

The collective river management based on water transportation culture – A case of Hozugawa River, Kyoto, Japan-

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1. Introduction

Whose is the river? In Japan, rivers are regarded as common resources (By the River act, Article 2). In other words, rivers don't belong to anyone else and they serve for public purposes under the governmental management. Then are the administrative agencies such as nation or local governments able to manage the rivers sufficiently?

In the River act which had been amended in 1997, they added "Environmental conservation" to the previous two purposes of the river management, "Flood control" and "Water utilization," but even today in many rivers in Japan, the environmental conservation is not regarded same as the previous two, and the examples of environmentally destructive river modification are seen in various places. So why are such kinds of construction still being done? One of the reasons is "Near water" which used to be so close to people in their lives, turned into "Far water" by the development of water supply and sewerage systems, and the relationship between peoples' lives and water had been torn apart as a result, we people became "Water consumers" and the rivers and lakes were to be managed by administrative agencies (Tsuchida and Kada in 2003). Under these circumstances, people's interest to the river environment tends to be low, and easy river improvements called for short-term safety and convenience will have priority.

In recent years, along with the growing awareness of environmental issues, the importance of citizen's participation in the river management is pointed out, and various efforts are underway in many places. Although such a "citizen's participation" is often talked about in public relation context of the city, and as we see in the old up & down stream issue involves water dispute, there still is a major challenge how to achieve effective citizen's participation in the rivers where various interests are complicated. As the largest issue occurred during such common resource managements utilized by various people, Ostrom (1990) pointed out the non-cooperation state between the subjects that use the resources. About these issues on rivers and lakes in Japan, Ota (2005) focused on the person who played a central role and pointed out the effectiveness of the leadership, with a case of Yahagi River Basin Water Quality Preservation Association (Aichi Prefecture) based on the leadership discussion on resource management by Baland and Platteau (1996). However, these leaderships mostly depend on personal characters and such problem-solving technique is not applicable everywhere. Also Ohno (2007) pointed out that the relationship between new civil organizations and administrative agencies, or traditional local organizations were difficult to

cooperate and sometimes fell into conflicts when it came to measures that would have various interests especially seen in river environmental issues.

In this report, I would like to consider the possibility of citizen's participation in river managements and basin area cooperation through transition of legitimacy on the river use and new value creations as environmental conservation and water transportation culture tradition with a case of an environmental conservation effort for Hozugawa River¹ which flows through central Kyoto Prefecture, which I've also joined as a member.

2. The history of Hozugawa water transportation and the transition of legitimacy on the river.

2.1 Techniques go down river and its legitimacy

Hozugawa River had prospered greatly as an important goods transport routes since ancient times². Rich agricultural and forest products of Tamba region were carried to Kyoto and Osaka by rafts and boats, and also basin residents' lives had a close relationship with the river. In addition, an English photographer, H. G. Ponting (1910) had introduced the area widely into overseas in Meiji era and many people from all over the world started visiting for the beautiful scenery and now the place became one of the representative sightseeing spots in Kyoto³. Furthermore Hozugawa River is not only the scenic spot but also the only place of a national natural monument, *Ayumodoki* (Kissing loach) habitat in Lake Biwa-Yodo River water system, and so rich natural environment has been left there even in the city suburbs⁴.

And, the river has kept their river transportation history for over 1200 years constantly since the raft transport era, and Hozugawa-kudari boat trip operated by Hozugawa Boatmen's Cooperation Union is familiar to many tourists still now.

Over the use of the river, farmers who wanted to utilize the river water for agricultural use, authorities who wanted to use the river which led to Kyoto and Osaka for important goods transportation exclusively, shippers called *Yamakata* and merchants as timber dealer, etc. and raft masters and boatmen⁵ who directly involved in the water transportation had repeated conflicts and

¹ The unified name by the Ministry of Land, Infrastructure and Transport is Katsura River, but there are various names depend on the sections. In this report, unless I specify, I call it Hozugawa River for the

² For example, according to Keihoku town magazine (Keihoku town, 1975), the oldest record of raft trip in this water system was found in the Shuzan dilapidated temple establishment report in Hakuho period, mid-7th century. Then by the Nagaokakyo establishment in 785 and in Heiankyo establishment in 794 or later, a large number of timber was assembled into rafts and transported to Kyoto on Hozugawa River.

