THE ROLE OF KNOWLEDGE INTERPRETERS IN JAPANESE FISHERIES:

THREE CASE STUDIES OF LOCAL FISHERY POLICY IN JAPAN

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ABSTRACT

These three case studies of local fishery policy in Japan examine common causes of a successful fishery policy. This study tries to seek answer on "How did successful cases on Japanese local fishery policy succeed?" To find answer to this question, this study analyzed the relationship and the role of stakeholders in the policy process from the viewpoint of "knowledge-interaction". Three successful cases on Japanese local fishery had been incorporated in this study are: (1) sandfish resource management in Akita Prefecture; (2) local HACCP at Shibetsu-cho in Hokkai-do; and (3) brand-building of "SEKIAJI SEKISABA" at Saganoseki-cho in Oita Prefecture. Four common grounds for success were found in each of the three cases: (1) all cases included problem-solving process before to be successful; (2) all cases had the role of bridge persons among stakeholders; (3) prefectural government supported policy positively and devotedly; and (4) policy transcended as result of knowledge-sharing among stakeholders. Theoretical implications of this study are: (1) roles of prefectural government to facilitate knowledge-sharing; (2) concepts of "knowledge interpretation" to interpret knowledge among stakeholders; and (3) roles of "knowledge interpreter" in policy process. Practical implications of this study are: (1) the effectiveness of the utilization of specific knowledge and (2) the practice of collaborative problem-solving.

Keywords: Fishery; Policy; Knowledge; Interpretation; Problem-solving

INTRODUCTION

Background

Recently, subdivision of knowledge is promoted by diversification of values. It can say to knowledge system among different stakeholders in a policy, therefore it is not easy to share knowledge among them mutually. Besides, it is important that it may have an influence on a policy process so that knowledge-sharing among different stakeholders are closely related to the consensus-building.

In the case of Japanese local fishery policy-making, main stakeholders are administrations and fishermen, also important to note that their knowledge system are different from each other. Nevertheless, there are some successful cases in Japanese local fishery policy-making. For future reference, it is thus imperative to study why a policy succeeded. Especially, it is important to find a mechanism how knowledge were shared among stakeholders, and how stakeholders knowledge were incorporated into policy process.

Purpose

This study aimed to shed more light on the common success factors and to reach utilizable implications future by analyzing some successful cases in Japanese local fishery policy.

Research Method

In this study, three policies were selected as successful cases in Japanese local fishery policy. They also belonged to three facing issues of Japanese fisheries are: (1) fishery resource management; (2) sanitary management on fishery processing; and (3) brand-building of fishery products. To put it concretely, three successful cases are; (1) sandfish resource management in Akita Prefecture; (2) local HACCP at Shibetsu-cho in Hokkai-do; and (3) brand-building of "SEKIAJI SEKISABA" at Saganoseki-cho in Oita Prefecture.

This study adopted case study as research method, for which primary data was collected through interviews. In addition to that secondary data from literatures, unpublished documents as analyzing resource were also used. The subjects of interview were administrations, fishermen and fisheries cooperative association (FCA) every case.

In particular, this study analyzed the relationship among stakeholders and the role of stakeholders and outside specialist of fisheries on the policy process from the viewpoint of knowledge-interaction. This approach is chosen for effectiveness analyzing and constructing model of the mechanism of knowledge-interaction among stakeholders during the policy process, by removing biases of both characters of policy and attribute of stakeholder.

LITERATURE REVIEW

In recent years, scientific based management becoming trend that many fishery resource managements implement it. In spite of that, some cases of failures like the example of North Atlantic Cod were confirmed. About these failures, some studies question the validity concerning scientific managements [1][2]; other identified the lack of knowledge concerning fishery resource managements [3]. Some suggest it will be effective to address these problems through the idea of co-management (e.g. [4][5]). In this approach both the administration and fishermen cooperate with each other in policy process leading to consensus-building [6]. The report the consensus-building among stakeholders was studied by Susskind and Cruikshank [7]. For instance, it is important that fishermen understand the meaning of scientific management for the consensus-building of co-management.

