



DISASTER MANAGEMENT IN KOREA



SO EUN PARK

Student Intern at IIGR (International Institute of Global Resilience)

Graduated from Ewha Womans University

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I . Executive Summary

To many Koreans, the concept of disaster management will be relatively new and unfamiliar since people often thought of disasters as destiny, and as the government historically did not put much effort into “managing” disasters with an effective system. It is only after Sewol ferry incident of 2014 that Koreans began to realize how important it is to effectively manage disasters, which can happen anytime, anywhere, without warning.

In recent years, the Korean government has taken steps to improve the country’s disaster management system, first by establishing the National Emergency Management Agency (NEMA) in 2004, and then by replacing NEMA with the newly-created Ministry of Public Safety and Security (MPSS) in 2014. However, to the author, it is unclear as to whether the government is ready to admit the mistakes of the past, learn from the past tragedies, and really try to change the country’s approach to emergency management. To be sure, MPSS is only a few months old at the time of this report. However, recent incidents such as the Eujungbu Apartment Fire and the Yeongjong Bridge Car Pile-Up Accident have not shown significant change or improvement in either safety practices or emergency management in Korea. Clearly, the new ministry faces significant challenges in proving its ability and willingness to make real changes that go beyond simply transferring staff and renaming an organization.

The author realizes that it takes a long time for a system to change, especially for the government to change the system since there may need to be new legislation, new manuals, and so forth. However, the government should keep in mind that the change is highly related to the safety of the citizens, and that the main role of the government is to keep the citizens safe and protect them from any possible dangers.

In that regard, the author respectfully offers the following recommendations for both the government and the citizens of Korea:

Government

1. Need to educate emergency management specialists, and train emergency first responders.
2. Need to effectively organize and utilize NGOs and disaster volunteers.
3. Need to be more open and responsive to the media and the public.
4. Need to make clear and realistic manuals/legislation with roles and responsibilities of each agency and each employee.
5. Need to hire a disaster management leader with competent leadership skills who can harmonize employees into an effective team.
6. Need to create a culture in which every agency can be cooperative, not competitive and communicate well, and share necessary information.

Citizens

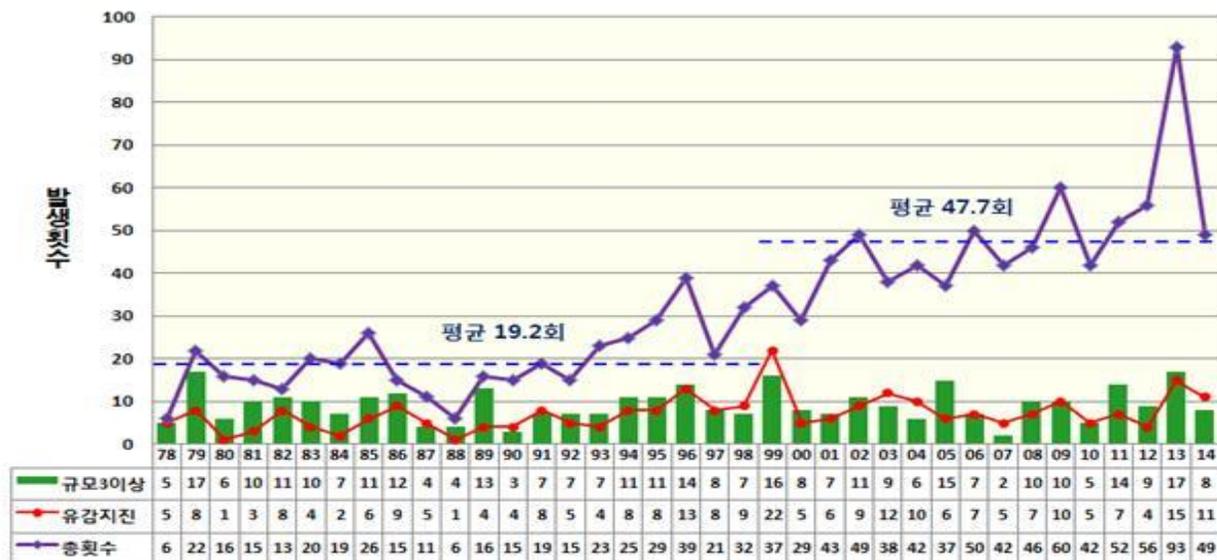
1. Need to be more aware of the importance of “managing” disasters.
2. Need to actively and permanently participate in disaster volunteer work.
3. Need to constantly check whether the government is doing its job.
4. Need to be prepared for all different kinds of disasters.
5. Need to help the government and be interested in improving the disaster management system.

II. Introduction

A. Background

1) Geographical Background

Historically, Korea has been regarded as rather a safe country in terms of earthquakes, tsunamis, or volcanoes. This is because Korea is not located at the plate boundary zone whereas Japan is located at the plate boundary zone. However, this does not mean that Korea is completely safe. According to the Korea Meteorological Agency, the earthquakes are occurring more frequently in the Korean peninsula although the quakes are too weak for people to feel.



Statistics showing the number of earthquakes increasing in Korea (Source: Korea Meteorological Agency, retrieved on May 2 2015, available at <http://www.kma.go.kr/weather/earthquake/domestictrend.jsp>)

Also, there is a possibility that Mount Baekdu, which is located in North Korea, might erupt someday. Natural disasters can occur anytime, without warning. Since Japan is highly affected by earthquakes, it is prepared for those disasters. The buildings are very strong and citizens are repeatedly educated on what to do when earthquakes occur.

But since Korea believes that it is relatively safe from earthquakes, tsunamis and volcanoes, Korea is not as well prepared to manage these kinds of disasters. Up until 1988, Korea did not have laws enforcing earthquake-resistant building design. After 1988, Korea required certain buildings, such as buildings higher than 6 floors that are newly constructed, to be built in an earthquake-resistant manner (Building Act Enforcement Decree). But the older existing buildings remained the same. According to the Korean Ministry of Land, Infrastructure and Transport, in 2013, only 30% of the buildings in Korea were built in an earthquake-resistant manner (Seoul Daily, April 28 2015). Furthermore, Koreans are not educated on what to do in case an earthquake occurs. In schools, students participate in fire drills; however, there are very few earthquake drills. Thus, Koreans would in all likelihood not know what to do to protect themselves if a major earthquake were to hit the Korean peninsula. According to the simulation by Korea's National Emergency Management Agency (NEMA), more than 7,500 people would die and more than 100,000 people would be injured if and when an earthquake higher than 6.5 hits Seoul. (NEMA website, retrieved on February 05, 2015)

Other Types of Disasters

Although Korea has historically been safe from earthquakes, tsunamis and volcanoes, Korea has often experienced floods and fires, as well as storms and droughts. In summer, heavy rain causes damages and in winter, heavy wind causes damages.

