

Governance Solutions for Conservation of River and Coastal water Environment by Social License to Operate: Case Study in the Abashirigawa River, Japan.

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Introduction

“The Fishermen's Forest Movement”, is one of the "new commons" often found in Japan. It is an action to conserve the fishing environment through reforestation in the upstream. In the eastern part of Hokkaido, including the area of this study, the fishery ground had frequently deteriorated through large-scale sediment and runoff of livestock excrement, as a result of large-scale dairy development after World War II.

The area of this study, Abashiri, is located in the northeast of Hokkaido, and the Sea of Okhotsk and Abashiri Lake are Japan's leading fishing grounds for scallops, salmon and freshwater clams. Due to the deterioration, the serious conflicts had been occurred between dairy farmers and fishermen and fishermen in Abashiri for many years. Since around 2000, the fishing grounds of the Sea of Okhotsk and Lake Abashiri have been devastatingly hit by large-scale landfall in the upper reaches of the Abashiri River. To deal with a series of problems, fishermen and dairy farmers has established “the Abashiri River Basin Agriculture and Fisheries Cooperation Promotion Council” in 2011. They also announced a "joint declaration" for sustainable development of farmers and fishers. In addition, the “Abashiri River Basin Association” has established in 2015, including agricultural cooperatives and fishing cooperatives and local governments in the Abashiri River Basin. The association has currently been working on the conservation of the comprehensive basin environment. In this study, we consider how they have overcome conflicts and developed an economically sustainable framework for basin management based on interviews with farmers and fishermen.

The Abashiri River

The Abashiri River is the river in the northeast Hokkaido. The basin area of this river is about 1,380km², and the length of the main stream is about 115km. It runs through 4 municipalities: Abashiri City, Ozora Town, Bihoro Town, and Tsubetsu Town (Fig.1), and the basin population is about 76,000 people. The river originates from the Akan mountain range, flows out to the plain area in Tsubetsu Town. After that, together with the Tsubetsu River and the Bihoro River, it runs through

Bihoro Town, enters the Abashiri Lake in Ozora Town, and flows into the Sea of Okhotsk in Abashiri City.

Figure 1. The Abashiri River Basin



Source: http://www.mlit.go.jp/river/toukei_chousa/kasen/jiten/nihon_kawa/0107_abashiri/0107_abashiri_00.html

The Lake Abashiri is a trace lake made thousands of years ago, and it is a national park where natural monuments such as skunk cabbage and colonies of herons can be found on the lakeside. This lake has a two-layer structure, consisting of a lower saltwater layer and an upper freshwater layer. The fishery such as *shijimi* (freshwater clams), *wakasagi* (smelt) and *shirauo* (icefish) are popular. The basin has an Okhotsk-type climate, which is cool in summer and cold in winter. In addition, it is also famous that ice floes berth in this area from winter to early spring. People have lived in this basin for a long time. The lake bottom remains of the *Johmon* (cord-marked pottery) period (about 7,000 years ago) are also found in this Lake. The *Satsumon* (brush-line pattern pottery) ancient culture (3 BC to AD 7) had spread from the inland. The Okhotsk culture flourished about 1,000 years ago. The name of Abashiri is derived from the indigenous Ainu "Apasiri" and means "we found it land" or "the entrance land".

Establishment of Watershed Cooperation

After World War II, in eastern Hokkaido, including the Abashiri River Basin, the central

government took has implemented the large-scale dairy development. In order to stabilize dairy management, the extensive pasture was created by the large-scale deforestation and reclamation of the valley. However, large-scale landfalls have frequently occurred since about 2000, and a large amount of sediment has flowed out of the rivers in the Abashiri River Basin, causing serious damage to fisheries in the downstream basin. In September 2001, the heavy rain from the typhoon caused the mudslides to the lake and the sea, and the *shijimi* (freshwater clam) fisheries was seriously damaged.

Figure 2. Farmland fall in Tsubetsu (Sep. 2001)



Source: Abashiri City

Figure 3. Sediment inflow into Lake Abashiri (Sep. 2001)



Source: <https://www.hkd.mlit.go.jp/ab/tisui/icrceh0000005r7x-att/icrceh0000005rax.pdf>

In 2002, Abashiri City, Abashiri fishing cooperatives and Nishi-Abashiri fishing

cooperatives have established a council to solve the mudslides. First, fishermen surveyed upstream to determine the source of mudflow. The leader of the fishermen, Shinya Tetsuya, saw through the survey that he had witnessed a large landslide and understood that farmers were suffering as well. In addition, groundwater pollution in the downstream area by nitrate nitrogen and nitrite nitrogen due to excessive use of fertilizers has also become serious throughout the basin. The fishermen understood that these problems could not be solved unless they cooperated with farmers. Fishermen also learned that farmers in Tsubetsu Town, an upstream area, were more interested in cyclical agriculture.

