The impact of decentralization of public service organizations: A study of Korea Coast Guard’s “Rescue Hub Substation”

Chongin Lee
University of Kentucky, jilee5269@gmail.com
The impact of decentralization of public service organizations: 
A study of Korea Coast Guard’s “Rescue Hub Substation”

Chongin Lee

Advisor: Jeongyoon Lee

Martin School of Public Policy and Administration

University of Kentucky

Gradate Capstone, April, 2021
# Table of Content

Executive Summary ........................................................................................................................................... 1

1. Introduction .................................................................................................................................................... 2

2. Literature Review ........................................................................................................................................... 3
   (1) Decentralization in the public sector ........................................................................................................ 3
   (2) Debate over the impact of decentralization of public service organizations .................................... 5
   (3) Decentralization in the public sector in South Korea ............................................................................ 7
   (4) Decentralization, KCG, and Rescue Hub Substation ............................................................................ 10
      1) Korea Coast Guard (KCG) .................................................................................................................... 10
      2) Background of the Introduction of Rescue Hub Substation and Administrative
         Decentralization ...................................................................................................................................... 11
      3) Introduction of Rescue Hub Substation ............................................................................................. 13

3. Research Hypotheses ................................................................................................................................. 16

4. Research Design .......................................................................................................................................... 16
   (1) Data and variables .................................................................................................................................. 17
   (2) Data analysis .......................................................................................................................................... 18

5. Findings ....................................................................................................................................................... 20

6. Limitations .................................................................................................................................................... 27

7. Conclusion and Policy Implications ......................................................................................................... 28

Reference ......................................................................................................................................................... 31
Executive Summary

In recent decades, many countries have implemented decentralization of national administrative functions to make public service delivery more effective and efficient. However, debate continues over whether decentralization is actually effective, and there has not been much research on the impact of decentralization of public administration in East Asia. This study analyzed the effectiveness of establishing a Rescue Hub Substation implemented by the Korea Coast Guard as part of its administrative decentralization policy to respond quickly to maritime accidents and reduce casualties.

The analysis method compared and analyzed the average response time of marine accidents before and after the establishment of a Rescue Hub Substation, and the number of deaths and missing persons. In addition, I examined citizens' perceptions by analyzing the tone (positive, neutral, negative) and keywords of news articles related to Rescue Hub Substation.

According to the analysis, the average response time to marine accidents has been 10% (3.8 minutes) faster, despite the continuous increase in marine accidents since the establishment of Rescue Hub Substation. The death toll from marine accidents fell by 7% (17 person), and the missing by 16% (20 person). Of the 80 articles related to the Rescue Hub Substation, 48% of them have positive tone, and more articles of positive tone over time, these results show that citizens are positive about the KCG's decentralization policy.

The implications of this study are as follows: First, this study can be seen as providing positive empirical evidence to the decentralization theory. Second, research on decentralization of public organizations have been centered around the Western world, and this research contributed to the development of research on decentralization of public organizations in East Asia. Third, in enforcement-oriented organizations such as the Korea Coast Guard, it is necessary to more actively discover areas that need decentralization to provide efficient administrative services to the public.

**Keywords:** decentralization, the Korea Coast Guard, the Rescue Hub Substation, accident response time, decrease casualties
1. Introduction

Over the past few decades, many countries, such as the United States, Australia, New Zealand, and United Kingdom, have reformed the central governments' administrative functions by decentralizing their hierarchical structures and operations. They aimed to make public service delivery more efficient and effective and extend public service coverage by giving local administrative units more autonomy and responsibility (Cheema and Rondinelli, 2007). The New Public Management (NPM) movement in the 1990s has significantly influenced the decentralization of administrative governance activities and structures in the public sector. At the heart of NPM was the idea that “governments should structurally disaggregate large, monolithic public sector organizations into smaller, more specialized parts that have some degree of organizational autonomy” (Wynen, Verhoest, and Rubecksen, 2014: 496-497).

Administrative decentralization refers to transferring operational responsibility from a higher level to a lower level of organization (Rondinelli, Nellis, and Cheema, 1983). In general, decentralization is recognized for two reasons. The first is practical reason that in order to efficiently perform the governance functions of a vast and complex state, it is effective to distribute some of them to provide and perform them locally according to the will of the residents. The second is political and ideological reason that democracy can be realized by allowing the function of the state to take place in communities where residents can directly participate and control it. (Lee, 2009). Decentralization is often seen as a way of increasing the ability of central government officials to obtain better and less suspect information about local or regional conditions, to plan local programs more responsively, and to react more quickly to unanticipated problems that
inevitably arise during implementation (Maddick 1963). In theory, decentralization should allow projects to be completed sooner by giving local managers greater discretion in decision making so as to enable them to cut through the "red tape" and the ponderous procedures often associated with overcentralized administrations (Rondinelli 1981a).