The latest scientific-based management can hardly value fishermen's knowledge [8]. On the other hand, in fisheries the effectiveness of local knowledge (e.g. fishermen's traditional ecological knowledge) is confirmed [9][10]. Because the local knowledge is complemented insufficiently with scientific knowledge [11], it is preferable to integrate scientific knowledge with local knowledge [12][13][14]. Moreover, as Suenaga points out, incorporating both practical knowledge and scientific knowledge into policy is effective for the problem-solving in fisheries [15][16].

For the above, a bridge person is necessary to support knowledge-sharing achievement between the administration and fishermen. In communication studies, Rogers and Agarwala-Rogers illustrate the role of "bridge" who belong to a clique as network and connects among cliques [17]. Also the role of "liaison" can connect them but he doesn't belong to a clique [18]. In addition to this, Wiliams studied "boundary spanner" as the bridge role among participants [19]. According to the study of agriculture, extension members play a bridge role as "linker" between the administration and farmers [20]. Furthermore, conflict resolution studies consider that both the role of "facilitator" who is facilitated and "mediator" who is mediated is important for problem-solving, decision-making or consensus-building [21][22][23][24].

Incidentally, knowledge is transformed, not transferred, when it cross social interfaces [25][26]. The process of knowledge conversion is well-explained by Polanyi and later improving by Nonaka [27]. This theory shows that knowledge may be two tacit or explicit states. This theory also shows that new knowledge can be created by converting these knowledge confirm with Nonaka's SECI model of knowledge conversion. [28]. Besides, it is preferable to construct relationships of not perfunctory relationships but collaborative relationships among stakeholders to create knowledge effectively. The concept of this collaboration is socialized in the approach of common resource management [29][30].

CASE ANALYSISES

Sandfish resource management in Akita Prefecture

The catch of sandfish, a delicacy of Akita Prefecture in winter time began to decrease, from the latter half of 1970's which eventually reports only 74tons catch in 1984, and it descended to the lowest in history 71 tons in 1991. By this critical situation, fishermen in Akita determined to self-prohibit the sandfish fishing for three years from 1992 to 1995 with support from the prefectural government. It is confirmed that a lot of meetings were hold before and after the period of the prohibition of sandfish fishing among fishermen and between the prefectural government and fishermen. After the fishing ban was lifted in 1995, the management of sandfish resource decide to continue implementing the regulation. Impact of the regulation can be seen in the steady increase of catches.

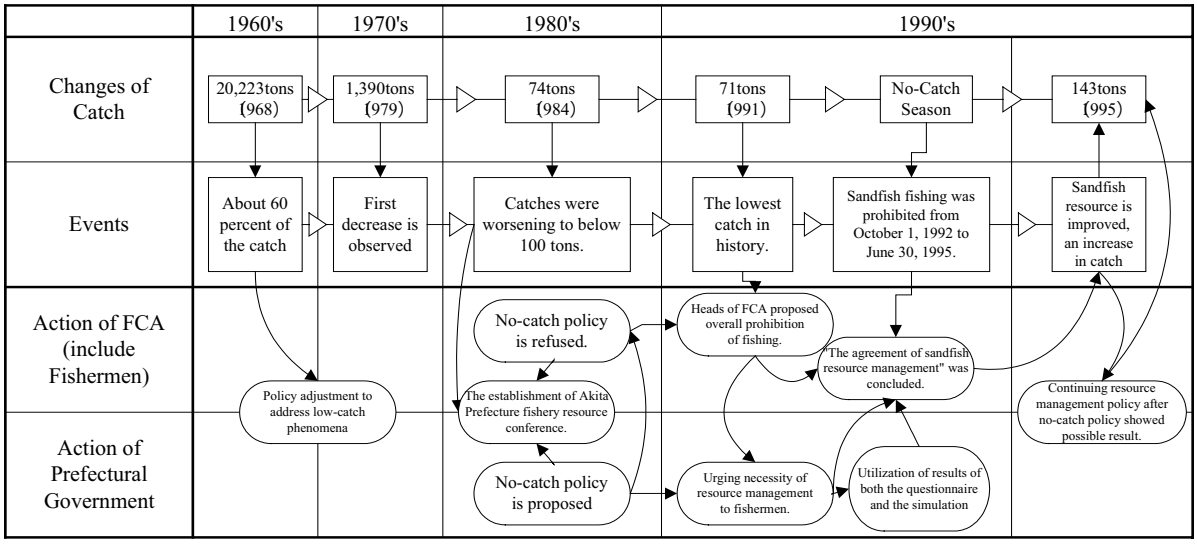
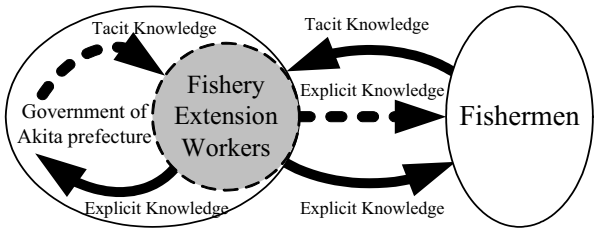


