefectural government would continue hydropower generation with a new water license in 2 years to earn the removal cost as much as possible. The Kumamoto prefectural government, trying to find a way to keep the permit from expiring, sought to apply to MLIT for a new license without approval by the Kuma River Fishermen's Cooperative. However, the MLIT frowned on the prefecture's application for renewal and indicated that "if the continued existence of the Arase Dam is a prerequisite, the overall procedure would take more than 5 months.[30]

The prefectural assembly also made it difficult for the Kumamoto prefectural government to continue hydropower generation at the Arase Dam. The KLDP, the majoritarian political party in the assembly, proposed the withdrawal of new water license application to prevent the confusion. In March 2010, the assembly decided to delete the next fiscal year's budget for continuing the hydropower generation at Arase Dam.

Facing this barrier to continued dam operations, Governor Kabashima finally announced that the prefectural government would start to remove it in 2012. The dam's gates were gradually opened after the permit expiration date of April 1, 2010. All the gates were fully opened by April 11. This time, the decision was final, and the dismantling of the dam has been in progress since September 2012.

5.5 *Dam Removal and Signs of Watershed Restoration (2010–Present)*

As depicted in Fig. 3.4, the river started to recover its connectivity between upstream and downstream that was formerly divided for almost 60 years by the Arase Dam. Despite the fact that removal work was still in progress, we could confirm various signs of environmental restorations. We can see the river flow running at the former dam reservoir. Environmental monitoring reveals the restoration of water quality

[29] *Asahi Shinbun*, January 15, 2010.

[30] *Asahi Shinbun*, February 3, 2010.

and biodiversity, including the diversity of benthos and fish species. Young and Ishiga (2014) report the environmental improvement of bottom sediment at the downstream tidal flat.

According to our interviews thus far, several inhabitants answered that the "water became clean" after the removal work had started. Some people told that "the smell of reservoir's water was bad[31]" and "fish catch nets soon became dirty with algae[32]"; however, those situations improved after the removal work.

Some types of sweetfish fishing have started to be revived. One is what is locally called "Gakkuri Gake" fishing, where the sweetfish are caught while approaching shallow water for spawning. This fishing started to be revived in 2015 at the past reservoir where used to be under the dammed water. Inhabitants with fishing licenses can do this type of fishing. Before Gakkuri Gake fishing started in October, people moved the relatively big stones away to prepare the appropriate spawning bed for the sweetfish. Another method is sweetfish fishing by decoy. We can see the people enjoying this type of fishing downstream of the former dam site, where the flow was much less than at present.

Fishermen along the river mouth told of the positive effect on seaweed cultivation and shrimp fishing by experiencing the change of water quality into "lively" state.[33] While water quality is considered to be improved, some fishermen told of various detritus and flotsam such as leaves, branches, and driftwood began to flow directly into the sea. They suggested the influence from the upstream forest and its devastation.[34]

Movements for the village revitalization begin to start for the post-dam removal period at Sakamoto Village. NPO SSP (Sakamoto Saisei Project) dealing with issues related to decreasing population at the Sakamoto Village started to offer river boating leisure activities on the restored river. A local company, named "Reborn", started rafting tour business so that people can feel the restored river and its business can contribute to the local economy. Sakamoto Jyumin Jichi Kyogikai, the inhabitants' association for village development, has opened a small restaurant that people can enjoy sweetfish dishes along the restored river and is preparing to set a fishing weir for encouraging tourism. A fishing weir is often used for leisure activities or tourism in Japan. The objective of their association is also to increase the number of visitors and develop the area by utilizing the restored river.

6 Discussion

Looking back the process leading to the Arase Dam's removal, we find an intense interaction among stakeholders; however, the overall modes of governance are not collaborative but conflictual. While the residents along the Arase Dam demanded

[31] Interview, February 2, 2015.

[32] Interview, March 5, 2016.

[33] Interview, September 24, 2015.

[34] Interview, September 24, 2015.

Fig. 3.4 Progress of the Arase Dam removal work
Note: All the pictures are taken by the author. Those are taken at almost the same point on the right bank of the river, directing to the upstream

the removal of it, the prefectural government, especially at Kabashima's administration, wanted to maintain the dam. Those adversarial situations have not changed until the final decision to remove the dam was made. The strategy adopted by those who advocated for the dam's removal was resistance as discussed in environmental and resource governance literature in Japan. They protested against the prefectural government's policy and lobbied government agencies and politicians, broadening their protest network.[35] Those findings suggest that the possible modes of interac-

[35] The strategies they adopted were mainly political campaigning. There was no litigation concerning Arase Dam removal.

tion should be broadened in interactive governance studies. As we review the literature in the previous section, much attention has been focused on collaborative mode of interaction. The Arase Dam case, however, indicated that collaborative interactions are difficult to achieve and resistance is an effective strategy for changing a public policy and saving local resident's livelihoods under a certain circumstance. A key to understand such a seemingly countervailing fact lies in the contextual factors underlying each case. As environmental and resource governance literature in Japan (e.g., Mitsumata and Saitoh 2010) argue, some prerequisites should be met for a collaborative relation. Contextual factors, including those prerequisites for the collaboration, behind the issue are critical to understanding desirable modes of interaction in governance.