The following are excerpted from Kyoo-Man Ha's *"Emergency Management in Korea: Just Started, but Rapidly Evolving"*

Floods

According to Kyoo-Man Ha, one of the most emphasized natural hazards in Korea is flooding, resulting from typhoons that Korea faces each summer. Typhoons usually hit the Korean peninsula between June and December every year with torrential rainfall. As Korea has traditionally been an agricultural society, the appropriate amount of rain during the flood season has been very useful for the Koreans to cultivate rice. However, the heavy floods caused by the rainfall have also brought negative impacts such as economic damages and the loss of lives.¹ The government builds dams to prevent floods.



*Floods due to Typhoon Lusa in 2002
(Source: National Disaster Information Center, www.safekorea.go.kr)*

Fires

Another very common and important hazard is fires. Of course there were many incidents of fire in ancient Korea including wildland fires, structural fires, etc. However, as Korean society became more modernized, the occurrence of fires and human loss related to fire has increased. For example, with regard to fire incidents, there was a 5.5% increase in the number of fires in Korea between 1996 and 2006. (National Emergency Management Agency of Korea, 2007). House and apartment fires were the kinds of fire that caused the highest human losses and economic damages in Korea between 1996 and 2006. To be specific, electric problems were the major cause of house or apartment fire during that period. However, there were not many serious wildfires or bushfires caused by nature, as most of them were caused by either human error or arsonists.²

The Role of the Firefighter in Korea

According to Gyunggi Disaster Safety Headquarters (available at <http://119.gg.go.kr>),

- In Korea, the role of the firefighter is not just fire suppression. Firefighters in Korea are usually divided into 4 categories. These include 1) fire suppression, 2) on-scene search and rescue, 3) transport of injured people to hospitals, and 4) helicopter rescue. So in Korea, firefighters do not only put out fires, but also play a major role in rescuing people in many different emergency and disaster situations.
- Firefighting in Korea is controlled by local governments. The local governments have the authority to build fire stations and to hire firefighters. Most firefighters, except for the senior officials, are local public servants. Also, local governments have to spend their own budgets in managing the firefighting in their areas. Only 1.9% of the local firefighting budget comes from the central government. This situation makes the working conditions of firefighters very difficult. Because the

local governments are pressed to reduce the firefighting budget due to lack of funds, there are not enough firefighters and firefighting equipment to deal with various disasters. Although Korea has tried to implement a three-shift system for the firefighters, it is almost impossible because of the shortage of firefighters. Due to this situation, the death rate of firefighters in Korea is 2.6 times that of Japan, and 1.8 times that of America. Many firefighters are now demanding that the central government take control of the firefighting, make firefighters national public servants, and increase the budget for firefighting.³

Other

In addition to floods and fires, there are other hazards that have a major impact on Korean society. There are natural disasters such as drought, heavy snow, the “yellow-dust” etc. In addition Korea faces man-made hazards such as acts of terrorism, oil spills, domestic violence, economic crisis etc.

The yellow-dust phenomenon is a seasonal and meteorological event that occurs during spring around Korea. The airborne particulates are sporadically carried by prevailing winds from China. According to *Korea 4 Expats*, “Yellow Dust is basically inhalable particles that originate from the dry desert regions of China and Mongolia. There has been yellow dust coming from these regions to Korea for many generations. However, due to the deforestation that has occurred in Mongolia and China, along with the increased industrialization and resulting pollution in China, the yellow dust storms have been occurring with increasing frequency and with greater and greater negative effects. For the past few years, the dust storms often carry oxides (aluminum, calcium, iron, magnesium, potassium and silicon) and toxic waste thus increasing the risks of respiratory and skin reactions. In sufficient concentration, the fine particles can obscure visibility, irritate soft tissues in the eyes, nose, mouth and throat. Because of the high concentration of minerals and other pollutants, it can cause or exacerbate respiratory and cardiovascular problems. Pinkeye is a common side effect in both adults and children. The dust can also damage sensitive equipment, such as computers, etc.”⁴ (<http://www.korea4expats.com/article-yellow-dust-korea.html>). In summary, Korea is no longer a “land of the morning calm” as it can be seen in various emergency situations in recent years.



Picture of Yellow Dust

(Source: Korea Meteorological Agency, www.kma.go.kr)

2) Social and Cultural Issues

The following are excerpted from Kyoo-Man Ha's "*Emergency Management in Korea: Just Started, but Rapidly Evolving*"

Cultural Issues

One thing that has a negative influence on Korea's emergency management is related to the national culture. Koreans tend to focus more on consequences of emergencies than the preconditions of disasters or the preparedness level before the disaster. For example, in the case of Daegu subway fire in 2003, people were not aware of safety in the subway before the accident. Although many problems existed even before the accident such as lack of appropriate firefighting equipment, use of non-fireproof material in the subway cars etc., most people were not aware of safety conditions of subway before the outbreak of the incident.⁵

Similarly, according the Kyoo-Man Ha, Korea has emphasized the significance of the recovery phase more than that of the other three phases, which are the mitigation, preparedness and response phases in the emergency management process. Korea, until now, has invested emergency personnel, funds, and other resources primarily for the recovery phase.