Fig 1. The process of sandfish resource management in Akita Prefecture

Fig 1. summarizes the process of sandfish fishery in Akita Prefecture. Stakeholders in this case are both fishermen and the administration (prefectural government) that supported to fishermen in various ways. The relationship between fishermen and prefectural government was good in policy process though there were some conflicts. The main factor is that the prefectural government positively made an effort to

construct the relationship with fishermen. Prefectural government attended most conferences and meetings though exceeding the range of the role of supporting fishermen sometimes to solve the problem quickly. As it turned out, these actions pushed forward the policy.

In addition, some staffs of prefectural government including fishery extension workers were important roles in this policy. In generall, they play the role of complementing the relationship between fishermen and the administration. Especially fishery extension workers maintain closer relationship with fishermen than usual staff of prefectural government, because they often visit FCA. Besides, they can respond to fishermen's problems that extend from fishery technology to business. Moreover, fishery extension workers interpreted knowledge between fishermen and prefectural government, and facilitate knowledge-sharing. Furthermore, they over bridge local knowledge to scientific knowledge and convert tacit knowledge of both fishermen and prefectural government into explicit knowledge through direct communication whether official or not. As a consequence, they contributed to build consensus among them (see Fig 2.). According to the context in this case, they had played two roles in the collaboration (facilitator and mediator).



Fishermen's tacit knowledge were converted into explicit knowledge by fishery extension workers. Besides, explicit knowledge were fed back to government of Akita prefecture and fishermen by fishery extension workers.

Also tacit knowledge of Government of Akita prefecture were converted into explicit knowledge and provided to fishermen by fishery extension workers.

Fig 2. Knowledge-sharing of sandfish resource management

Local HACCP at Shibetsu-cho in Hokkai-do

Shibetsu-cho is the town where production of autumn spawning population of chum salmon processing products such as separated and salted salmon roe is prosperous. This town tackled sanitary management in fishery processing by enforcing product liability law, after pathogenic colon bacillus (O-157) is detected in the neighboring town's products of salmon roe. While receiving support from Hokkai-do, Shibetsu-cho created new "local HACCP" which standard of sanitary management is based on HACCP (Hazard Analysis and Critical Control Point System) world standard.

Fig 3. summarizes the process of local HACCP at Shibetsu-cho in Hokkai-do. Stakeholders in this case are both fishermen and administrations (Hokkai-do and Shibetsu-cho). Fishermen and Shibetsu-cho were constructed well-relationship in policy process. The main factor is that Shibetsu-cho positively support both fishermen and Hokkai-do because this issue was directly connected with the industrial promotion program of this town. Especially, the fisheries processing experience center (FPEC) that belongs to Shibetsu-cho lead other stakeholders to solve problems as a representative of the town, and pushed forward the policy.