³ By the photographer also belonged to the Antarctic expedition by Scott introduced Hozugawa River widely to western countries, after Meiji era, not only national dignitaries also from overseas such as former British families have visited Hozugawa River. For details, see the Ponting (1910).

⁴ According to Iwata (2002), 51 kinds of fish live in Hozugawa River and other rivers in Kameoka city, and some of them are rare species with a fear of extinction such as nationally designated natural treasure, *Ayumodoki*.

⁵ Originally, raft trips and boat rides are side jobs for agricultural off-season in the basin village. However, since the jobs required advanced techniques with high risks, it was not always necessary to be

cooperation to discuss who could own the legitimacy related to the water transportation for long time.

Interesting point is, working-class raft masters and boatmen, who are not in the domination class such as warriors, merchants and nor capitalists, had gotten the legitimacy on Hozugawa River usage in these long history⁶. Miyauchi (2006) mentioned the requirements for local community gaining the legitimacy were (1) locality, (2) historicity, (3) scenario ability, (4) speech ability, (5) positionality, (6) creativity, (7) cooperativity, (8) sensibility⁷. For example, raft masters with older history has been recognized since it depended majorly on its historicity; they transported timber to assembly the capital from the forest directly managed by the Emperor, and they had been given privileges “Various role exemption” by Toyotomi Hideyoshi’s red seal license (shogunate license to trade).

However, not only the history, an essential “technical requirement” is mentioned in the process to gain the Hozugawa river transportation legitimacy. Special raft and boat operation techniques going down the most dangerous Hozu valley with huge rocks and rapids safely and speedily brought particularly strong legitimacy to the people in Hozu and Yamamoto villages in charge of raft trips and disembarkation for this section⁸. According to Aoyama (1988), while the rights of raft wholesalers in the upstream and raft masters who belonged to local timber merchants were not clear, the masters in Hozu and Yamamoto got a larger force towards the late Edo period. Harada (2011) considers the transition of the legitimacy on Hozugawa river usage and the management through the process leads a kind of market equilibriums on decisions of timber price and raft trip fare which makes a great effect on it. Among the conflicts and cooperation between Kyoto’s timber merchants, upstream shippers and warriors, raft masters in the lowest class had constructed the cooperation relationship with them and gradually earned the price decision rights. And it is considered that they gain legitimacy on river usage and management along with it.

2.2 River management legitimacy seen in “*Kawasaku* (river works)”

As technical requirements raft masters and boatmen had earned legitimacy in river usage as well as management, the river management construction work aimed for river trip route by basin residents’ first hands, so-called “*Kawasaku* (river works)” would be mentioned. These river management works had been done often through the ages in many basins. For example, during the

hereditary.

⁶ As the newest historical event, although the Hozugawa-kudari boat trip had a time operated by Hankyu Railways company, after the intense labor dispute, the trip once owned by the labor union (boatmen’s organization) then since 1970, it has been operated as boatmen’s cooperation union as known as Hozugawa Yusen Sightseeing Boat Association now. Such management form is the only one in Japan’s river trips for tourists.

⁷ All these requirements are not always necessary, and vary depend on the generation and the region, The legitimacy is obtained by a combination of single, or several requirements.

⁸ The two villages are the core water transportation bases at present.