One of the important reasons why Korea emphasizes the recovery phase is related to the communications revolution in the Korean society. Because of expanded access to information via television and the internet, people tend to focus more on the immediate aftermath of an emergency, but they often fail to consider the conditions that led up to the event, such as the poor level of emergency preparedness or of safety precautions.⁶

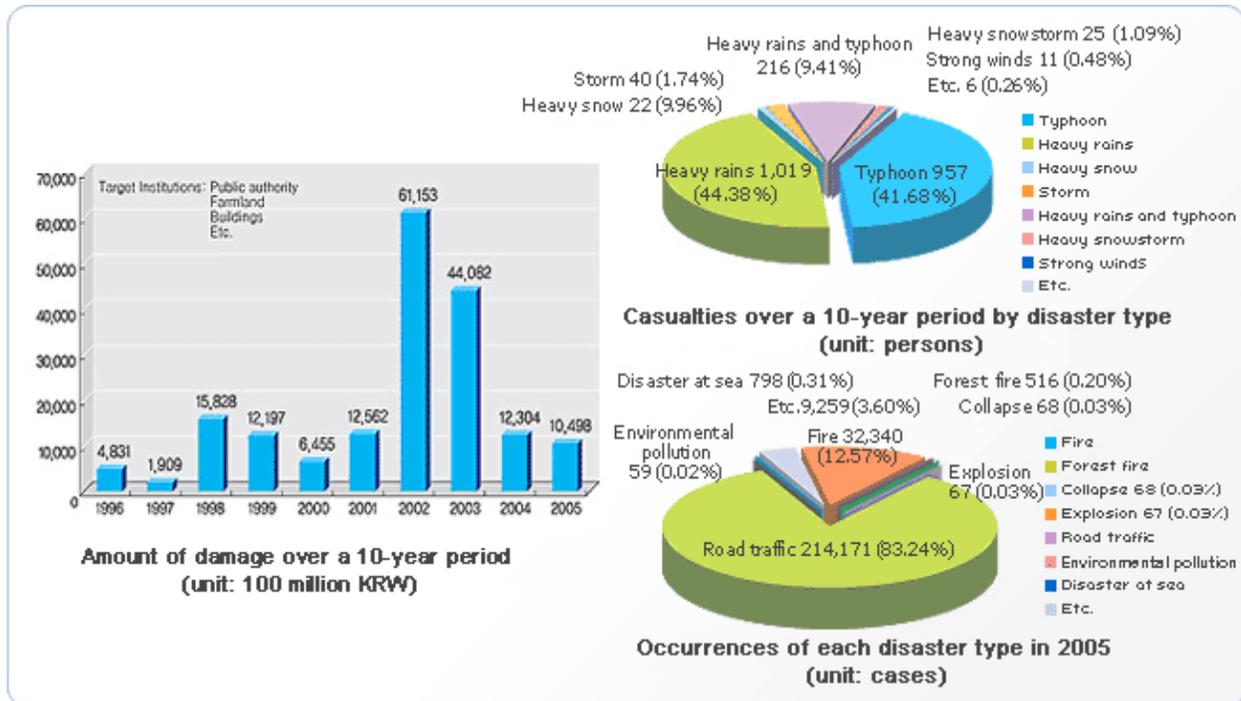
Another reason why Korea focuses on the recovery phase is because many Koreans considered an emergency or disaster as a sort of destiny for quite a long period of time. People thought human beings with limited ability could not control emergencies or hazards. Because of this mindset, Koreans treated flooding with typhoons as an annual activity, instead of trying to prepare for the disaster and to think of ways to minimize the damage.⁷

Hazard-Specific Emphasis

Also, even though the Korean government has paid lip service to "all-hazard" emergency planning, the main focus has been on firefighting and civil engineering. For example, civil engineering is related to floods from typhoons. As a result, government policy has been substantially oriented towards those two disasters, without any significant emphasis on other types of emergencies. In this regard, firefighters and civil engineers have comprised the two main categories of emergency personnel in Korea, leading some critics to state that these two categories might dominate the field of emergency management without incorporating other professions.

As floods from typhoons hit the Korean peninsula annually, the Korean government has put a huge emphasis on civil engineering. Similarly, as fire incidents have rapidly increased in Korea, it is natural

that firefighting would be heavily emphasized. However, because it focused too much on firefighting and civil engineering, the participation of other specialties, such as medicine, psychology, sociology, public administration, law, military science, meteorology, and other engineering was much neglected. Emergencies and disasters are very complicated events that have multiple facets. Thus, they must be managed comprehensively to address all relevant issues and problems. According to Kyoo Man Ha, Korea may not successfully accomplish the goal of emergency management in the near future, as long as it only focuses on two kinds of emergencies.⁸



Statistics of disasters in Korea (Source: NEMA website, retrieved on Feb 05, 2015)

B. History of Korea Disaster Management

❖ The Era of Three Kingdoms (57BC~668)

During the Era of Three Kingdoms, cities began to develop and many people began to live together in the cities. In those big cities, houses were built close to each other, thus fire became a disaster that could severely impact many people as it spread to nearby houses. A book called “Samguksagi”, which is a book about history of the Era of Three Kingdoms, also shows that people became aware of the disastrous effects of fire. According to “Samguksagi”, there were three major fires in Kyungju, a capital city of one of the three kingdoms. This book is considered to be the first history book that records information about fire in the Korean peninsula.

Also, disasters were often linked with the king's lack of virtue as disasters were seen as the sign of heaven's anger. This traditional way of thinking continued long after the Era of Three Kingdoms until the Chosun Dynasty (1392). Thus, when there were major disasters, kings usually had ceremonies to pray to the gods.

❖ Koryo Dynasty (918~1392)

During the Koryo Dynasty, the government tried to address firefighting, but an organization like a modern fire department that exclusively dealt with fire did not exist. However, the local government officials who were in charge of certain regions had responsibility to prevent fires, and when they failed to do so, they were sometimes dismissed from their position. When civilians set a fire, they were punished according to the place that had been burnt.

❖ Chosun Dynasty (1392~1910)

Since houses were mostly made of wood, they were more vulnerable to fire. In 1426, the Chosun Dynasty created an organization called "Geumhwadogam" that dealt with fire, as fire had become a major hazard. This is known as the first firefighting organization in Korean history. There were about 50 people who had to be prepared for fires 24/7; however, they only existed in the capital city.

At the local level, disasters were usually managed by the local citizens. Chosun's "Hyangak", which meant regional self-regulatory rule, played an important role in managing disasters. According to "Hyangak," neighbors had to help people in need of help in case of any disasters such as flood or fire. If they did not help, they were harshly criticized in the community. The government also tried to deal with disasters through "Buyeok" (compulsory service), requiring the labor of the citizens in building infrastructure to prevent disasters, or in recovering from disasters. Although the government tried to manage the disasters through "Buyeok", it also largely depended on the local citizen's participation and help.

❖ Japanese Colonial Period (1910~1945)

During the Japanese colonial period, more scientific approaches were taken to manage disasters. This was to minimize the impact of disasters on agriculture and to increase the productivity of rice so that Japan would be able to take away more rice from Korea.