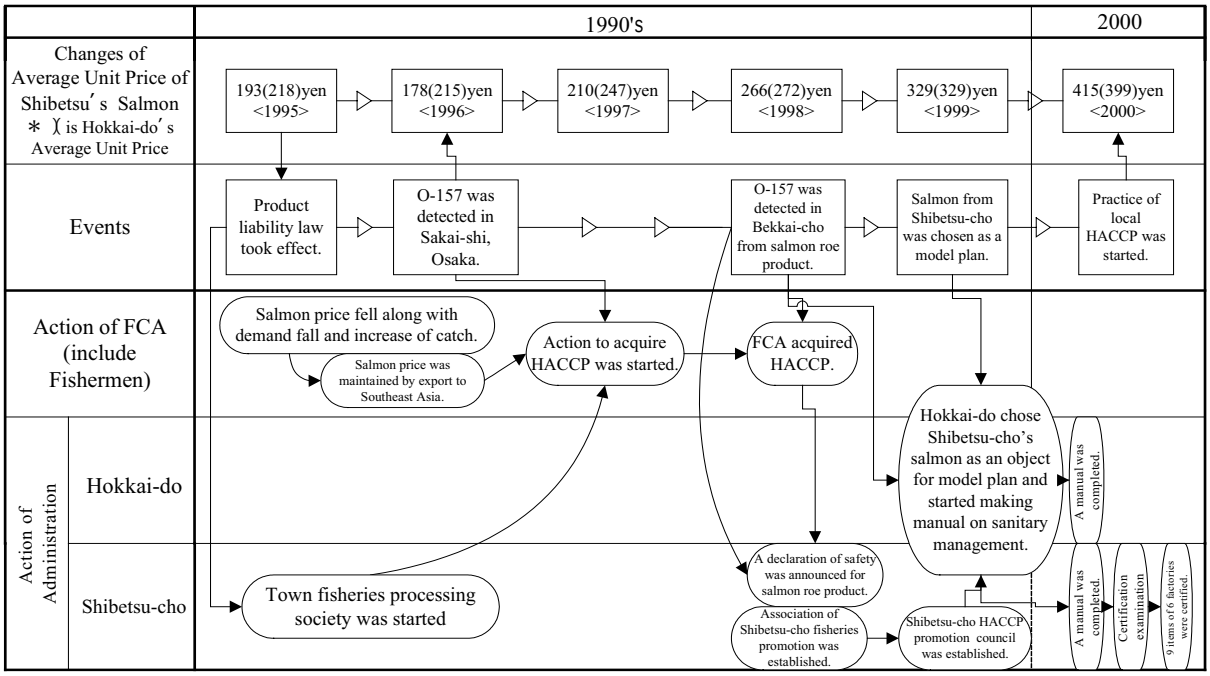
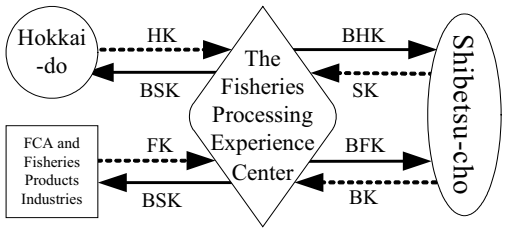


Fig 3. The process of local HACCP at Shibetsu-cho in Hokkai-do

In the creation process of local HACCP, FPEC played some roles that were important. For instance, FPEC had conducted meeting to diffuse knowledge about HACCP for fishermen since implementing the product liability law. Moreover, FPEC had supported implementation of the policy to bridge stakeholders by becoming the hub of information and knowledge about sanitary management of fishery processing till the establishment of local HACCP. Especially, FPEC could bridge between Hokkai-do and Shibetsu-cho also between Shibetsu-cho and FCA and fisheries products industries through ordinary jobs in the staff level (see Fig 4.). Because the building of FPEC including processing experience facilities were located so close FCA and sharing fishery-processing institutions in the fishing port that staffs of FPEC had opportunities to communicate with fishermen and staffs of FCA or fisheries products industries ordinary.



Shibetsu-cho's Knowledge (SK) were over bridged to Hokkai-do, FCA and fisheries products industries by the fisheries processing experience center. Also Hokkaido's Knowledge (HK) and FCA and Fisheries Products Industries's Knowledge (FK) were bridged by the fisheries processing experience center, into BHK and BFK each, and were provided to Shibetsu-cho.