Edo period in Keihoku upstream area (Keihoku-cho, Ukyo-ku, Kyoto city at present), the cost of the river works was split comparatively by town, and each village had paid for it (Keihoku town 1975). In addition, in Hiyoshi town (Hiyoshi-cho, Nantan city at present) at upstream, where we found a major base of raft trip by pre-war, there was a detailed record on traditional technique of river works for raft and boat flow and these had been done by basin residents (Hiyoshi town 1987). These numerous work pieces such as precipitated floor and snake baskets to secure water transportation route were regarded “not only for rafts and boats flow, they made a mighty artificial reef without any intension” (Hiyoshi town 1987), and various fish such as Ayumodoki (Kissing loach), which is now designated as a national natural treasure and sweet fish which were served for the Emperor family, lived and made rich river ecosystem, and so the fishery was active enough. In Hiyoshi town (1987) they recorded about the river, “When Oi River was alive, it gave residents not only economic blessings such as raft and boat flow and profit from fishery. It brought up residents with more fundamental importance.” (Underlined by the author) “Water town Hiyoshi (omitted) had been benefited immeasurably by the river. And the residents repaid for the benefit with the river improvements.”⁹



Photo 1 Kawasaki (Dec. 2011)

In many rivers in Japan, particularly after WWII, river transportation had declined and changed due to dam and high standard levees, and caused environmental deterioration as well. In Hozugawa River from Kameoka to Kyoto, raft trips had declined by the changes of transport means and disappeared since Showa 30's, but it transformed into tourist boat trip and continues till now. Since it's a traditional form boat trip with man-powered Japanese boat, various traditional techniques had been inherited to present, and that left the traditional operational form based on villages as a basic unit¹⁰.

⁹ It is said that these rich rivers had changed since Segi dam was constructed in 1946 (Hiyoshi-cho, 1987). And in 1997 when Hiyoshi dam was completed, the river had sunk under the water together with the villages.

¹⁰ The current Yusen union consists of 4 branches based on 4 villages and has a strong character as a

Currently river works by boatmen have 2 variations; large-scale repair work to be performed on a regular basis as the "main stream work", and "extraordinary river work" which would be taken place each time when flood or other disaster happen. In these works, there are tasks called "water shifting" "stone-clad", "stone spring" which ensures water passage, and dredging river bed, installation of "trunk" to protect boat bottom, and selected young boatmen are engaged in the work. It should be noted here, that these works should be performed with the permission of the Governor of Kyoto Prefecture, an administrator by the River act and so in Hozugawa River, too. But actually these works would never been unpermitted and the administrative agencies recognized as a kind of custom. It depends rather by consultation with fisheries cooperatives.

For example, in the interviews with boatmen of Yusen and a vendor boat owner, many say, "We flow boats far before the River act has established (a boatman in his 70's)," "The River act was set later, so we can't help it (a vendor boat owner in his 30's)," "Law is law, but this river has its own rule (a boatman in his 60's)"¹¹. In 2007, when one man was flowing down with his canoe and got injured with "trunk," a person in charge of the civil engineering at the time said, "It'll be tough if he asks regal responsibility of the administrator, but we can't leave it unpermitted to install trunks" "Because it continues from old days."¹²

In addition, Hozu valley with continuous steep terrain is difficult to access without Hozugawa-kudari boats, and administrative officers at civil engineering don't have enough information on the river situation than Yusen boatmen. There is no housings around the valley and the priority of flood control and water utilization is not so high like the other basin, furthermore, since the place is specified as Kyoto Prefecture Natural Park, any new construction works are not allowed and so the river management with modern method of construction by administrative agencies has not been done so much.

On the other hand, the use of the river in new forms, such as canoeing and (rubber boat) rafting in recent years, has become popular in Hozugawa River. Currently over 10 rafting companies has implemented the tour in the Hozugawa River. Many rafting boats go down the river in high seasons, and of course, they often encounter Hozugawa-kudari boats along the way. Although there is not a legal agreement, the priority of boat navigation is given to Yusen side and the rafting boats retreat to the safer place as soon as they find Yusen boats. This custom is regarded not only by Yusen boatmen but also rafting instructors saying, "It's a norm because Yusen has longer history (a rafting instructor in his 30's)." Now the detailed agreement has been exchanged between them.

coalition of local groups. Since 1993 and later they adopt boatmen generally from other villages, but they have to belong to one of the branches to be educated techniques by their apprentice system. Moreover, they must participate in annual events held in each branch as well.