❖ After Korean War (1953~2003)

Following the Korean War, civil defense and national security were emphasized. Emergency management also focused on preparing for possible attacks from North Korea.

But because the national focus at this time was mainly on the economic development of the country, disaster management was largely neglected. Disaster management was based on short-term policies that focused on the response and recovery stages, instead of equally emphasizing all four stages including preparedness and mitigation.

Disasters (1959 – 2003)

- **Typhoon Sarah (1959)**

Typhoon Sarah hit Jeju Island and the southern part of Korea on September 16 and 17, 1959. Its central pressure was 905 hPa(hectopascal), and it passed out of the eastern part of Korea on September 17. The typhoon was accompanied by heavy rain. As a result of this incident, 750 people lost their lives, 9329 ships were damaged, and 12,366 towns were flooded. The president officially declared that natural disaster is beyond human control, and hence, the Koreans had to help each other. He emphasized the significance of a national movement to overcome the typhoon's impact.

- **Sungsoo Bridge Collapse (1994)**



Collapsed Sungsoo Bridge (Source: The National Audio Visual Information Center, ehistory.go.kr)

In Seoul, which is the capital of Korea, the Sungsoo Bridge collapsed at 7:40 am on October 21, 1994. About 105,000 cars moved across Sungsoo Bridge on a daily basis. When the Sungsoo bridge collapse occurred, one school bus with 49 people fell into the Han River. Among those on the bus, 32 people were killed, while 17 people were fortunately rescued. Out of the 17 people rescued, 3 had serious injuries and 14 had slight injuries. According to news reports, the exact cause of the Sungsoo bridge collapse was not natural, but man-made (due to poor welding and poor maintenance) (Source: EBN News, Young Ok Seo, October 29, 2014) Since this disaster, the Seoul city government has started to systematically inspect every bridge crossing the Han River.

○ **Collapse of Sampoong Department Store (1995)**



Collapsed Sampoong Department Store (Source: National Disaster Information Center, www.safekorea.go.kr)



*Emergency responders rescuing people from the collapsed building
(Source: National Disaster Information Center, www.safekorea.go.kr)*

The Sampoong Department Store, which was the largest department store in Seoul at that time, had five floors above ground and four floors underground. On June 29, 1995, the five-story mall collapsed. 502 people were killed and 937 people were injured. Reportedly, the collapse was a result of faulty construction. Moreover, after construction was completed, the structure was subsequently changed and expanded without proper authorization and review. The load far exceeded the allowable limit, and instability factors grew, including cracks in the structure. (Kyunghyang Daily, Do Jae Gi, June 28, 2009)

In April 1995, cracks began to appear in the ceiling of the south wing's fifth floor. During this period, the only response by the management staff involved moving merchandise and stores from the top floor to the basement. On the morning of June 29, the number of cracks in the area increased dramatically, prompting managers to close the top floor and shut the air conditioning off. The store management failed to shut the building down or issue formal evacuation orders; the number of customers in the building was unusually high that day, and shutting down the building would have meant the loss of the day's revenue. However, the department store executives themselves left the premises as a precaution. It was clearly a man-made preventable disaster, caused by poor design, poor inspection, and poor management

○ **Daegu subway station fire (2003)**



Firefighters rescuing disaster victims after the Daegu Subway Station Fire
(Source: National Disaster Information Center, www.safekorea.go.kr)



Figure 1 Subway cars burned after the Daegu Subway Station Fire
(Source: NEMA website, downloaded on Feb 05, 2015)

On February 18, 2003, at around 9:53 a.m., a fire broke out in the fifth passenger car of the subway in Daegu. Due to the fire, 192 people died and 148 people were injured. As it was past rush hour,

the car was not crowded. Most of the passengers were elderly people who were going to a college for seniors, students taking courses at private educational institutes, and others who had errands that day. It was set by an arsonist, who had mental health problems. In his hand, he had a four-liter container filled with a flammable liquid. At first, the passengers were able to control him, but he set the container on fire and then threw it on the floor of the subway train, the interior of which then caught fire and rapidly burned. The subway seats were made of materials that were not fire-resistant, and passengers did not know how to open the doors nor were they educated about emergency situations, factors that no doubt added to the number of casualties.

The fire, which had broken out around 9:53 a.m., was extinguished at approximately 13:30 p.m. Due to the toxic fumes underground and poor firefighting operations owing to the firefighters' lack of familiarity with the structure of the underground station, the actual rescue operations and search for bodies did not begin until around 15:30 p.m.

- **Typhoon Maemi (2003)**

On September 12, 2003, typhoon Maemi made landfall on the Korean coast near Sacheon in South Gyeongsang Province, and proceeded to Haman County, Daegu, Cheongsong County, and Uljin County, before dissipating in the East Sea. Typhoon Maemi was the strongest typhoon in Korea since meteorological recordkeeping began in 1904. 130 people died and about 4,000 households were affected by typhoon Maemi. Economic damage worth about \$4.8 billion U.S. dollars resulted as a consequence of this typhoon. Typhoon Maemi also strongly encouraged the government to pass the "Emergency and Safety Management Basic Act" in 2004, along with the influence of Daegu subway fire.



Houses damaged and destroyed due to Typhoon Maemi (Source: NEMA website, downloaded on Feb 05, 2015)



Damages from Typhoon Maemi
(Source: National Disaster Information Center, www.safekorea.go.kr)



Damages from Typhoon Maemi
(Source: National Disaster Information Center, www.safekorea.go.kr)

C. Policies and Organizations⁹

The following are excerpted from Kyoo-Man Ha's *"Emergency Management in Korea: Just Started, but Rapidly Evolving"*

1950s -2004

In modern-day Korea, "emergency management" has been considered primarily a function of government as opposed to the private sector, a sort of public good that has to be managed by the government.

<Table 1. List of Acts> ¹⁰

Before year 2004	After year 2004
Civil Defense Basic Act	Emergency and Safety Management Basic Act
Natural Disaster Counter-Measure Act	
Emergency Management Act	

As Table 1 shows, government policy regarding emergency management can be divided before 2004, and after 2004. Before March 2004, the government policy was to manage each type of disaster or emergency by enacting individual laws and regulations:

First, the “Civil Defense Basic Act” was passed in July 1975 to protect citizens and to minimize economic loss from possible attacks of enemy (especially North Korea), terrorism, or civil disturbance in local areas. This Act was designed primarily to deal with war and terrorism. Since Korea has been divided into North and South, civil defense has been emphasized in the field of disaster management compared to other countries.