However, there has been an on-going debate over the outcomes of decentralization and public service organizations’ performance. The empirical evidence of the effectiveness of decentralization in the public sector is still equivocal (Faguet, 1997). Also, not many studies address the impact of administrative decentralization on public service organizations' capacity performance in the East Asian context. Little is known about whether and how the decentralized administrative structures help public service organizations in East Asia meet their organizational goals and improve organizational capacity.

To fill this research gap, this study examines the effectiveness of administrative decentralization on the performance of a public service organization in South Korea, focusing on the Korea Coast Guard’s (KCG) Rescue Hub Substation program. Through this study, I will examine whether Rescue Hub Substations has achieved its policy objective to protect the lives of the people by responding quickly to marine accidents.

2. Literature Review

(1) Decentralization in the public sector
The effectiveness and appropriateness of public sector organizations has been increasingly questioned over the last few decades, leading to several public sector reforms to enhance the efficiency and responsiveness of public sector services (Pollitt & Bouckaert, 2004). Of many reforming efforts, it is thought that decentralization will improve government’s responsiveness to the public and increase the quantity and quality of the services it provides (Rondinelli, Nellis, and Cheema, 1983). For example of administrative decentralization, power is dispersed between the federal and local governments of the United States. The federal government has legislative, judicial, and administrative powers, and has jurisdiction over the affairs of all states. However, the federal government cannot exercise any powers that are not delegated to it by the Constitution under the 10th Amendment. Each state has its own constitution, local government, and law, so it handles the affairs of the jurisdiction in accordance with the circumstances of each state. Another example of decentral government is the European Union. The European Commission has the authority to make decisions for the 27 member states. However, each member state has a representative to the European Commission who informs its specific needs and problems. Delegates decide on an appropriate solution to a problem at the regional (national) level and deliver it to the European Commission.

What is decentralization in the public sector? In the classical sense, Rondinelli (1999) define decentralization as the transfer of authority and responsibility for public functions from the central government to subordinate or quasi-independent government organizations or the private sector (Rondinelli, 1999: 2). In the modern sense, Eryılmaz (2011) refers to decentralization can be expressed as transferring administrative authority such as planning, decision making and the collection of public revenues from the central government to provincial
institutions, local governments, federal units, semi-autonomous public institutions, professional organizations and voluntary organizations outside of the administration (Eryılmaz, 2011: 103).

According to Cheema and Rondinelli (2007), decentralization in the public sector can be categorized into four types: administrative, political, fiscal, and economic decentralization (Cheema and Rondinelli, 2007).

<Table 1. Types and definitions of decentralization in the public sector>

<table>
<thead>
<tr>
<th>Types</th>
<th>Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative decentralization</td>
<td>Deconcentrating of central government structures and bureaucracies, delegation of central government authority and responsibility to semiautonomous agents of the state</td>
</tr>
<tr>
<td>Political decentralization</td>
<td>Organizations and procedures for increasing citizen participation in selecting political representatives and in making public policy</td>
</tr>
<tr>
<td>Fiscal decentralization</td>
<td>Means and mechanisms for fiscal cooperation in sharing public revenues among all levels of government</td>
</tr>
<tr>
<td>Economic decentralization</td>
<td>Market liberalization, deregulation, privatization of state enterprises, and public-private partnerships</td>
</tr>
</tbody>
</table>

(source: G. Shabbir Cheema and Dennis A. Rondinelli, 2007)

(2) Debate over the impact of decentralization of public service organizations

While the need for decentralization and the expected positive effects on performance in the public sector are widely recognize, the significance of administrative decentralization on public organizations’ performance is still debatable (Faguet, 1997).

Some studies claim that decentralization increases performance in the public sector in several ways. Specifically, greater participation in development planning and management through decentralization supposedly promotes national unity by giving groups in different
regions in a country a greater ability to participate in planning and decision making, and thus increases their stake in maintaining political stability (Rondinelli, Nellis, and Cheema, 1983). Also, this in turn is believed to benefit organizational performance (Guest, 1987; Storey, 1989; Aucoin, 1990; Ingraham, 2005; Dubnick, 2005; Meyer & Hammerschmid, 2010). Moreover, if organizational autonomy trickles down towards lower management levels through decentralization, this will lead to more committed, empowered and flexible middle and lower managers with high levels of intrinsic motivation (Knies, 2012; Thomas & Dunkerley, 1999).

However, another line of study explains that decentralization does not necessarily lead to positive outcomes. According to Cheema and Rondinelli (2007), successful experiments in decentralization have yielded many of the benefits claimed by its advocates, but skeptics also point to its limitations. And they also refer to in many developing countries, decentralization may increase the potential for “elite capture” of local governments or is undermined by their inability to raise sufficient financial resources to provide services efficiently (Cheema and Rondinelli, 2007). Decentralization often fails because of low levels of administrative and management capacity in local governments and in civil society organizations (Fjeldstad, 2003). Decentralization has been accompanied by widening economic and social disparities among regions in some countries and increased levels of local corruption and nepotism in others (Fisman and Gatti, 2002). Time and again, reformers have learned that decentralization is not a panacea for all of the ills of ineffective governance (Cheema and Rondinelli, 2007).