In many areas of Hokkaido, the relationship between fishermen and farmers is not very good. Yamada Teruo, a dairy farmer in the upstream of the Abashiri river, obtained the first organic JAS (Japan Agricultural Standard) certification for milk in Japan. He is now the leader of the upstream farmers. He said that the relationship between fishermen and farmers is like "water and vinegar", he was expected that fishermen would denounce dairy farmers' responsibilities. However, after three years of discussions, they were able to build a relationship of trust with each other. They have also succeed in broadening their discussions with other agricultural cooperatives and local governments. We can point out that not only the fishermen but also the farmers are suffering from the land fall, and that a common understanding has been formed, i.e. it is an environmental problem of the entire basin.

Another factor that made the cooperation is "the Abashiri River Salmon Action Plan" which began in 2006. It was proposed by Somei Junichirou, a development planning officer of the Hokkaido Development Bureau (title at that time), with reference to the Finnish approach. It is a regional revitalization plan to realize branding of regional special products through river environment conservation with farmers and fishermen. According to Yamada and Shinya, it was difficult for fishermen and farmers to get on the dialogue table at once, but a neutral standpoint of the Hokkaido Development Bureau's and Somei's warm and sincere personality were good "buffer" for them. In addition, the management scale of dairy farming in Tsubetsu Town is small in Hokkaido because it is located in the semi-mountainous area. The pursuit of economies by expanding their farming like other areas is so limited that farmers instinctively agreed with this idea. Thus, "river regeneration" became their common value.

"The Earth and the Sea Society" and a Support Certification from Fishermen

The fishermen have been planting trees in the upper reaches since 1989. In addition to this effort, dialogues for the conservation of the sea and rivers throughout the basin continued with the fishery cooperatives, agricultural cooperatives, and local governments. In November 2010, the Abashiri

Fishery Cooperative, the Nishi Abashiri Fishery Cooperative, and the Tsubetsu Agricultural Cooperative announced the "Joint Declaration for Sustainable Development of Agriculture and Fishery in the Abashiri River Basin"(Table 1). It is Japan's first joint declaration by farmers and fishers to conserve the river and the sea. The aim of the declaration is to understand that agriculture and fishery are the core industries of the basin, and to provide multilateral support for sustainable development of the basin. In May 2011, “the Abashiri River Basin Agriculture and Fishery Cooperation Promotion Association (The Earth and the Sea Society)” was established for the purpose of realizing this declaration. In addition to reforestation, they also visit their production site, and have environmental education class mutually in elementary schools. They are also developing a resource circulation model in the entire basin. For example, they compost starfishes removed for scallop aquaculture, and use it upstream cornfields as organic fertilizer.

Table 1 Joint Declaration for Sustainable Development of Agriculture and Fishery in the Abashiri River Basin

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- 1) We aim for a sustainable industry that coexists with nature in the connection between mountains, rivers and the sea.
 - 2) We protect the soil and water in the Abashiri River Basin, and strive to produce more delicious, safe and secure food.
 - 3) We preserve and improve the natural environment of the Abashiri River and take over to the next generation.
 - 4) 4. We will work to raise awareness about watershed environmental conservation and expand the circle of collaboration.
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Source: <http://nishigyo.web.fc2.com/gaiyou.html>

In 2015, the Abashiri Fishery Cooperative and the Nishi Abashiri Fishery Cooperative have started a project to issue "support certificate from fishermen". This certificate expresses fishermen's gratitude for the individuals and groups who work to reduce the environmental load on the Abashiri River. According to Shinya, this certificate was designed to help farmers and fishermen break out the relationship between “perpetrators vs. victims” and to have a constructive debate. Supporting the environmental-friendly agriculture will improve the agricultural management, and as a result, the basin environment will be preserved. This support certificate is issued after screening by an external jury composed of scholars and experts to maintain objectivity (Table 2). The first support certificate was issued to upstream JA (Japan Agriculture Cooperatives) Tsubetsu, working on organic dairy farming

in 2015. In addition, farmers and fishermen are working together on the development of marketing channels for their certified agricultural products and seafood. After 2016, not only farmers but also companies working on river cleanup were added for this certificate (Table 3).

Table 2. Criteria to support by fishermen

- 1) Industrial activities are conducted in the Abashiri River Basin, and the load reduction to the basin is practiced in the activities.
- 2) That the action and idea meet the "Joint Declaration for Sustainable Development of Agriculture and Fishery in Abashiri River Basin".
- 3) Actively promoting measures to reduce the load on the basin together with the fishery cooperatives, and having the will to tackle.