We can assume that the following contextual factors affect the modes of governance in this case. First, there clearly existed a power imbalance between those who advocated for the dam's removal and those who advocated the status quo. While the prefectural government that owned the dam had economic, human, and knowledge resources, the inhabitants who campaigned for the dam's removal had limited resources. There was an unfillable gap between the prefectural government and the inhabitants who had suffered from Arase Dam and advocated its removal in their power and resources. For those who advocated the removal, it was an encouraging strategy to expand their supporting network for gaining additional resources.

Second, although the power imbalance itself might not prevent a collaborative relationship, different policy beliefs among stakeholders would result in a confrontational relation. In the Arase Dam case, we can trace the reason for why the resistance strategy was adopted back to the critical difference of policy beliefs on Arase Dam. While those who advocated the removal regarded the dam as a source of pollution, those who advocated the status quo, especially Governor Kabashima, regarded the dam as a source of "clean" energy. Rather, he placed much more emphasis on the prefecture's fiscal health issues. As policy studies literatures (e.g., Sabatier 1988) pointed out, policy beliefs deeply embedded in each actor are difficult to change over time and direct their actions for pursuing the policy in accordance with their policy core beliefs. Findings in this study also confirm the stability of policy core beliefs for a relatively long term. Especially, the policy core beliefs of those who advocated Arase Dam removal have been formed through their own experiences that their livelihoods were threatened by the dam. Since they learn from their own experiences, their policy beliefs were robust. Thus, little room remained for the collaborative relationship to emerge between those who advocated the removal of dam and those who advocated its maintenance.

As discussed in previous studies, interactive governance would be effective for dealing with complex social issues. Nevertheless, this study indicates that we have no other choice to resist rather than collaborate when adversarial government intervenes in the dispute over watershed governance. Interactive governance is sometimes referred to as synonym for collaborative governance (Edelenbos and Van Meerkerk 2016); however, we should reexamine the point that interaction does not necessarily mean collaborative relation. Even if resistance to the existing government is a temporal response and just an initial step toward more collaborative rela-

tion, we need to put other possible modes of governance than collaboration in the interactive governance literature.

Now, Sakamoto area faces new governance challenges for the area's development. The Sakamoto area is suffering from depopulation and an aging population even though the river is being restoring by the removal works. How people utilize the restored river for area development is a new issue for the area. In this phase, new organizations are emerging for the same purpose of regional development, and their collaborative relation would be a promising option in the future.

7 Conclusion

We have comprehensively described the policy process and interactions among actors in the Arase Dam removal decision, identifying the contextual factors affecting the modes of governance. To better understand the governance of the dam removal, we could conduct additional interviews with stakeholders in the Arase Dam removal process or pursue two lines of comparative studies. One comparative approach would involve other cases of dam removals. Unfortunately, this is the only instance of large-scale dam removal in Japan, but cases from other countries are available for comparative analysis. A second approach would be to draw comparisons with unsuccessful dam removal campaigns. There are several cases in Japan in which dams have remained in place despite local campaigns for their removal. Such comparative studies would help to clarify the significant factors leading to drastic policy change and would make a valuable contribution to further studies of interactive governance.

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Appendix: Chronology of the Arase Dam construction and removal from the 1950s to 2010

Date(s)	Event
Phase 1: Dam as a symbol of "development" (1960s)	
1950s	Electricity shortage at Kumamoto Prefecture
	Kuma River General Development Plan
1955	Completion of the Arase Dam construction work
Phase 2: Dam as a source of "nuisance" (1965–1980s)	
1965	Sever flood damage around the Arase Dam site and its reservoir
	Criticism by inhabitants for the failure of the dams' flood control
	Degradation of the reservoir's water quality

(continued)

Date(s)	Event
Phase3: Dam removal stimulated by dam construction controversies (1990s–2007)	
Late 1990	Nationwide controversies over the Kawabegawa Dam construction
2001	Proposal for local referendum at Sakamoto Village on the Kawabegawa Dam construction and its rejection by village assembly
2002	Formation of "Arase Dam organization" by inhabitants and fishermen
	Several organizations and inhabitants jointly submitted the petition to remove dam and its acceptance by village assembly
	LDP-K proposed the Arase Dam removal
	Governor Shiotani expresses her decision to remove Arase Dam in 7 years
Phase 4: Change of local government attitudes and citizen protests (2008–2010)	
April 2008	Mr. Kabashima became the new governor of Kumamoto Prefecture
June 2008	Governor Kabashima announced his decision to cancel the Arase Dam's removal
	Fierce opposition movements and lobbying against governor's decision by inhabitants
November 2008	Project team at the prefectural government reported the removal cost excess the status quo cost
August 2009	Candidate who advocate the dam removal was elected as new Yatsushiro City mayor
	Changes of national government from LDP to DPJ
January 2010	DPJ government expressed its view that water license of Arase Dam cannot be renewed and will expire in the end of March 2010
February 2010	Governor Kabashima applied new water license for maintaining Arase Dam
	LDP-K proposed cuts in the budgets for maintaining Arase Dam and their proposal was accepted in a unanimous at prefectural assembly
March 2010	Governor Kabashima expressed his final decision to remove Arase Dam
Phase 5: Dam removal and signs of watershed restoration (2010–)	
April 2010	The gate of Arase Dam was opened
September 2012	The removal work had started

Source: Compiled by the author based on the data from interviews and collected newspaper articles

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