In sum, previous studies have shown that decentralization has achieved moderate success in some countries, moderate failure in others, and both in many countries (Faguet, 1997). Table 2 summarizes positive and negative impact of decentralization in the public sectors.
Table 2. Impact of decentralization in the public sector

<table>
<thead>
<tr>
<th>Positive impacts</th>
<th>Negative impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater participation in development planning and management result in better decision-making</td>
<td>Increase the potential for “elite capture” of local governments</td>
</tr>
<tr>
<td>Promoting national unity and maintaining political stability</td>
<td>Often fails because of low levels of administrative and management capacity in local governments</td>
</tr>
<tr>
<td>Benefit organizational performance</td>
<td>Accompanied by widening economic and social disparities</td>
</tr>
<tr>
<td>More committed, empowered, and flexible middle and lower managers with high levels of intrinsic motivation</td>
<td>Increased levels of local corruption and nepotism</td>
</tr>
</tbody>
</table>


(3) Decentralization in the public sector in South Korea

Historically, South Korea is known as having culture based on the hierarchical social structure and collectivism, and has depended on the central government strategic planning. South Korea has maintained a strong centralized control system to efficiently control and manage various factors, setting the pretext of so-called development dictatorship that puts economic growth first (Jeon, 2014). In Korea, the local council was launched in 1991, and the local government system has been implemented through elections for heads of local governments in 1995 (Yun, 2020). According to Jeon (2014), despite the efforts to decentralize, the level of decentralization for the realization of local autonomy is evaluated as insufficient. For example, rather than improving the financial power of local governments, local financial independence is deteriorating, and the control and supervision of local governments by the central government remain. The level of transfer to local governments is also low (Jeon, 2014).
According to Kang (2011), it would not be an exaggeration to say that despite the initiation of local autonomy in South Korea for 26 years, the tendency of a centralized organization structure still remains strong. Kang (2011) identified the reasons for this: 1) The willingness of the central government and central politicians to adhere to the vested rights, 2) Subordination of local politics to central politics, 3) Local governments' lack of will and ability to self-government, 4) Lack of interest from the people, 5) Lack of participation of ordinary citizens and lack of systematic strategies for decentralization movement (Kang, 2011).

While there has been high cynicism over the implementation and outcomes of decentralized governance structures in the public sector in South Korea, globalization and political pressures from the civil society drive most decentralization efforts. Since 2003, there have been several significant reforming efforts toward the decentralized governance structure. The nickname of Roh Moo-hyun administration, which began in 2003, was a Participating Government, which presented "a developed country through the invigoration of local participation" with the vision, and established the Government Innovation Regional Power Committee (Jeon, 2014).

For example, in South Korea, the self-governing police system which was introduced as an election pledge in the 15th presidential election in 1997, will be introduced as part of the decentralization policy from January 1, 2021, and will be fully implemented nationwide from July 1 after a pilot operation until June 30. The self-governing police system refers to a system in which local governments are given police authority in accordance with the ideology of decentralization, and local governments are responsible for the establishment, maintenance, and operation of police. The self-governing police system has the advantage of being able to conduct
police activities suitable for local characteristics and to enhance the level of friendly service of police officers due to its high sense of attribution to its area. However, as local police are controlled by the heads of local governments belonging to political parties, they are feared to undermine fairness and have difficulty controlling coordination for national security activities (Pmg Knowledge Engine Research Institute, 2021).

Another example includes, the KCG implemented an administrative decentralization policy to establish five regional headquarters to strengthen maritime security services tailored to regional characteristics. The KCG, which was founded in 1953, operates a system that determines the maritime public service policy applicable to all waters at its headquarters, and in 2006, five regional headquarters were opened in east, west, south, central, and far south regions to implement maritime service policies to meet the characteristics of different coast (The KCG white paper, 2019). Also, the KCG transferred the authority to regional headquarters to implement the recruitment of personnel from the headquarters in accordance with local conditions in 2017. Moreover, in 2018, a Rescue Hub Substation program was implemented to distribute underwater rescue workers concentrated in 19 police stations to 25 police substations as a measure to prevent the rollover of fishing boats that killed 15 people.

Along with these decentralized efforts by the South Korean government, this study focuses on how KCG decentralized their administrative functions and operations by introducing Rescue Hub Substation and to what extent Rescue Hub Substation was effective.
(4) Decentralization, KCG, and Rescue Hub Substation

1) Korea Coast Guard (KCG)

The KCG was launched on December 23, 1953 after the end of the Korean War as a maritime police force belonging to the Ministry of the Interior and Safety to crack down on illegal fishing boats from Japan and prevent the North Korea’s agents being dispatched to the South Korea. It was an affiliated organization of the National Police Agency for a long time, but became independent from the KCG when the Ministry of Maritime Affairs and Fisheries was established in 1996 (the KCG 60-year history, 2013).

