SEAMANSHIP and the Maritime Safety Administration in Japan: Linkage between Public Administration and Navigation

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Abstract
This article intends to investigate the reason for the difference between the implementation of an alert system for typhoons on land and in ports. Local governments often have difficulty in assessing the risk of natural disasters on land, and therefore are hesitant to recommend residents on evacuation. In ports, however, a network of professionals shares seamanship, which is described as a common set of maritime knowledge, skills, and mentality that is unique to Japanese seamen. Seamanship contributes to seamless emergency management during natural disasters, despite the potential conflicts of interest among organizations. Through the combination of seamanship, as it pertains to navigation literature, with policy networks, which are based on public administration theory, it is revealed that seamanship plays a pivotal role in the building and maintaining of networks among actors in port. The lack of such a united network on land to make decisions pertaining to natural disaster response is the missing factor. Seamanship provides a common culture that lays the foundation for seamless decision-making and the implementation of the maritime safety policy in ports, and may have the potential to link navigation and social science in order to benefit the field of emergency management in Japan.

Keywords: Interdisciplinary, Seamanship, Policy network, Emergency management, Organizational Culture

1. INTRODUCTION
The continued occurrence of large catastrophes, such as earthquakes, has caused emergency management to become one of the most important topics researched by the Japanese government and political scientists. Several studies have recently been published on the topic, but the majority of research has focused on themes other than maritime society or maritime policy.
This tendency is seen not only in the field of emergency management, but also in the social sciences in general. The study of maritime administration in Japan is a relatively new topic; research on infrastructure development, including maritime entities such as fishermen, is more common but does not encompass the topic of maritime policy. The predominant cause of this could be the uniqueness of the maritime environment in Japan.

The Japan Institute of Navigation, which is the most important forum for Japanese maritime research, per contra, has conducted a small number of studies on maritime policy and maritime society. Despite this, there is currently insubstantial literature on administration and policies, and policy recommendations from a technological perspective have not utilized the accumulated knowledge of the social sciences.

This article intends to investigate the reason for the difference between the implementation of an alert system for typhoons on land and in ports. Warning and evacuation decision-making and procedures, which are vital parts of emergency management, differ between land and port. Through a comparison of the two, as well as an in-depth examination of the meaning and presence of seamanship in Japan, this article concludes that seamanship as a culture strengthens the network of actors found in port, and this network contributes to the smooth implementation of the safety policy.

2. RE-DEFINING SEAMANSHIP
2.1 Discussion in Navigation Literature
Outside of Japanese culture, seamanship means only the skills and knowledge needed by a seaman. This is obvious since most of the books about seamanship tend to be textbooks that do not actually define the term, but rather only discuss the set of skills and knowledge necessary to work at sea. In contrast to this, in the Japanese context, the concept of SEAMANSHIP has been discussed in academic and practical settings. Seamen and the members of the Japan Institute of Navigation believe that SEAMANSHIP contains a special meaning that is spiritual in nature. Masao Furusyo, who is the superintendent of the Japan Institute of Navigation, as a temporal conclusion, agrees with all of the definitions that include skills, knowledge, rules, tradition, manner, and so on. In general, SEAMANSHIP is the combination of skills, knowledge, and overall expert mentality of a seaman.

SEAMANSHIP is not something that can be taught in books, but rather, it is a mentality that is gradually acquired. Those who have been trained as seamen in Japan, or who have been developing their careers as seamen or sea-related workers, gradually acquire SEAMANSHIP at their workplace. Therefore, most
professionals who work at sea share this common sense of maritime skills and knowledge, as well as the additional quality of a unique mentality.

2.2 Positioning in Public Administration Literature

In public administration literature, the public sector does not decide on public policies exclusively, with citizens following them unquestionably. On the contrary, policy processes are pluralistic and collaborative. Public sectors and stakeholders participate in the policy process through the presence of a network. Recently, literature concerning such policy networks has focused on the continuities, relations among the entities, and the success or failure of the policy.

This literature finds not only positive aspects of the network, but also negative aspects: the fact that internal entities of the organization have strong networks with the outside hinders their development. Edgar E. Schein defines three cultures that exist inside of organizations: operator, engineering, and executive. Engineering and executive cultures are expressed as “occupational communities” that have developed a common worldview based on their education as seamen, and their work experience. Especially, training and education as a technique but also the community itself.

The skills, knowledge, rules, tradition, manner, and so on that are shared by maritime professionals and are fed back into maritime training programs. These programs then develop the new seamen’s SEAMANSHIP, and this cycle continuously strengthens the culture. This culture is instilled in maritime professionals and affects decision-making for all of the affairs of an organization. In the discussion of Schein, it is indicated that the culture can also be the hindrance of innovation. In this case, however, they can work together positively.