Fig 4. Knowledge-sharing of local HACCP

Brand-building of "SEKIAJI SEKISABA" at Saganoseki-cho in Oita Prefecture

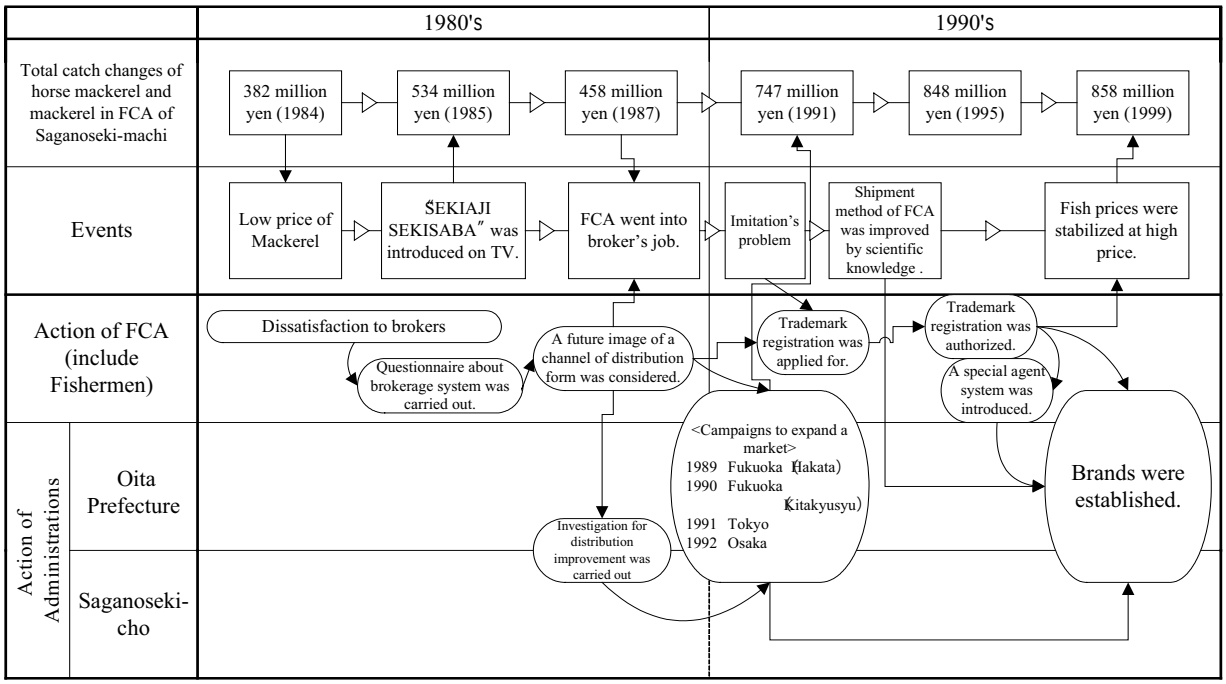
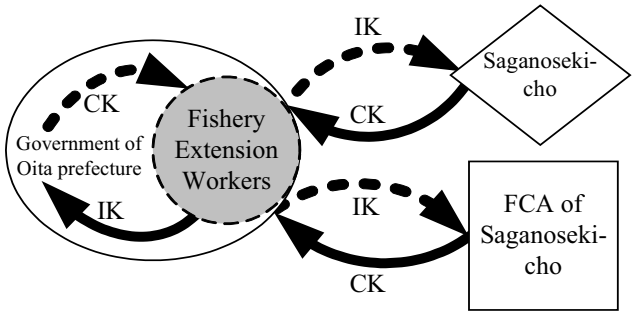


Fig 5. The process of brand-building of "SEKIAJI SEKISABA" at Saganoseki-cho in Oita Prefecture

"SEKIAJI SEKISABA", a brand of fish product of Saganoseki-cho's FCA is famous in Japan. "SEKIAJI" is Japanese jack mackerel and "SEKISABA" is chub mackerel, both are caught from Hoyo strait between Oita prefecture and Ehime prefecture. Before people pay attention to "SEKIAJI SEKISABA", fishermen who belong to FCA of Saganoseki-cho suffered low price of chub mackerel. Fishermen had complained about brokerage, because they thought one reason why brokers padded the bill of fish that they shipped. Therefore FCA went into brokerage business. Furthermore FCA carried out not only campaigns on fish especially both Japanese jack mackerel and chub



Customized Knowledge (CK) were converted into Interpreted Knowledge (IK) by fishery extension workers, also IK were provided to different stakeholders, and were fed back to providers of knowledge.

Fig 6. Knowledge-sharing of brand-building of "SEKIAJI SEKISABA"

mackerel that they caught throughout Japan, but FCA also registered “SEKIAJI SEKISABA” trademark. As a result, FCA succeeded to keep high price on “SEKIAJI SEKISABA”.