¹¹ Current Hozugawa-kudari operation section, from Kameoka city to Arashiyama, Ukyo-ku, Kyoto city.

¹² At that time, the accident came to a settlement between Yusen union and the man. Later, in consultation with the administrative agencies, they decided to install signs to indicate the existence of trunks, but the trunk installation method was as the same as before.



Photo 2 A rafting boat which retreats Hozugawa-kudari boat (June 7th 2009, by author at Hozu valley)

2.3 Weakening of boatmen's legitimacy and new river environmental issues

In this way, it is considered that the union or members of boatmen had won the legitimacy on Hozugawa river usage and the management till now, but in recent 20 years, especially in relationships with government agencies, subtle change in power relations has occurred.

At first, in a bridge installation over Hozu valley for double-track construction of railways and upstream Hiyoshi dam construction, boatmen concerned about the landscape and river environmental influences. However, these businesses had been executed under strong demand of local residents, that they enabled higher speed rail transports and flood prevention, and especially for dam construction, as the villages of boatmen's residents had suffered from Hozugawa's disasters for long, and there was also a benefit of ensuring a stable flow rate at the time of drought of summer, so they hadn't opposed aggressively¹³.



Photo 3 Muddy water from Hiyoshi dam

Under such circumstances, intended or not, as same as other organizations like the fishery cooperative, this Yusen's response to the dam construction became condition combative, targeted

¹³ 1) Hozu valley involves narrow parts mostly, flows backward when it gets swollen by heavy rain, and results in the frequent flooding in Kameoka basin. In such cases, boatmen with advanced maneuvering technology often join rescue activities and secure transportation means, so the local residents rely on them.

compensation for land acquisition related to the river improvement¹⁴. In addition, in the description from the administration there was no discussion over demerits of dam, as we heard, “They talked only about merits of the dam (a boatman in his 70’s).”

According to the Hozugawa-kudari and Arashiyama boatmen’s interviews, after the dam construction, the water quality deterioration and turbid water, also negative aspects such as changes in the riverbed have occurred visibly (Photo 3). However, there is no place for these consultation over these issues and the boatmen complain, “the water turned dirty definitely since the dam had completed. (a boatman in his 70’s),” “They answer they don’t know to whatever I ask (a boatman in his 30’s),” “They never consult us for sand elimination when flood occurs (a boatman in his 30’s). The other also complained for current Hozugawa river management, “There are still some merits thanks to the dam, but I feel I sold my soul for the compensation (a boatman in his 60’s).”

On the other hand, officers from Hiyohi dam management office (below, dam management office) and civil engineering office insist against these boatmen’s complaints, “We never knew about it (such as the rise of the riverbed by sediment deposition of Hozukyo), (both officers from dam management office and civil engineering office),” “Even though I proposed water drainage for environmental maintenance for the sake of the river environmental improvement, they don’t understand it (a dam management officer).” We can see the current river management has not been performed under enough consultation between both parties.

In addition, a member of fishery cooperative (a union member in his 40’s) pointed out, “Since they received compensation or something upon Hiyoshi dam construction, it seems they abandoned against the dam.” Such a huge public works and compensation issues weakened the legitimacy of boatmen and fishery cooperatives who had kept their position as actual river administrators.