In the next section, the methods employed for emergency responses to typhoons illustrate this point.

3. CHARACTERISTICS OF INTERACTIONS AMONG MARITIME PROFESSIONALS

Typhoons are one of the most frequent natural disasters, causing human lives to be lost and infrastructure to be damaged. Buildings are brought down by not only strong winds and rain, but also disastrous landslides. At sea, strong winds result in the capsizing of ships colliding with one another as well as with land facilities, and grounding.

To prevent the occurrence of these accidents, or to mitigate damage, the Japanese government has the legal means to recommend, instruct and order stakeholders and citizens to take safety measures.

3.1 Legislative Measures on Land and in port

Legislative measures to recommend, instruct, and order stakeholders and citizens to take safety actions on land and in port is shown in Table 1. These institutions are similar to each other concerning their conditions and objectives. In addition, the mayor of the municipality and the harbormaster have the authority to order an evacuation of a specific area and prohibit entrance by measures stated in the Basic Act on Disaster Control Measures 63(1) and the Act on Port Regulations 37(3).

Despite the similarity of the measures, their implementation varies greatly between land and port.

Table 1 Legislative Measures on Land and in port

<table>
<thead>
<tr>
<th>Requirement and Instruction</th>
<th>&lt;On Land&gt;</th>
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<tbody>
<tr>
<td></td>
<td>If disaster occurred or believed to occur in the area, protecting life and limb from disaster or of preventing the spread of a disaster, finds it to be necessary, mayor of the municipality may recommend any people within the specified area to evacuate or may, when deemed urgent, instruct these persons to evacuate for safety. (Basic Act on Disaster Control Measures 60(1))</td>
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<tr>
<th>Creative Evacuation</th>
<th>&lt;In port&gt;</th>
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<tr>
<td></td>
<td>If there is a foreseeable risk of a marine traffic hazard occurring in a Specified Port due to abnormal meteorological or hydrographic conditions, (omitted) the harbormaster may recommend any vessel within the Specified Port or in the vicinity of the Specified Port's boundaries to take the actions required to smoothly prevent the hazard. (Act on Port Regulations 37(4))</td>
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</table>

Despite the similarity of the measures, their implementation varies greatly between land and port.
3.2 Approaches on Land

Japan’s primary institution for the emergency management of natural disasters is the Basic Act on Disaster Control Measures. This act stipulates three approaches that the mayor of the municipality can take for evacuating residents. The first is to provide a recommendation for evacuation, the second includes instructions. The third is to set warning zones. And warning zones include securing off the area and evacuating residents.

Japanese local governments must decide what should be announced and when, according to the guidelines that have been released by the Cabinet Office. In 2009, the Japanese Central Disaster Prevention Council conducted a survey to assess the implementation of this alert system during typhoons and heavy rainfall-related disasters. The questionnaire was sent to 108 local governments that used the first or second approach during typhoons Etau and Melor, or for the heavy rainfall-related disasters that occurred from July 19–26, 2009. Despite the extensive damage, only 108 local governments issued recommendations or instructions for evacuation. Moreover, only 14 local governments issued and transmitted recommendations or instructions well in advance, and 27 governments issued recommendations only after the occurrence of floods or landslides, were reported. Astoundingly, 21 local governments were unable to explain the timing of the issuances, in relation to the time of the disaster, until more than two months after Melor.

The reason for this situation is that local governments often have difficulty in assessing the risk of natural disasters. Officials not only have to consider the potential degree of damage, but also the possibility of accidents during evacuation. Under-reactions can directly have devastating consequences, whereas over-reactions can cause a situation, called the “Cry Wolf Syndrome”. A survey conducted by the Cabinet Office in 2014 revealed two realities pertaining to over-reaction. The first is that people complained to local governments as they viewed the recommendations or instructions as over statement. The rate of cases where the local government received complaints to the over-reactions was about 25%.

On the other hand, Iwaizumi government requested the group home to verify its situation. To this request, the director of the group home indicated their understanding, and they decided against evacuation. Meanwhile, roads and parking lots had begun to flood. As a result of his decision, there was an insufficient amount of time for an evacuation from the group home, killing 9 people. In this case, it cannot be stated that if the Iwaizumi government had issued a recommendation appropriately, these 9 people would not have died. Whereas a private actor, in this case group homes, who was responsible for emergency management and judgement of safety, lacked objective judgement. In addition, the Iwaizumi government and the group home lacked communication, in spite of the necessity for cooperation, though they could discuss possible risk assessment criteria before typhoon Lionrock had struck.