Second, the “Natural Disaster Counter-Measure Act” was passed in December 1995 to manage all kinds of natural disasters in Korea. It was based on two previous acts on natural disaster – the “Flood Disaster and Relief Act” and “Flood with Typhoon Counter-Measure Act.” This reflects the frequent floods and typhoons in Korea.

Third, the “Emergency Management Act” was passed in 1995 in order to comprehensively manage man-made disasters. This Act aimed to provide quick and well-organized relief assistance to emergency victims and communities affected by emergencies. However, many criticized that this Act failed to successfully manage man-made emergencies in affected communities.

2004~

From 2004, the government began to comprehensively address all kinds of disasters by establishing the “Emergency and Safety Management Basic Act.” The government tried to comprehensively manage natural disasters, man-made emergencies, and so-called “social disasters” such as cyber hacking, electronic power blackout, and avian influenza through the “Emergency and Safety Management Basic Act.” This Act meant that the government has initiated efforts to set up a modern emergency management system. Despite the positive aspect of this Act, there have also been many criticisms. For example, while this Act has emphasized the role of the government in emergency management, it has not given comparable attention to the emergency activities of other players such as voluntary organizations, the private sector, and the local community. It is also vague in some ways, for example, lacking a clear and concise definition of what is a “social disaster.”

In June 2004, the central government established the National Emergency Management Agency (NEMA) to institute comprehensive emergency management. Before the establishment of NEMA, various

different institutions used to manage their own special emergency areas. Since there was no organization to comprehensively manage all hazards, different disasters were managed by different agencies. For example, floods and landslides were largely managed by Ministry of Land, Infrastructure and Transport. NEMA, under the Ministry of Public Administration and Security (MOPAS), substantially focused on managing both firefighting and civil engineering. Lower-level governments have set up their own “Section of Emergency Management” in each jurisdiction to handle frequent floods in Korea. Also, fire stations and police stations are located in each local community to handle fires and to protect citizens from possible dangers.

III. Current Status

A. NEMA (2004 ~ 2014)



NEMA Logo (Source: NEMA website, downloaded August 16, 2014)

1) Overview

After disasters like Typhoon Maemi in 2003 and the Daegu subway station fire in 2003, the Korean government began to realize the seriousness of disaster management. In June 2004, the Korean government set up NEMA (National Emergency Management Agency). This was the first effort for the Korean government to officially manage all hazards in Korea. But although NEMA was established to comprehensively manage all hazards, it mainly focused on firefighting and floods due to typhoons.

“Fire has been a major emergency in Korea in the 21st century, whereas floods due to typhoons hit the Korean peninsula annually during summer and autumn. Because of these conditions, political interests in the National Assembly, the NEMA, and business corporations have provided support mainly to firefighters and civil engineers in the field of emergency management.

“Firefighters had thought they were always politically powerless due to the lack of men of ability, despite the fact that they worked hard in their firefighting duties for the country. Thus, firefighters began to influence the legislative process by forming their own interest group, particularly before the National Assembly decided to set up a national agency, which would deal comprehensively with emergency management.

“At the beginning of the 21st century, a member of the National Assembly, Jeon J.H. (a congress woman in Korea), consolidated her power with firefighting interest groups for her reelection. She promised to represent the firefighters’ interest in the legislative process, and in so doing, she emphasized the need for the administrators of the new national agency to be firefighters, because firefighters have historically taken charge of every emergency better than any other category of emergency personnel. She said that the name of the new national agency should be the firefighting agency... Through fierce disputes among members of the National Assembly, interest groups, mass media, and other individuals, the National Assembly finally enacted the Act on Government Organization... The Act stipulated that either the Administrator or the Deputy Administrator of NEMA should be a firefighter.”¹¹

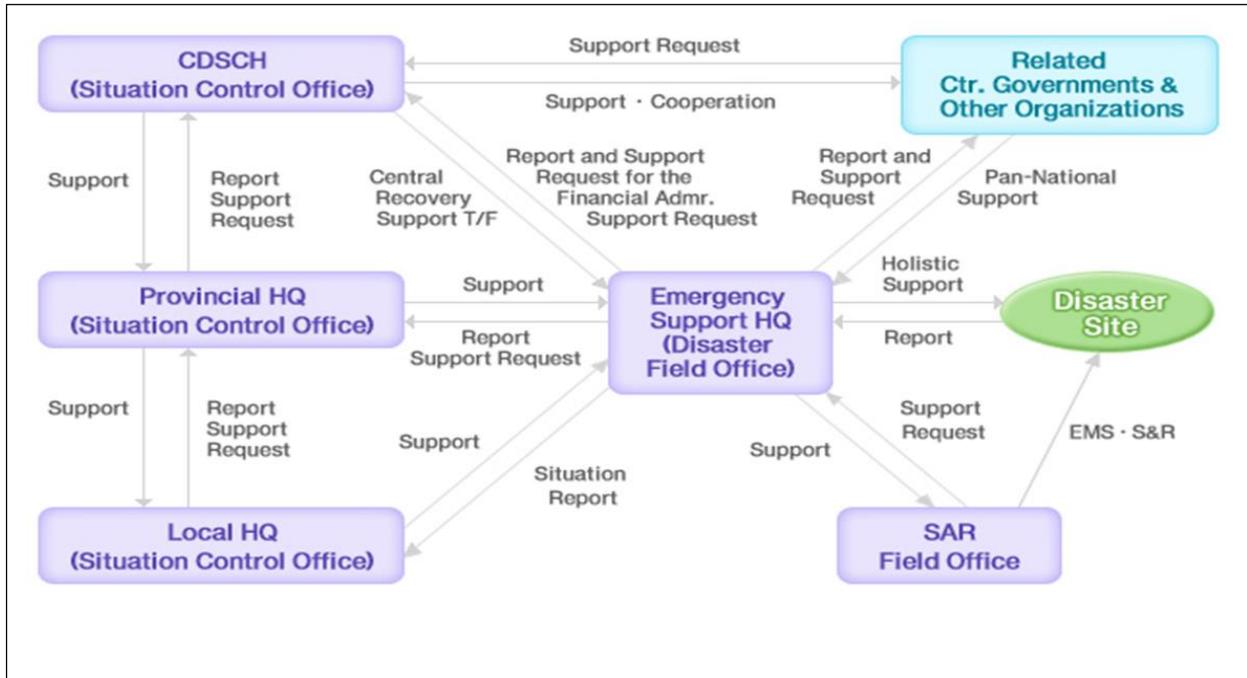
(Kyoo-Man Ha, “The Choice between Politics-Oriented and Risk-Oriented Management in Korea”)

“The other professionals have failed to participate in emergency planning in the NEMA and local governments. In other words, the viewpoint of the other professionals, such as emergency psychologists, meteorologists, and culture experts, has been seriously neglected during the process of decision making on emergency management in Korea.”¹²

(Kyoo-Man Ha, “In Pursuit of Ideal Emergency Planning in Korea”)

Likewise, firefighters’ desire for better recognition and treatment together with the political interests around the National Assembly have caused firefighting to become the largest player in the field of emergency management.