Fig 5. summarizes the process of brand-building of “SEKIAJI SEKISABA” at Saganoseki-cho in Oita Prefecture. Stakeholders in this case are both fishermen and administrations (Oita Prefecture and Saganoseki-cho). The relationship between FCA as a representative of fishermen and administrations was good in policy process. The main factor is that both Oita Prefecture and Saganoseki-cho positively made an effort to support fishermen through their policies. In fact administrations aimed to stimulate local economics in this region by making and promotion “SEKIAJI SEKISABA” as a local specialty.

In the creation process of “SEKIAJI SEKISABA” brand, roles of some staffs of administrations including fishery extension workers who belong to prefectural government were important. Particularly, fishery extension workers had taken the lead both the promotion and trademark registration. Furthermore, fishery extension workers had supported implementation of the policy to bridge other stakeholders. For instance, they could bridge between Oita prefecture and Saganoseki-cho also between Saganoseki-cho and FCA through ordinary jobs in the staff level, also they converted knowledge among stakeholders (see Fig 6.).

DISCUSSION

The case studies had clearly indicated the process of problem-solving. We can say that all cases got a success not smoothly but as a result of problem-solving process. With backdrop settings, are problems like resource depletion in sandfish resource management in Akita Prefecture, outbreak of pathogenic colon bacillus (O-157) in local HACCP at Shibetsu-cho in Hokkai-do and low price of fish in brand-building of “SEKIAJI SEKISABA” at Saganoseki-cho in Oita Prefecture.

The importance of bridge role to safeguard knowledge-sharing among multiple stakeholders is confirmed. Commonly, some administrative staffs and fishery extension workers in both the case of sandfish resource management fill the role of bridge and the case of brand-building of “SEKIAJI SEKISABA”. In local HACCP the role of bridge played by the fisheries processing experience center (FPEC). They did not only bridge among stakeholders but also interpreted stakeholder’s knowledge so that others can understand it.

Moreover, results of interviews with fishermen and FCA indicated that they recognize the importance of supports from administrations through the policy. More importantly, the support from prefectural government in sandfish resource management in Akita Prefecture was very positive. The fact that administrations strongly supported fishermen and other stakeholders in these cases suggests that successful policy needs administration’s supports.

CONCLUSION

Roles of prefectural government to facilitate knowledge-sharing

In our observation, the role of a bridge, a facilitator or a mediator to support knowledge-sharing is difficult to be kept neutral as they are interest-free. Moreover, their role or status is not acknowledged as a necessity, and yet it is not recognized as a post of specialist. However, we hypothetically think that a

volunteer may take the position as bridge person for a better reason like his understanding of local knowledge.

In this study, staffs of administrations executed the role of a facilitator or a mediator as a bridge in all three cases. It follows from this that persons who belong to administrations can execute their role under the present circumstances. In most cases, it was because they are guaranteed social position and authority to carry out as expansion of business.

Concepts of "knowledge interpretation" to interpret knowledge among stakeholders

From the viewpoint of knowledge-sharing, the difference degree of retained knowledge among stakeholders is an obstacle. A type of knowledge is defined by context. In these cases, the contexts are region, organization or occupation of the stakeholder. Further, in general, administration's culture is low context and their knowledge system is explicit knowledge-base that is representative like a manual or a document. In contrast, fishermen's culture is high context and their knowledge system is tacit knowledge-base that is representative like an experience or an intuition. As it turned out, it is only natural that they cannot share knowledge with ease.

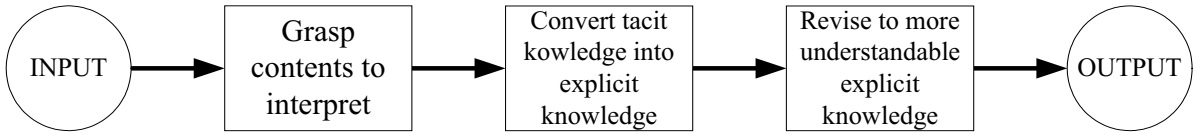
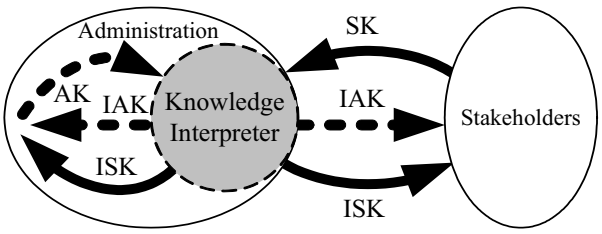