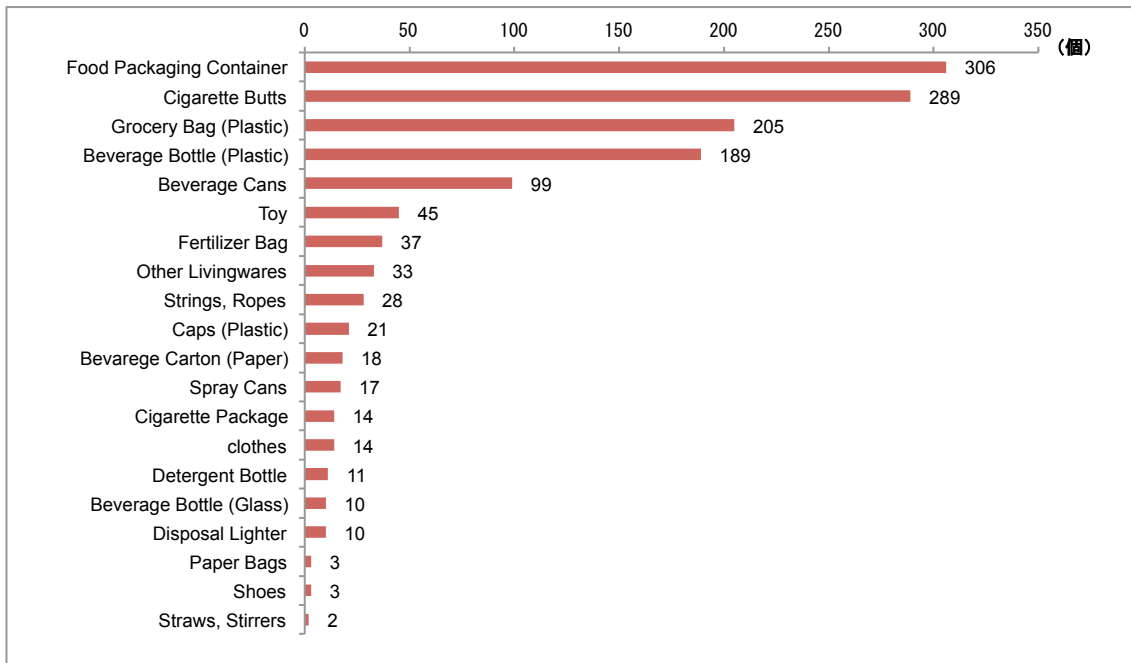
In such situations, a new environmental problem, river litter issue has arisen. In Hozu valley with tortuous rapids, a large amount of plastic products such as PET bottles, sheets and bags has washed in since mid-1990¹⁵. Every year before the river opens on March 10th, boatmen perform annual cleanup activity though, it keeps up not enough.

The reasons why it is difficult to solve the river litter problem are due to a wide range of sources and wide affected area. In other words, the entire basin causes it and is affected by it. And many of the river litter are living refuse as well (see fig.2). However, the litter washed points concentrates mostly in the hidden valley, and it avoids raising awareness of the residents and government towards this issue.

¹⁴ By the land acquisition on these business, they set the boundary between river and resident area as the previously used “rope road” in 1948.

¹⁵ The amount of beverage PET bottles has been increasing each year after the voluntary deregulation of 500ml bottle had released in 1996, and in 2001, it reached 400,000 tons, double the one in 1996. At this time, river litter issue in Hozugawa River became serious, too.

Fig. 1. Composition of river litter in Hozugawa River



Source: Harada (2015)

Although the need for clean-up activities had been fully recognized between young boatmen, in their strong apprentice system and the strict relationship, they feel difficult to suggest veteran boatmen to organize the cleanup activity until they become technically professional (a boatman in his 30's). Under these circumstances, young boatmen started making efforts aggressively, by individual basis, as they feel the river litter issue must not be ignored as “can't help” ”no choice to do” and also as a point of sightseeing business view. And citizen's signatures were collected by such young boatmen's idea, for starting the boatmen's cleanup activity (Hozugawa Heart Clean Project) officially. Through subsequent Hozugawa-kudari boat trip's 400th Anniversary Committee (2005-2006), in the form of unifying the cleanup activity and the committee, “Eco Green Environmental Conservation Committee” was established in March 2007 in the union. By the time, young boatmen had changed mid-stance from rookie, which became possible to organizational behavior. According to Mr. Tomoya Toyota, the founder chairman and the leader, the establishment of the committee was aimed to continuous cleanup activity and activities that centered on young boatmen. In this way, a system that the boatmen dispatch voluntarily to recover river litter in every case of flood has established (see photo 4).