The KCG, which has a history of about 67 years, started with 658 people when it was launched in 1953 and now has about 12,000 employees. The KCG rescued an average of 52 people (rescue rate 99.5 percent), responded to 10 ship accidents, arrested 90 maritime crimes, responded to 0.7 marine pollution accidents, and cracked down on 4.4 marine pollution violations every day based on KCG’s performance analysis from 2018 to 2020 (the KCG major statistics, 2020).

KCG’s jurisdiction covers all sea areas around the Korean Peninsula that includes Dokdo, the easternmost island in the East Sea and Ieodo, the southernmost island in the South Sea. Article 14 of the KCG Act stipulates the scope of duties of KCG as follows: (1) The coast guard shall conduct duties related to search, rescue, coastal safety management, ship traffic control, escort, guard, and anti-terrorism in the sea. (2) The coast guard shall conduct duties related to the prevention, suppression and investigation of ocean-related crimes, and the collection, compilation, and distribution of public security information to secure public peace and to
maintain order in the sea. (3) The coast guard shall conduct duties related to the prevention of marine pollution and precautionary activities against marine pollution. (4) The coast guard shall cooperate with the government agencies of other nations and with international organizations that are related to the duties of the coast guard.

The KCG has 330 vessels and 24 aircrafts, and it consists of 1 headquarter, 5 regional headquarters and 19 coast guard stations. Each of the 19 coast guard stations has a Special Rescue Team, and the 19 coast guard station has 95 coast guard substations under its wing. In the rescue situation on the water, 19 Special Rescue Teams and 95 coast guard substations can be dispatched and responded, but in situations where rescue is required underwater, 19 Special Rescue Teams will only respond. In other words, only 19 Special Rescue Teams concentrated their rescue functions in the situation where rescue is needed underwater (the KCG white paper, 2019).

2) Background of the Introduction of Rescue Hub Substation and Administrative Decentralization

On December 3, 2017, 15-Myoung Jin Ho oil tankers and Seonchang-1 Ho fishing boat collided in waters near Yeongheung Island in Incheon, South Korea. The ship, which had 22 people on board, capsized due to the impact of the collision, and rescued four fishing passengers who crashed into the sea from 15-Myoung Jin Ho and later rescued three fishing passengers from the capsized ship by the Incheon Special Rescue Team, but two crew members and 13 fishing passengers were killed. At the time of the accident, the weather was foggy and the rain was weak, the wind blew at 8 to 12 meters per second, and the wave height was 1 to 1.5 meters. In other words, the wind and waves were not strong, but the visibility was as bad as a mile. At that
time, the 15-Myoung Jin Ho was sailing to supply fuel oil to other ships, while the Seonchang-1 Ho was sailing to the fishing spot, and the two ships were getting closer.

According to the results of the investigation by the special investigation department of the Korea Maritime Safety Tribunal, the causes of the accident are as follows. First, the two vessels failed to identify the risk of collision in advance because they neglected the proper perimeter through the naked eye or radar. Second, the two vessels did not sail at a safe speed, approaching at the risk of collision but not slowing down. To sum up, the accident occurred because the two ships did not take appropriate measures to avoid the collision, even though they were increasingly approaching, and the risk of collision occurred.

The two ships collided, and the Seonchang-1 Ho capsized, and a fisherman was trapped inside the overturned ship. About five minutes after the accident, a fishing passenger trapped in the cabin asked the Incheon Coast Guard Station for help on his mobile phone. At that time, the water temperature was low because it was winter, so fishing people trapped inside the hull had to be quickly rescued to survive. The average water temperature in winter in South Korea is about 35.6°F, and according to the Search and Rescue Manual published by the International Maritime Organization, the possibility of survival will drop to less than 50 percent after 45 minutes under 35.6°F.

Upon receiving the report, the Incheon Coast Guard Station ordered the rescue of Yeongheung Coast Guard Substation, which is located closest to the site of the accident, and police officers at Yeongheung Coast Guard Substation arrived at the scene on a rescue boat, but there were no diving equipment and manpower to search the ship. The In-cheon Special Rescue
Team, which has equipment and manpower to search the ship, was also dispatched after receiving an order to dispatch, but it was far from the accident site, so it arrived at the site about an hour and 40 minutes after the accident and was able to start an on-board search from then on.

On the day of the accident, the In-cheon Special Rescue Team rescued three survivors from the ship, but when the remaining 15 were found on board, they were dead. If there were diving equipment and manpower to search the ship at the Yeongheung Coast Guard Substation, which was closest to the accident site, it would have been a shame to save more lives (the Korea Maritime Safety Tribunal Investigation Report. 2018).