Although the Korean government tried to address all hazards from a national perspective and to minimize the damage from disasters by setting up NEMA, NEMA failed to develop a system that can adequately manage disasters.



How NEMA worked (Source: NEMA website, downloaded on Feb 05, 2015)

2) What NEMA Accomplished

During its ten years, NEMA made a number of efforts to strengthen emergency management in Korea. These efforts had varying levels of success. For example:

- One of NEMA's accomplishment was establishing Disaster Management Divisions in all 250 local governments in Korea. Although there were often communication problems among these Disaster Management Divisions in different regions, this gave Korea a nation-wide network for disaster management,
- Built up U-119 Safety Call Service: Recommended that people in vulnerable social group such as senior citizens who live alone to register their personal information in order to help them quickly in case of emergency situations. However, the rate of people who actually utilized this service was very low (Maeil Daily, Sung-Hyun Jang, May 14 2009).
- Research/develop emergency management technology: Spent more than 130 billion Korean Won (about 100 million U.S. dollars) in researching and developing emergency management technology or systems. From 2009, NEMA selected 7 criteria (ex. Earthquake/tsunami,

possibility of Mt. Baekdu volcanic eruption etc.), researched about related topics, and tried to develop technologies to predict the disasters or to minimize the damages of the disasters. However, the technologies that NEMA developed were not commercialized and proved to be inefficient and not helpful during the disaster (Source: Fire Prevention News, Choi Young, October 19, 2014). Some specialists said that it would have been better to improve the equipment of firefighters with that money instead of wasting it on developing useless technologies.

- Conducted disaster prevention by building dams in places where floods frequently caused damage.
- Tried to combine emergency call numbers: In Korea, emergency call numbers varied according to the type of the emergency, unlike America which has combined an emergency call number, 911. For example, in Korea, a crime report was 112, a marine accident report was 122, a school violence report was 117, and there were about 20 different emergency call numbers in all. NEMA tried to combine all of these into one single emergency number, but was not able to accomplish its goal by the time the agency was abolished in 2014. Instead, the new agency MPSS decided to combine the emergency call numbers into two categories (crime report: 112, all other emergencies: 119).
- Disaster management education: Developed a manual on how citizens should act in different disasters and tried to educate people about it through advertisement or the Internet media. For example, NEMA made an educational video on CPR so that citizens could save others in case of emergencies that require CPR. According to the NEMA statistics, in 2013, only 8.3% of citizens were able to use CPR in Korea while 33.3% of U.S citizens and 34.8% of Japanese citizens were able to carry out CPR when needed.
- NEMA also tried to improve disaster management education in schools, the idea being that emergency management education should be given from a young age so that people would be able to repeatedly practice what to do and would naturally know how to act in emergency situations. However, since the Ministry of Health and Welfare was in charge of children's safety and the Ministry of Education was in charge of student's education, there was no legal basis for NEMA to require disaster management education for children and students. Due to these circumstances, NEMA's goal to give significant amounts of emergency education to students from a young age were not successful.

3) Major disasters from 2004 (establishment of NEMA) to 2014 (abolition of NEMA):

Two major incidents that took place during the time of NEMA's existence were the west coast oil spill of 2007 and the Sewol ferry disaster of 2014.

○ **Oil spill on the west coast (2007)**

On December 7, 2007, the worst marine oil spill in the history of Korea occurred 6 miles northeast of Mallipo, Taean County (South Chungcheong Province). It was caused by a collision between an oil tanker and a barge that detached from a tugboat. 12,547 kl of crude oil was discharged which contaminated the west coast and damaged wildlife. Oil slicks, tar balls and tar patties repeatedly drifted to the north and south, depending on the waves, wind direction, and marine conditions.

Damages (Retrieved from Skuld on April 30 2015, available at:

<http://www.skuld.com/topics/casualties/hebei-spirit/Fighting-Spirit---Handling-the-Hebei-Spirit-incident/The-HEBEI-SPIRIT-Incident---Some-facts/>)

- 10,800 tons of a mix of export crude oils were spilled
- More than 30 popular beaches and over 375 kilometers of coastline were affected
- Over half of the region’s over 400 fisheries and marine culture farms appear to have been affected by the spill
- Tar balls reached islands over 375 kilometers south of the spill site
- Damages to tourism: The affected area was a popular tourist site for Koreans

<Table 2. The Korean People Joined in a Huge Manual Clean-Up Effort>

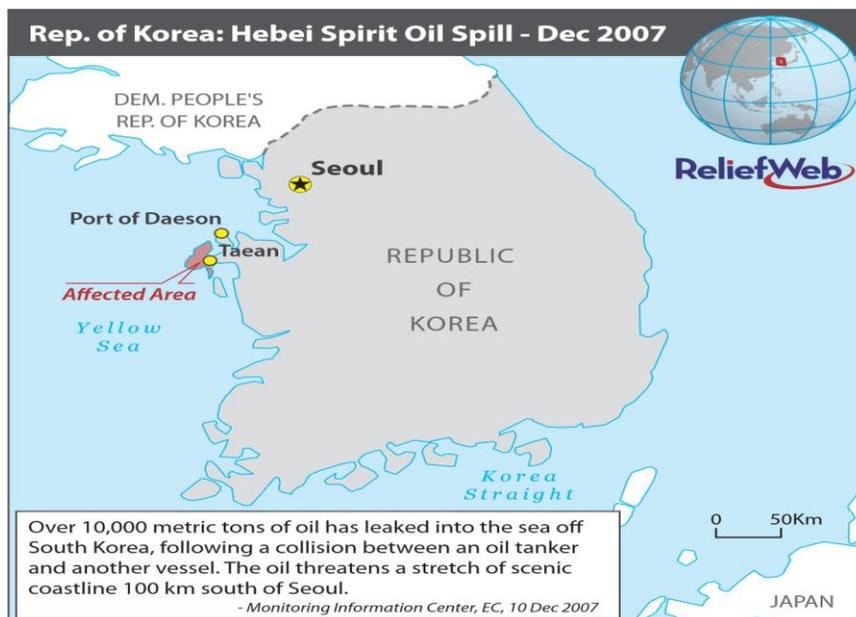
(Retrieved from Skuld, available at: <http://www.skuld.com/topics/casualties/hebei-spirit/Fighting-Spirit---Handling-the-Hebei-Spirit-incident/The-HEBEI-SPIRIT-Incident---Some-facts/>)