However, the river litter issue by nature is essentially different from river management for transportation and flood control, and difficult to be solved only by boatmen's organizations and government which have legitimacy on river management. So, the discussion toward new problem-solving framework will begin with basin residents and other project organizers who have

not been involved in the river management.



Photo 4 Cleaning up by boatmen (February 2007)

3. River Clean-up as a social capital

management, and good environment was maintained in previous Hozugawa River. But along with the declined water transportation, the economical profit for the entire basin has disappeared, and only boatmen receive the economic benefit from the river by the change into tourism of the only boat trip in Hozu valley. This overlaps the process that boatmen have been losing the legitimacy as the river administrators. Under these circumstances, the existence of river litter issue, which is the one we cannot ask the responsibility to any certain parties, made a new environmental issue obvious and the limit of river management under water transportation or flood control visible.

Hozugawa River 400th Anniversary Project was completed in fiscal 2006, and then more development of platforms where various citizen and organizations involved in Hozugawa River could meet each other in a same time was sought. In the next 2007, “Hozugawa for World Heritage Site Registration” for cultural activities, and a NPO organization “Project Hozugawa” for environmental activities were founded respectively and they have been performing vigorous efforts there. In particular, Project Hozugawa continues to work for river litter by implementing monthly cleanup events in cooperation with local residents’ association. Although the Project Hozugawa is still a new citizen organization founded in 2007, holding local residents’ association, government and parliament officials as members, it has built a good relationship with so-called traditional local organizations and a system with smooth cooperation. Also Kameoka City Hall now takes a proactive cooperation on a point of view that the river is an important tourism asset under the repeated discussion, and then as the first inland municipality, it incorporates the suppression of river litter in the city’s general plan (Kameoka City the 4th Comprehensive Plan), and works actively to solve the issue as their policy.

A series of efforts that began since Hozugawa 400th Anniversary was a process that accumulates “bridging” social capital between the people involved in Hozugawa River. The social

capital is expected to improve the performance of natural resource management system and such relationship has been generally recognized positively from the empirical research (Ostrom 2000; Lubell 2004; Gibson, Williams and Ostrom 2005). Particularly enhancing stakeholders' participation is focused on among the roles of social capital, and the accumulation of "bridging" social capital in distinction, which was proposed by Gittel and Vidal (1998) is essential (Ono 2007). Thinking about the boatmen's union I mentioned in this report, it can also be an internal "bonding" social capital, for a particular industry in a certain area, as same as local residents' association or fishery cooperatives. However, it is impossible to perform adjustments with other citizen or organizations and activities on new ideas without this bridging social capital. Actually measures against river litter issue had not been solved easily. However, starting from Hozugawa 400th anniversary, through the establishment of Project Hozugawa till the policymaking for river litter measures, it is a process accumulating the bridging social capital in this region.

4. Conclusion

The wise use of natural resources was mostly realized as a result of the social arrangements of people aimed at sustainable economic activities. In modern severely degraded economical value of water transportation and fishery, these efforts on Hozugawa must be focused on at a point that they avoid confrontations and conflicts which may happen in problem-solving on rivers, by modern environmental resolution and traditional culture transmitting.

As a feature of legitimacy seen in use and management of Hozugawa River, it's a river where various organizations are involved in complex, so the once granted legitimacy is kept protected on by appealing it, in other words, it will disappear without insisting it. Looking back at the history of water transportation of Hozugawa River, the legitimacy on river management and use had not always been given stably to someone, and it has an aspect that had been kept appealing and won in between conflicts and cooperation by many people and organizations. A kind of balance in the region which has been obtained in such a way was weak in front of huge public works as dam construction. Then the once weakened legitimacy of boatmen was strengthened again by solving river litter issue and a cultural value of raft trip transmitting.