Source: <http://nishigyo.web.fc2.com/gaiyou.html>

Table 3. Support Certification List

Year	Name	Group type	Address	Activities
2015	Tsubetsu Society for the study of Organic Dairy	Farmers group	Tsubetsu	Research and practice of organic dairy farming
	Tsubetsu Town Special Cultivated Agricultural Products Promotion Council	Farmers group	Tsubetsu	Organic vegetable production
2016	Yahagi Farm	Company	Tsubetsu	Organic vegetable production, Planting tree
	Citizen group setting up a fish path in the Komaoi River	Volunteer group	Bihoro	Installation of fish path
	Grace of the earth	Farmers group	Ozora	Organic vegetable production
2017	Bihoro High School Agriculture Club	School	Bihoro	Development and utilization of pig manure compost
	The Earth Apple	Company	Abashiri	Processing, development and sales of organic vegetables and fruits
	Ichinohe Farm	Company	Bihoro	Organic vegetable production
2018	Miyata Construction	Company	Bihoro	Planting tree
	Ozora Zanmai (Soy sauce)	Company	Ozora	Processing, development and sales of organic vegetables
	Uenishi	Company	Abashiri	Processing, development and sales of organic

				vegetables
2019	The Uonashi River Cleanup Society	Volunteer group	Bihoro	Cleanup, Planting tree, Water friendly events
	The DENSO Abashiri test center	Company	Abashiri	Planting tree, Environmental education
	Bihoro Forestry Group	Volunteer group	Bihoro	Planting tree, Environmental education

Source: <http://nishigyo.web.fc2.com/ouensya.html>

In March 2015, The Earth and the Sea Society played a leading role in the foundation of “the Abashiri River Basin Association” with all agriculture, forestry and fisheries cooperatives, local governments, citizens’ groups, universities. And they started the basin clean-up event as their first project in June 2016. They started this cleanup activity against plastic pollution that has become serious worldwide and is increasing rapidly in this river. They also started to study microplastics in the basin in 2019. In addition, in 2017, they launched the project team for farmland fall prevention, they have been investigating the place of fall and the danger point. Today, they are also formulating a flood control plan as a legal "place of examination" based on the government’s river improvement plan.

“Support certificate from fishermen” as Social License

It is necessary to take policy measures such as effective regulation by the public sector to protect water quality and solve the marine plastic pollution, but it takes a lot of time and economic and political costs to realize it. The certificate by fishermen in this study can be considered as a kind of Social License to Operate (SLO) that complements the efforts of the government and companies, and it creates new markets. This SLO is shown in biodiversity conservation, and it is recognized that the continuation of private companies’ activities is certificated if the governments and citizens are recognized that they are contributing to society. This support certificate is particularly interesting in that it has developed mutual support of river environment conservation activities by farmers and fishers to the certification system for local products. They are also successful in developing new markets, for example, organic milk by Tsubetsu is sold by a major Japanese milk company and the freshwater clam is sold as a specialty gift of a major airline. Furthermore, it is interesting that members of this council are actively studying on advanced examples nationwide and making recommendations

on reducing marine plastic pollution to administrative agencies. Their efforts are also very interesting that community-based environmental protection efforts create new markets for environmentally conscious regional products and also encourage changes in local government and corporate policies.

Vince and Hardesty (2018) showed the possibility of applying the SLO framework to marine plastic pollution problems. It takes a long time for direct government regulation to be realized, and it is often too late. Farmers and fishermen have learned the importance to share the value of preserving the basin and coastal environment across society in order to solve the challenges facing them. And they also encouraged the participation of companies that are not direct stakeholders by incorporating the global issue of marine plastic pollution into their activities. And the council's efforts are very interesting in terms of creating new market value through environmental conservation activities.

Conclusion

In this study, we introduced cases that fishermen and farmers succeeded in creating new regional resource value beyond conflict with salmon action plan. As a background, we point out that fishermen are strongly aware of the sea and lake environments on which they live. In Abashiri, coastal fishing is now major industry today. The condition of fishery resources is extremely good due to strict resource management, for example, the main product scallop fishery is certificated by MSC. In addition, the facilities of the fishing port also receive an EU HCCAP certification. Unusual as Japanese fishery, they are actively receiving international certification. However, the oceanic fishery flourished in this area. After World War II, the fishery of Abashiri was hard hit by Russia's occupation of the northern territories and the establishment of the exclusive economic zones (EEZ). Also, the international ban on commercial whaling has had serious consequences for the local fishery in this area. We believe that their experience in the livelihood fishing has always been influenced by international politics has brought fishermen to a global perspective. We will continue to study the possibility of establishing a framework for watershed resource circulation by local people.

Reference

Vince, Joaana and Hardesty, Britta D. (2018) "Governance Solutions to the Tragedy of the Commons That Marine Plastics Have Become" *Frontiers in Marine Science*, Vol. 5, pp.1-10.