Fig 7. The process of "knowledge interpretation"

This study proposes a concept of "knowledge interpretation" to explain these situations. The reason why not "translation" but "interpretation" is that the latter has more dynamic image in activities like dialogues, while the former is known as having static image like text-base. The definition of "knowledge interpretation" is to interpret not only explicit knowledge but also to convert tacit knowledge into explicit knowledge for supporting contents (see Fig 7.). As an illustration, it is not easy to promote mutual understanding in the case that the knowledge system between fishermen and administrations is different. Particularly interpretable fishermen's explicit knowledge is so limited that it is necessary to supplement explicit knowledge by converting from tacit knowledge.

"Knowledge interpretation" is conducted by "knowledge interpreter" (see Fig 8.). "Knowledge interpreter" is defined as a person who interprets knowledge and culture of various stakeholders, besides facilitates knowledge-sharing to convert tacit knowledge into explicit knowledge,



Stakeholder′s Knowledge (SK) were interpreted into Interpreted Stakeholder′s Knowledge (ISK) and provided to administration, and fed back to stakeholders by "knowledge interpreter."
Also Administration′s Knowledge (AK) were interpreted into Interpreted Administration′s Knowledge (IAK) and provided to stakeholders, and fed back to administration by "knowledge interpreter."

Fig 8. The role of "knowledge interpreter"

furthermore mediates by bridging among them. Hence, it is necessary for him/her to be able to understand knowledge system and context of them.

Additionally it is desirable for "knowledge interpreter" to remain neutral from principles or interests (see Fig 9.). From our cases, we can hardly find that a neutral specialist as "knowledge interpreter" functioned among different stakeholders in real Japanese local policy. As a matter of fact, it is thought that administrations acted this role whenever policy needed in most cases.

Roles of "knowledge interpreter" in policy process

There are various roles of "knowledge interpreter". Subjects to interpret are not always knowledge. Sometimes they interpret culture like a custom of stakeholders. They sometimes also act as facilitator to facilitate consensus-building or as mediator to mediate conflicting stakeholders.

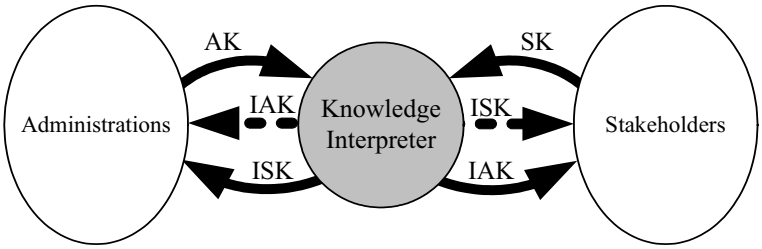


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Fig 9. The role of "knowledge interpreter" (neutral position)

In policy-making process, "knowledge interpreter" played an active role. With most knowledge interpreters belong to administrations, their participation positively determined policy-making stage. At this point, it differs from Lipsky's concept of "street-level bureaucracy" that the result of policy is depended on the quality of administration's work on street-level in only policy implementation process [31]. One of roles of "knowledge interpreter" in policy process is to facilitate the incorporation of stakeholder's knowledge except administrations into policy.

The effectiveness of the utilization of specific knowledge

In local fishery policy, incorporating specific knowledge into policy is effective to construct a common understanding about policy implementation for stakeholders. For example these kinds of knowledge are scientific knowledge like abundance estimation in case of sandfish resource management in Akita Prefecture, a HACCP as a world standard in case of local HACCP at Shibetsu-cho in Hokkai-do and a quality control of fish in case of brand-building of "SEKIAJI SEKISABA" at Saganoseki-cho in Oita Prefecture. Also scientific knowledge can contribute to justify stakeholder's knowledge, as a consequence this action provide a driving force to policy implementation.

The practice of collaborative problem-solving.

The collaborative problem-solving is important to improve awareness on an issue quickly. In our cases, fishermen (FCA) and administrations collaborated to solve a problem and implement the policy outcome. As a result, they established relations of collaboration as emergent process.

FOR FUTURE STUDY

Future study will focus on improving concepts of "knowledge interpretation". These concepts are possible to contribute not only for fishery policy but also other policy that multiple different stakeholders participate like cooperation between industry and the academic world. This aim calls for further more case studies.

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