This kind of experiences have been occurring year after year, while the central and local governments have re-considered the guidelines and manual for the issuance of alerts. Furthermore, in 2017 “Information Sharing for Preparedness” was renamed to “Preparedness and Priority Evacuation” to avoid misunderstandings.

3.3 Approaches in port

The following case, which is described with reference to the record of the decision at the Maritime Accident Inquiry, is when a ship ignored an alert from the committee. It is an important case for this discussion which states the strength of an alert system in port. Therefore, it can be observed that private actors without legal responsibility in the case, tend to participate in the implementation of a case.

Typhoon Songda struck and heavily damaged western parts of Japan on 7th September 2004, killing 43 people. Timber carrier Blue Ocean, was hit by this typhoon at Hiroshima Port, sinking and killing 4 crew members. At 6:00p.m. on 6th September, the harbormaster of Hiroshima issued informal advice, Warning Phase 1, which meant vessels at Hiroshima Port had to gather information and prepare for emergency departures, etc. After that, at 5:00a.m. on 7th, informal advice, Warning Phase 2 was issued, which meant all large ships must evacuate the port and protect the ship as a result of a discussion among the members of the Committee for the Response to Typhoon of Hiroshima Port. At the same time, a meteorological observatory issued a storm warning. At
Osaka Port, winds blew 30m/s from 1:00p.m., and was recorded at 60m/s maximum instantaneous wind velocity at 2:40p.m.

Officials of the agent suggested Blue Ocean to evacuate the port at 5:00p.m. on 6th (Before issuance of Warning phase 1). At that time, an official emphasized that Warning Phase 1 was not an order, but advice because the legislative measures which are mentioned on 3.1, did not exist. In response, Blue Ocean chose not to evacuate the port and start preparation for stormy weather at mooring. On 7th, Blue Ocean had ignored Warning Phase 2 as well, despite two notices being informal strong advice from an official of the agent.

Finally, Blue Ocean decided to evacuate the port after a visit from officials of the agent at 11:00a.m., Blue Ocean could not receive tug boats because of the weather and oceanographic conditions. Unfortunately, Blue Ocean lost a way of evacuation, colliding with pier and sinking. 4 crew members were killed.

In the marine accidents inquiry, it was decided that disregarding Warning Phase 2 was the direct cause of this accident.

Before amendment of the Act on Port Regulations in 2009, the recommendation and instructions issued in this case had not been specified in law and had been used as administrative advice from harbormasters.

In port, many vessels are sailing or handling cargo that includes Hazardous and Noxious Substances. Efficiency in maritime traffic and in the operation of facilities is important, since more than 90% of Japanese imports and exports occur via ports. In order to prepare for a natural disaster, the loading of ships may need to be postponed. Unfortunately, postponing the loading process affects the local economy, as well as the interests of the ship’s stakeholders. However, if the ships are loaded and response to an impending disaster is delayed, this may directly cause damage to human life, and the risk of environmental and economic damage increases.

Concerning this issue, a harbormaster, as stated above, has the legal authority to order the movement of ships or prohibit entrance into ports. In situations where typhoons or huge low-pressure systems are predicted to occur, harbormasters institutionally can make recommendations and orders.

On the other hand, generally they had been able to maintain the safety of the port with recommendations, and without legal authorities because of networking among stakeholders. These networks are the committee for the marine disasters such as typhoons, heavy-low pressure, or tsunami, plays an important role as the forum for the stakeholders in port. They are composed of public and private organizations, such as: harbormasters, port authorities of local government, pilot associations, agents, and shipping companies. There are variations as to who the organizer of the committee is, as some of them can be the coast guard office, port authority, and so on.

For instance, among the specified ports where the marine traffic is extremely congested, as in Osaka district of Hanshin Port until 2013, the organizer of the Osaka Port Committee for Prevention of Maritime Accidents had been the Osaka Port Promotion Association, which was comprised of both public and private organizations. Osaka city government has 72 certified maritime officers and 12 personnel who have experience in seaman training\(^{24}\). This government was the key actor of this association and had supported with its qualified personnel.

With the formation of this kind of committee, stakeholders have the channel to communicate with the harbormasters to convey their opinions on a case-by-case basis and the criteria for evacuation itself. In addition, occasionally, stakeholders play some roles in an implementation, as is described in the case of Hiroshima port. This system is still active, even after the amendment of the act and legislative measures was institutionalized.