3) Introduction of Rescue Hub Substation

This accident as a focusing event for the problem of insufficient governmental action on efficient emergency responses triggered the discussion over the decentralized administrative functions of KCG and introduction of Rescue Hub Substation (Kingdon, 1984). In the event of a marine accident, how quickly to respond determines the success of saving lives. Regarding the situation where the ship capsized and needs rescue through diving, the KCG were unable to respond quickly because the diving rescue function was concentrated in 19 coast guard stations. In the wake of the capsized fishing boat accident, the KCG decentralized diving rescue functions and personnel to coast guard substations, a subordinate organization of the coast guard station, to respond quickly to accidents.

The KCG operate 95 Substations on the coast of the country. Substations are the front-line departments of KCG that carry out complex duties such as maintaining maritime security,
saving lives and coastal safety management. The Substation's lifesaving operations are on the water-based, with no diving personnel and no diving equipment. There are 19 Special Rescue Teams operating in the KCG that can dive into the ship and save lives.

The coast of South Korea, surrounded by the sea on three sides, is about 15,000 kilometers, and if an accident occurs far away from the Special Rescue Team, such as the Seonchang-1 Ho rollover accident, the rescue is likely to be delayed again, causing more deaths. In the wake of the Seonchang-1 Ho rollover accident, the KCG began to designate and operate 12 substations as "Rescue Hub Substations" in 2018 with the aim of responding to 359 dangerous areas where many marine accidents occurred between 19 Special Rescue Teams within 30 minutes in order to respond quickly to situations requiring diving rescue. In 2019, 13 additional Rescue Hub Substations were designated and operated, and as of 2021, 25 Rescue Hub Substations are currently in operation across the country.

<Figure 1. The locations of Special Rescue Team and Rescue Hub Substation>
The distance between 19 Special Rescue Teams is 84.6 kilometers, and if 12 Rescue Hub Substations are installed in between the Special Rescue Teams, the travel distance will be reduced to 52.2 kilometers, and if a total of 25 Rescue Hub Substations are installed, the travel distance will be reduced to 38.7 kilometers, allowing responses within 30 minutes. While making administrative functions through the Rescue Hub Substation decentralized, the KCG aims to respond faster when underwater rescue was needed.

Comparison of before and after the installation of the Rescue Hub Substations are shown in the following table.

<Table 3. Comparison of before and after the Rescue Hub Substations>

<table>
<thead>
<tr>
<th></th>
<th>Before Rescue Hub Substations</th>
<th>After Rescue Hub Substations</th>
</tr>
</thead>
<tbody>
<tr>
<td>How was the rescue done in situations where underwater rescue was needed?</td>
<td>19 Special Rescue Teams dispatched to rescue</td>
<td>19 Special Rescue Teams and 25 Rescue Hub substations dispatched to rescue</td>
</tr>
</tbody>
</table>
| Response time                                                    | 84.6 km distance between Special Rescue Teams  
It takes **an hour** to respond with a boat with a speed of 20 knots. | 38.7km distance between the Special Rescue Teams and the Rescue Hub Substations.  
It takes **30 minutes** to respond with a boat at 20 knots. |
| Relation to decentralization                                    | The diving rescue function and manpower, which was concentrated in 19 Special Rescue Teams, were decentralized to 25 Rescue Hub Substations. Therefore, 44 points to respond to the situation where diving rescue is needed, enabling rapid maritime accident response. |
3. Research Hypotheses

Through this study, I will examine whether Rescue Hub Substations has achieved its policy goal to protect the lives of the people by responding quickly to marine accidents. The objective of this capstone is to answer the following three research questions: 1) How did the establishment of the Rescue Hub Substation affect the reduction of the response time to marine accidents? 2) How did the establishment of the Rescue Hub Substation affect the reduction of casualties in marine accidents? and 3) How did the establishment of a Rescue Hub substation affect citizens' perceptions of the KCG? Specifically, I suggest three hypotheses as follows:

H1: The establishment of the Rescue Hub Substation is positively related to the reduction of marine accident response time.

H2: The establishment of the Rescue Hub Substation is positively related to the reduction of casualties in marine accidents.

H3: The establishment of the Rescue Hub Substation is positively related to citizens’ perception toward the KCG.

4. Research Design

To assess the impact of establishment of the Rescue Hub Substation on its policy outcomes, specifically H1 and H2, I used a non-experimental observational before and after study design using the data from the Statistical Yearbook of Marine Distress Accidents issued by
KCG and national statistics issued by the Korea Maritime Safety Tribunal from 2015 to 2020. To assess the citizens’ perception toward the KCG, I used a qualitative coding approach to analyze the contents and frames of newspaper articles. The media coverage, including newspaper articles, has been shown the general public opinion and attitudes towards the government. Also, it sets the frame of policy issues. The qualitative analysis of the newspaper articles focuses on identifying recurring ideas, concepts, themes, and issue frames across the selected newspaper articles (Miles and Huberman, 1994).

(1) Data and variables

**Dependent Variables.** The dependent variable for the first research hypothesis is the marine accident response time by KCG. Rescue response times are statistics recorded and maintained annually by the KCG. The calculation of the rescue response time is a measure of the time when the rescue forces of the KCG arrive at the rescue site after reporting the occurrence of a marine accident. The faster rescue workers arrive at the site after the marine accident, the more likely they are to be able to save lives.