The series of these efforts are as follows. First of all, these efforts are not led by government, but by young boatmen's voluntary activities. A new connection that is different from the previous apprentice system and village based unit has formed by this. In particular, many of leading boatmen of the movement were adopted from public, had various experiences in other industries. In other words, they had a bridging role between closed boatmen organization and general citizen. Then, in the process of performing the young boatmen's activities, general citizen, researchers living/working in the city, administrative officers, parliament officials and other high expertised people had participated voluntarily. That made the series not finish as a company's commemorative event, and

led to continue the efforts later.

The first chairman of the Eco Green Environmental Measures, Mr. Tomoya Toyoda from Yusen union, looked back these processes and said, “At first we started our cleanup activity as the river is our ‘work place,’ but it became a big circle and now we are helped by citizen, became so-called CSR activity.”¹⁶ These movements could be recognized as Miyauchi (2001) pointed out two streams “Recombination of legitimacy” and “Re-creating legitimacy” appeared each other and also could be a process that “volunteer” boatmen in charge of environmental conservation had been respected (see fig. 3).

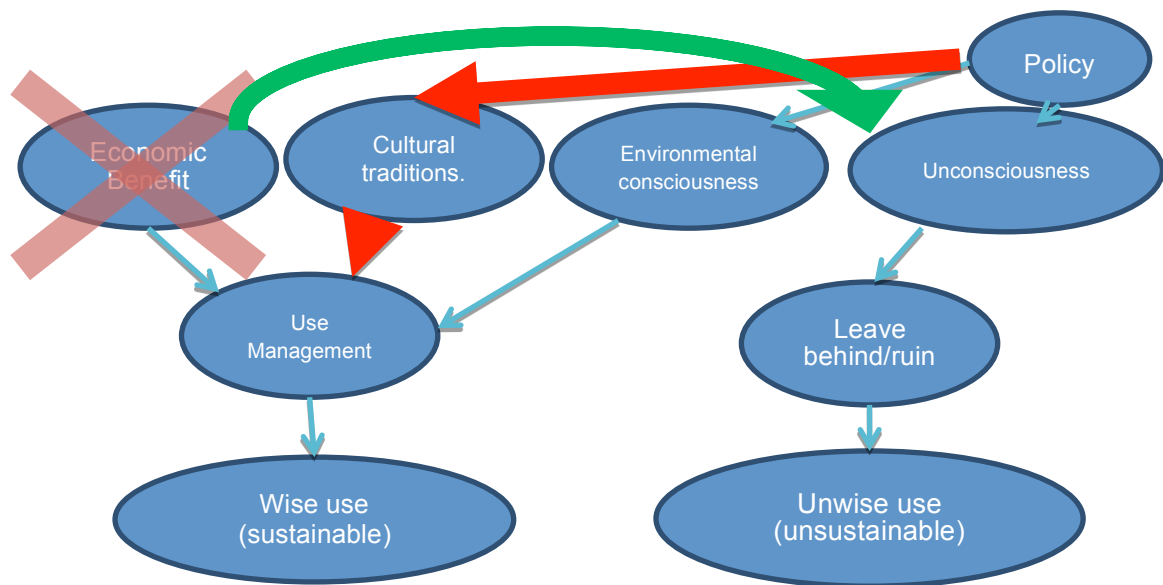


Fig. 3 A new legitimacy, by modified by the author based on Harada (2011)

We can see the legitimacy of the river use and management, once the boatmen has lost is getting obtained again by recognizing the important existence involved in a new problem such as river litter issue widely, and by regarding the value of the boatmen who are in the center of Hozugawa River’s water transportation transmitting.

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