10,000	50,000	20,000	350	1,000s
Up to 10,000 local villagers and fishermen a day were involved	More than 50,000 volunteers worked per day, with volunteers topping the 1million mark in early January, 2008	The cleanup utilized over 20,000 vessels days	More than 350 helicopter flights and nearly 30,000 heavy machinery unit-days were used	The Korean military contributed thousands of man days over the course of six weeks

Below are some of the recommendations made by the Joint UNEP/OCHA Environment Unit after the oil spill (Retrieved from “Rapid Environmental Assessment ‘Hebei Spirit’ Oil Spill – Republic of Korea December 2007” by the Joint UNEP/OCHA Environment Unit, retrieved on April 30 2015)

1. A comprehensive multi-sector medium and long-term recovery process should be initiated and is highly recommended.
2. A robust communications plan aimed at providing information to the public should be developed and implemented.
3. The strategy concerning the use of dispersants should be reviewed with respect to the time of application, as well as the negative effects of the dispersant used.
4. The current Spill (Disaster) Management System and the available tools for guiding the operation from the control centre and on site should be reviewed and the lessons learned integrated as appropriate.
5. A longer term clean up strategy must be devised to deal with a number of issues: establishing larger cleaning stations to be equipped with high pressure and temperature pumps to do a final clean of equipment. The stations should be connected to oil/water separating systems to avoid secondary pollution of the environment; and the cleaning of jetties and piers; the cleaning of re-polluted areas, if necessary.
6. A strategy for joint training, including exercises, for all relevant agencies involved in oil spill pollution response should be developed and implemented.

While these recommendations were specifically aimed at an oil spill incident, in the author’s opinion, these same concepts could be applied to emergency management as a whole in South Korea.



Affected Area (Source: Report written by Joint UNEP/OCHA Environment Unit “Rapid Environmental Assessment ‘Hebei Spirit’ Oil Spill – Republic of Korea December 2007”, Retrieved on April 30 2015)



Damages from Taeon Oil Spill
(Source: National Disaster Information Center, www.safekorea.go.kr)



Damages from Taeon Oil Spill
(Source: National Disaster Information Center, www.safekorea.go.kr)

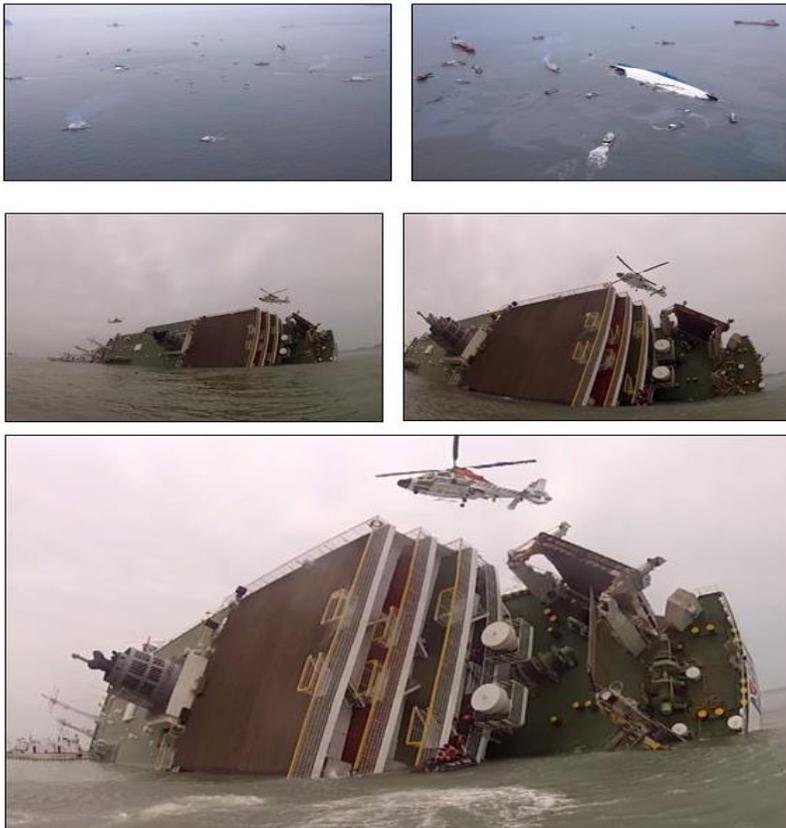
- **Sewol ferry disaster (2014)**

The Sewol ferry tragedy occurred on the morning of April 16, 2014 when the ferry was heading to Jeju Island from Incheon with 476 passengers, mostly high school students who were going on a school trip (324 students and teachers of Danwon High School). When the ferry overturned and sank, only 172 passengers were rescued.

The immediate cause of the disaster was from the ferry veering too quickly; however, reports following the incident indicated that other factors significantly added to the likelihood of the disaster as well as the high number of casualties. According to CNN reporter Madison Park:



Sewol ferry before the disaster
(Source: Jeonnam Fire Service, www.jnsobang.go.kr)



Sewol ferry after the disaster
(Source: Jeonnam Fire Service, www.jnsobang.go.kr)

The following are excerpted from "What Went Wrong on Sewol," by Madison Park at CNN on May 15, 2014.