The dependent variable for the second research hypothesis is yearly casualties in marine accidents. The number of casualties from marine accidents was cited by statistics issued by the Korea Maritime Safety Tribunal under the Ministry of Oceans and Fisheries. The Korea Maritime Safety Tribunal maintains and announces the number of casualties caused by marine accidents every year.
The dependent variable for the third research hypothesis is citizens’ perception toward the KCG. Citizens’ perception of KCG was measured by analyzing the tone and keywords of news articles that included Rescue Hub Substations in the title and contents. To search for news articles, it used the article integrated search service (BIGKINDS, www.bigkinds.or.kr) provided by the Korea Press Foundation. The search target period was set from December 2017 when the policy of installing the Rescue Hub Substation was announced in the media, to March 2021. The searching targets all 54 media outlets provided by BIGKINDS, including Korea's central, economic, regional, broadcasting, and magazine. The search found that the term "Rescue Hub Substation" was searched in 83 articles titles and contents of 34 media outlets. A total of 80 articles were used in the analysis, with the exception of three duplicated reports of the same article.

**Independent Variables.** Independent variable for three hypotheses is establishment of the Rescue Hub Substation.

(2) Data analysis

The purpose of the installation of the Rescue Hub Substation is to reduce the loss of people’s lives in the sea by expanding the scope of response not only to the rescue at sea but also to the situation where rescue is needed underwater, and quickly dispatched to the point of major
accidents to conduct lifesaving activities. To assess the Rescue Hub Substation’s policy effectiveness, I employed three analytic approaches.

First, regarding the first hypothesis, I compared the average response time before and after the establishment of the Rescue Hub Substation for marine accidents.

Second, to test the second hypothesis, I compared the number of deaths and missing persons caused by marine accidents before and after the Rescue Hub Substation. However, if the number of marine accidents itself decreased, the number of deaths and missing persons could be reduced, so the number of marine accidents was compared in advance. The comparison period for data to derive analysis results in first and second hypothesis test is from 2015 to 2017, three years before the installation of the Rescue Hub Substation, and from 2018 to 2020, three years after the installation.

Third, to test the third hypothesis, I analyzed the tone and keywords of a news article related to a Rescue Hub Substation. The tone of the article was measured from the perspective of media coverage of the Rescue Hub Substation. If the article is favorable and an understanding of the policy is expressed, it is classified positively. If the article simply cites the policy announcement or if the favor for the policy is not clear, it is classified as neutral. If the article is critical and contains prejudices or objections, it is classified negatively. Keywords were selected around words that were mainly mentioned in the article and words that determined the tone of the article.
5. Findings

The figure 2 shows an increasing number of marine accidents since 2010 (2010-2020). Many citizens in South Korea criticized the fact that rescue workers who can rescue underwater did not arrive quickly at the scene of the accident in the event of a marine accident requiring underwater rescue. To effectively address, the KCG decentralized rescue operation points and administrative functions by establishing a Rescue Hub Substation to reduce human casualties through rapid response to marine accidents that require underwater rescue.

![Figure 2. Total Number of Marine Accidents (2010-2020)](image)

First, I examined the first hypothesis: whether Rescue Hub Substation is positively associated with the reduced accident response time by KCG. Figure 4 shows the average accident response time for the KCG from 2013 to 2020. The KCG has been managing the
average accident response time since 2013. In the figure 3, the average accident response time is decreasing overall, and it has tended to decrease significantly since 2018.

Specifically, table 4 indicates that the average response time for marine accidents is 34.4 minutes in 2015, 36.8 minutes in 2016, 39.5 minutes in 2017 before the installation of the Rescue Hub Substation, and 35.2 minutes in 2018, 34.7 minutes in 2019, and 29.5 minutes in 2020 after the Rescue Hub Substation is installed. The average response time for marine accidents for three years before the establishment of the Rescue Hub Substation is 36.9 minutes, and the average response time for marine accidents for three years after the establishment of the Rescue Hub Substation is 33.1 minutes, which is 3.8 minutes and 10% faster on average. I found that descriptively, after the introduction of the Rescue Hub Substation, the average response time for maritime accidents was faster.
<Table 4. Compare the average marine accident response time before and after Rescue Hub Substation>

<table>
<thead>
<tr>
<th></th>
<th>Before the Rescue Hub Substation</th>
<th>After the Rescue Hub Substation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3 years average</td>
<td>3 years average</td>
</tr>
<tr>
<td>Average Marine</td>
<td>36.9</td>
<td>34.4</td>
</tr>
<tr>
<td>Accident Response Time</td>
<td>36.9</td>
<td>34.4</td>
</tr>
<tr>
<td>Time</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To test the second hypothesis, I compared the average number of marine accidents before and after implanting the Rescue Hub Substation. I found that the average number of marine accidents during the three years before the establishment of the Rescue Hub Substation is 2,330, and the average number of marine accidents during the three years after the establishment of the Rescue Hub Substation is 2,933. Since the establishment of the Rescue Hub Substation, an average of 603 cases, 26% more marine accidents have increased.