4. ANALYSIS
The remarkable difference between the implementation of disaster procedures on land versus in port, lies in the decision-making, implementation procedures, and network cohesion, although their legal authorities are similar. On land, the mayor of the municipality is solely responsible for making decisions, although they are supported by information sharing from several organizations such as meteorological observatories, civil engineering offices, and private organizations. Therefore, they may fear being stigmatized if their response is viewed as an under-reaction or over-reaction. On the other hand, although harbormasters have critical authority over the final decision, since the harbormasters have the legal authority to make several approaches, the solutions must be authorized by the stakeholders of the ports. Therefore, even though over-reactions are strongly connected to the large amount of economic loss, more than that of on land, harbormasters can take actions to protect the human life and maritime safety with the cooperation of the stakeholders.

In a situation where network members’ preferences are different, decision-makers may face dilemmas. They must decide how to react by finding a balance between invisible economic loss and precautions against uncertain loss of life and environmental damage. Despite this situation, generally ships and organizations adhere to the decisions, because the procedures are prepared by professionals from each organization. In addition, in a case study of a port, it is observed that a private actor contributed to the implementation of the decision-making. Agents who communicate with the foreign ships, as a supporter, played a role for communication with non-members of the committee.

These professionals belong to the engineering culture that is based on SEAMANSHIP, and it is this cultural connection that helps them transcend any conflicts of interest and arrive at an appropriate decision.

5. CONCLUSION
This article investigates the reason for the difference between the decision-making and the implementation of an alert system against typhoons on land and in port. With the use of a comparative analysis, it is revealed that the core difference is the procedures for decision-making and implementation. At port, procedural criteria has been agreed upon by relevant stakeholders beforehand, and discussed with the committee to arrive at a decision. This
course of action is supported by the trusted professionals who belong to the stakeholders group. These professionals share SEAMANSHIP as a common culture through maritime education and experiences, and it is this shared mentality that functions as a base for decision-making and supports mutual understanding of proper procedures. Therefore, decisions made by the committee are carried out respectfully by stakeholders, even if it causes considerable economic loss. Conversely, it is difficult to overlook the fact that in the case, the foreign ship ignored the advice. The reason of this dismissive behavior can be not only a matter of personality of the master or operator, but also a matter of cultural difference. International comparison is needed to confirm that SEAMANSHIP is shared among all the seamen of the world.

On the other hand, it can be considered that these findings have an indirect implication for alert system on land. As mentioned above, the guidelines for this system have been revised again and again at the time when evacuation failure occurred and recognized it as a matter of institution.

The guideline made in 2014 suggested that the authorities are responsible for the issuance of an alert such as a mayor of the municipality might issue recommendations and instructions quickly without worry of over-reaction\textsuperscript{15}). In this situation, as Oikawa and Katada indicated, the alert system can lose its effectiveness, if over-reactions are repeated\textsuperscript{20}). To prevent this, the authorities must attain their professionalism in emergency management through a local level and promote emergency response awareness to the residents. Some neighborhood or private organization's representative, such as a group home, should have an ability to assess disaster risks and the true function of the alert. They can provide the assessment of risks to the proper authority and can support the alert's implementation.

In the view of this paper, this knowledge need to become a kind of culture, applied with a professional mentality. For instance, as an idea, “Bousaisai” which is the private certificate of knowledge and skill in disaster preparedness and prevention has some potential to support public and private organizations in preventing the failure of the alert system, through SEAMANSHIP. In navigation literature, the main problem with the topic of SEAMANSHIP is its technical definition and the education that exists for seamen on this topic. SEAMANSHIP has a more interesting side than is revealed in the textbooks, and this article showcases the significance of this unique aspect of SEAMANSHIP. In this era of interdisciplinary cooperation, the concept of SEAMANSHIP has the potential to link navigation and social science in order to benefit the field of emergency management in Japan.

6. REFERENCES


2) E.g. textbook by Danton (1985) consists of following chapters: the anchor, mooring the principles of ship handling practical ship handling ice life-saving and distress, damage control stranding and beaching emergencies towing fire, dry-docking and landlines, the officer of the watch, the safety of navigation, lifting gear, rope and canvas, deck appliances, the ship’s boat, the department of transport oral examination-foreign-going. Graham Danton: “The Theory and practice of seamanship 9th ed (rev)”, Routledge & K. Paul. (1985).


12) Ibid., pp.18-19.


15) Cabinet Office, Government of Japan: “The result of survey for the local government which issued the recommendations for evacuation and the instruction”, p.1

16) Ibid., p.7.
19) Ibid., p.5.
21) Ibid., p.11.
24) Interview, Osaka City Government, via E-mail (2017.4).

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