<Table 5. Compare the number of marine accidents before and after Rescue Hub Substation>

<table>
<thead>
<tr>
<th></th>
<th>Before the Rescue Hub Substation</th>
<th>After the Rescue Hub Substation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3 years average</td>
<td>3 years average</td>
</tr>
<tr>
<td>Average Number</td>
<td>2,330</td>
<td>2,101</td>
</tr>
<tr>
<td>of marine accidents</td>
<td>2,330</td>
<td>2,101</td>
</tr>
<tr>
<td>accidents</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It should be noted that the continued increase in the number of marine accidents seems to have increased due to the active leisure activities of the general public in addition to the use of the sea for fishermen's livelihood. In particular, the operation of fishing boats increased.
significantly as the general public's demand for sea fishing exploded. Compared to 2006, the number of fishing boat passengers increased 1.5 times in 2016, with 16 times the number of safety accidents and 5 times the number of casualties (Korea Maritime Institute, 2018). In addition, the number of marine accidents seems to increase as the general public continues to use leisure ships such as motor boats and yachts. Table 6 shows the KCG’s statistics on the number of fishing boat accidents and leisure ship accidents from 2017 to 2019.

<Table 6. Number of Fishing Boat and Leisure Ship Accidents>

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fishing Boat Accidents</td>
<td>266</td>
<td>245</td>
<td>305</td>
</tr>
<tr>
<td>Leisure Ship Accidents</td>
<td>678</td>
<td>733</td>
<td>890</td>
</tr>
</tbody>
</table>

To better understand the impact of Rescue Hub Substation on reduction of casualties in marine accidents, next, I compared the death toll from maritime accidents before and after implementing Rescue Hub Substation. As shown in Table 7, the death toll from maritime accidents totaled 76 in 2015, 73 in 2016 and 93 in 2017, a total of 242 before the establishment of the Rescue Hub Substation, and 68 in 2018, 69 in 2019 and 88 in 2020, totaling 225 after the establishment of the Rescue Hub Substation.

Also, I compared the total missing people from maritime accidents before and after implementing Rescue Hub Substation. The number of missing people from maritime accidents totaled 121 before the establishment of the Rescue Hub Substation, with 24 in 2015, 45 in 2016 and 52 in 2017. A total of 101 people occurred after the establishment of the Rescue Hub.
Substation with 34 in 2018, 29 in 2019 and 38 in 2020. In summary, the number of deaths has decreased by 17 and 7 percent since the establishment of the Rescue Hub Substation, while the number of missing people has decreased by 20 and 15 percent. Since the establishment of the Rescue Hub Substation, the number of deaths and missing persons from marine accidents is believed to have decreased due to the faster response to accidents requiring rescue underwater, such as ship rollover accidents.

<Table 7. Compare the number death and missing before and after Rescue Hub Substation >

<table>
<thead>
<tr>
<th></th>
<th>Before the Rescue Hub Substation</th>
<th>After the Rescue Hub Substation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total 2015 2016 2017</td>
<td>Total 2018 2019 2020</td>
</tr>
<tr>
<td>Death</td>
<td>242 76 73 93</td>
<td>225 68 69 88</td>
</tr>
<tr>
<td>Missing</td>
<td>121 24 45 52</td>
<td>101 34 29 38</td>
</tr>
</tbody>
</table>

To test the third hypothesis, I analyzed 80 articles related to the Rescue Hub Substation. According to the analysis, there were 38 articles of positive tone, 27 articles of neutral tone, and 14 articles of negative tone. The articles on the positive tone account for the largest percentage with 48%, the articles on the neutral tone account for the second with 34%, and the articles on the negative note account for the smallest with 18%. Figure 4. shows the result of an analysis of the tone of 80 articles.
Figure 5. shows the results of an analysis of how the tone of the article has changed over time. In December 2017, when the Seonchang-1 Ho rollover accident occurred and most of the articles of neutrality and negative tone were reported when the KCG announced the establishment of a Rescue Hub Substation to the media as a countermeasure. However, over time, there are more articles of positive tone and fewer articles of neutral, negative tone. It can be seen that most of the articles with positive tone accounted for in 2019 when all 25 Rescue Hub Substation were established.
Table 8. shows the results of an analysis of keywords of three different tones. In the article with a positive tone, there were many keywords that the installation of a Rescue Hub Substation could shorten response time and reduce casualties. In the article of neutral tone, there were many keywords that the rescue system should be improved through the Rescue Hub Substation and prevent recurrence of accidents. In the negative tone of the article, keywords such as poor response and structural problems of the KCG were found.
<Table 8. The result of an analysis of keywords of articles>

<table>
<thead>
<tr>
<th></th>
<th>Keywords</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>shorter response time, faster response, strengthening rescue capabilities, minimizing casualties, site-centered</td>
</tr>
<tr>
<td>Neutral</td>
<td>improving the rescue system, preparing countermeasures, establishing dispatched posture, strengthening expertise, preventing accidents from recurrence</td>
</tr>
<tr>
<td>Negative</td>
<td>poor response, structural problems, time-consuming, delayed dispatch, maritime safety emergency.</td>
</tr>
</tbody>
</table>

The fact that the proportion of articles with positive tone is the highest among all articles, and that there are more articles with positive tone over time, supports H3 that the installation of a Rescue Hub Substation has a positive relationship with the citizens’ perception toward the KCG.

6. Limitations

While this study provides insights into the positive effect of decentralized operations and functions on increased performance of a public organization, many questions remain. First, researchers need to further study about how to prove that the decrease in response time and decrease in the number of deaths and missing persons since the establishment of the Rescue Hub Substation has a direct causal relationship. Second, it is considered effective to conduct a Focus Group Interview to check the policy effectiveness of the Rescue Hub Substation. The following protocol questions are expected to be required when conducting FGI. 1) When did you start working at the Rescue Hub Substation? 2) Do you think the rescue capabilities have actually
been strengthened after switching to the Rescue Hub Substation? 3) Specifically, how do you think your rescue capabilities have been strengthened? 4) Is there any rescue case that can be said that the transition to the Rescue Hub Substation was a great help to the actual rescue activities? 5) The Special Rescue Team and the Rescue Hub Substation are operating at the same time; do you think this system is efficiently? 6) Do you think we need to expand the Rescue Hub Substation or do you think it's enough for now? Do you think we need to scale it down?

7. Conclusion and Policy Implications

In recent decades, many countries around the world have given local administrative agencies more autonomy and responsibility to implement public administrative services more effectively and efficiently and to expand the scope of public services. Administrative decentralization is recognized for the need to efficiently conduct local administration by distributing the functions of large and complex countries to provinces, and to realize democracy through community administration involving and controlling residents. However, discussions continue on the outcome of administrative decentralization and the performance of public service organizations, and little is known about the impact of administrative decentralization of public service institutions in East Asia.

To fill this gap in research, this study looked at the effect of administrative decentralization on the performance of public service organizations, focusing on the KCG's policy that establishment of the Rescue Hub Substation. In the event of the Seonchang-1 Ho subversion, the KCG failed to respond quickly, causing many casualties, and there were many
criticisms from the National Assembly, the media and the public. In order to prepare for rescue operations in the water, such as the capsized of ships in the ocean, and to reduce the time to respond to marine accidents, the KCG has implemented a policy to decentralize diving rescue workers and functions from 19 Special Rescue Team to 25 Rescue Hub Substation.

When comparing the number of marine accidents during the three years before and after the establishment of the Rescue Hub Substation, marine accidents continued to increase, and an average of 603 cases and 26% increased after the establishment of the Rescue Hub Substation. Despite the continuous increase in marine accidents, the average response time for marine accidents was 3.8 minutes and 10% faster after the establishment of the Rescue Hub Substation, and the number of deaths and missing persons decreased by 17 by 7% and 20 by 16%, respectively. According to an analysis of 80 news articles related to Rescue Hub Substation, the percentage of articles with positive tone was the highest among the total articles. In addition, the growing number of positive tone articles over time shows that the installation of Rescue Hub Substation has a positive relationship with the public's perception toward the KCG. Through the decentralization of rescue workers and functions concentrated on the Special Rescue Team to the Rescue Hub Substation, the KCG has been able to effectively carry out their duty to protect people's lives and property through rapid dispatch at a time when the lives of the people are threatened.

There has been debate over the effects of decentralization in theoretical aspects and research. This study on the effect of decentralization of marine service administration through the KCG's Rescue Hub Substations can be seen as providing positive empirical evidence in decentralization theory. In addition, discussions on decentralization of public organizations have
centered around the Western world, and it contributed to the development of research on
decentralization of public organizations in East Asia through the analysis of the KCG's Rescue
Hub Substations.

In execution-oriented organizations such as the KCG, administrative execution that
reflects the conditions of the region is essential to provide efficient administrative services to the
people. Decentralization of public organizations is necessary to quickly provide administrative
services suitable for local circumstances to the people. The recent introduction of the
autonomous police system by the National Police Agency and the relocation of personnel
recruitment authority to local headquarters and the establishment of a Rescue Hub Substations by
the KCG are part of decentralized policies to provide administrative services. The KCG needs to
strengthen the executive power and autonomy of front-line institutions by discovering areas that
need decentralization more actively.
Reference


Food and Agriculture Organization of the United Nations. *Country Experiences in Decentralization in South Asia*. 2004


The KCG. *2019 Korea Coast Guard White Paper*, 2019.
The KCG. Korea Coast Guard 60 Year History 1953~2013, 2013.