1. South Korean investigators: Sewol was overloaded

The passenger ferry was carrying more than double the ship's limit when it capsized, according to South Korean investigators. Since Chonghaejin Marine Company started the Incheon to Jeju route in March 2013, 57% of its trips carried excess cargo (139 times out of 241 trips), according to the prosecutors. The company profited from overloading the ferry, earning an extra profit of \$2.9 million since March 2013, investigators say.

2. Prosecutors: Cargo on the ferry was not properly secured

Investigators have been probing the possibility the ship overturned because of a sharp turn that may have shifted the cargo, knocking the vessel off balance. Witnesses have described how several containers fell over and made booming sounds as they tumbled off balance. According to prosecutor Yang Joong-jin, loosely tied goods contributed to the Sewol's sinking, because the cargo hadn't been properly tied.

3. Crew insisted passengers stay put

"Please do not move from your location," the ferry's loudspeakers blared at those on board. "Absolutely do not move." This type of warning was heard repeatedly as the Sewol began its descent into the water. Hundreds of passengers, unable to tell what was happening, complied. The instruction to remain in place, instead of getting on lifeboats, has been described as "terribly, tragically wrong," by one CNN analyst.

It's unclear why the crew made this determination, which remains one of the most haunting and perplexing questions surrounding the incident. A transcript of the communication between Sewol and the local authority shows that the decision was made fairly early. At 9:00 a.m., the Jeju Vessel Traffic Services Center told an unidentified crew member: "Please put on the life vests and get ready as people may have to abandon ship." The Sewol crew member immediately replied: "It is hard for people to move." During communications with the local traffic services center that lasted until 9:38 a.m., the unidentified crew member repeatedly asserted that passengers could not reach life rafts or rescue boats because "they can't move... the vessel has listed."

4. The captain abandoned ship, while passengers were told not to move.

Capt. Lee Joon-seok of the Sewol has come under heavy criticism for abandoning the ship while hundreds of passengers remained on board. President Park Geun-hye described the crew's actions as being "like murder." Lee is now facing murder charges. He initially defended the decision saying that he had everyone "stand by and wait for the rescue boat to arrive."

"The tidal current was strong and water temperature was cold, and there was no rescue boat," he told reporters last month. "So I had everyone stand by and wait for the rescue boat to arrive."

5. Inexperienced crew member steered the ship.

Authorities have questioned why an inexperienced third mate was guiding the ship at the time of the accident. That third mate is also facing charges of not abiding by emergency safety law, negligence which led to the ship sinking and causing injuries leading to deaths. The captain was not at helm at the time of the accident. There is no law requiring the captain to be on the bridge when the third mate is steering, but that an inexperienced member of the crew was navigating in one of the most treacherous stretches of the trip has raised questions. The third mate denied making a sharp turn a few days after the accident and said, "The steering turned much more than usual. There are aspects where I made mistakes but for some reason the steering turned so much faster than usual."

6. Delays on notifying proper authorities of the accident

The first distress call came not from the ship's crew, but instead from a boy on board who used a cell phone to contact emergency services at 8:52 a.m. His call to emergency services gave rescuers a few extra minutes to get to the stricken Sewol as it is listed dangerously before capsizing. Three minutes later, the ship's crew made a distress to authorities in Jeju -- which was the ship's destination rather than near its accident site. The miscommunication may have caused delays.

7. Ship's modifications raise questions

The Sewol had been renovated in 2013 to expand the top floor to make room for more passengers. The 20-year-old ship was originally used in Japan, until Chonghaejin Marine Co. purchased the ferry in 2012 and refurbished it. Chonghaejin added extra passenger cabins on the third, fourth and fifth decks, raising passenger capacity and altering the weight and balance of the vessel.

(CNN, Madison Park, "What Went Wrong on Sewol," May 15, 2014)

4) Problems

After the Sewol disaster, many Koreans began to see their government as being incompetent in managing disasters, unprepared, and insensitive to the safety of ordinary citizens in emergency situations. As safety and security became an important issue in the news, the government began to

investigate the problems of disaster management, and the mass media as well as disaster specialists began to point out various problems in the Korean system of emergency management. Common problems criticized by the media and by disaster management specialists such as Professor Kyoo-man Ha or Professor Chang-gil Lee were:

- **Inadequate disaster management specialists or staff**
 - Due to job rotation, it is hard to have well-trained long-term staff (most of the officials working for the safety of the citizens are not disaster management specialists)
 - Lack of specialized training programs to educate disaster management specialists

- **No national framework/ no standardized or proper manuals**
 - No legislation that clearly spells out the emergency roles and responsibilities of each government agency
 - Different agencies have different manuals which makes it difficult to act uniformly during disaster
 - There are over 3000 disaster manuals; however, the manuals have unrealistic and vague explanation on the role and responsibility of each agency at the time of disaster.
 - No organization to comprehensively manage all disasters, just a focus on firefighting and floods due to typhoons
 - Separated natural disasters (ex. floods, earthquakes) and human-caused (“social”) disasters (ex. car crash, bombing, terrorism) which brought confusion as to who should be in command
 - Focus on recovery stage: neglect the importance of mitigation and preparedness stage (ex. Insufficient safety inspection: prior to the 2014 incident, it had taken only 13 minutes on average to inspect the Sewol ferry)

- **Lack cooperative network**
 - No cooperation or communication between agencies: each agency only thinks about its own priorities
 - No cooperation or communication between central government and local government
 - Agencies do not share information with each other (Each agency said different things about the disaster and they blamed each other for the bad consequences due to miscommunication)
 - Lack ability to organize and utilize private specialists, Non-Government Organizations (NGOs) etc. (did not even consider their participation when building disaster management system)

- **Lack leaders with competent leadership skills**
 - Leaders who took charge of managing disasters were mostly administrators specialized in public policy, administration, or law, who did not have any knowledge in managing disasters. (For example, the Minister of Public Administration and Security, who should have been in charge of managing the aftermath of Sewol ferry accident, was a former prosecutor. He did not have any knowledge in managing marine accidents. Still, he was the one who had to make final decisions)

- **Insufficient budget**
 - Budget for disaster management mostly comes from local government. Since local governments do not have enough budget, they have reduced the budget for disaster management
 - Most of the budget was aimed at recovering from disasters, not preparing for disasters

- **Lack of responsiveness and openness to questions from the public and from the news media**
 - Try to control the media during disasters in order to avoid public criticism (During Sewol incident, the government pressured many professors or specialists to avoid media interviews)
 - Some manuals were aimed toward minimizing the criticisms of the public, not toward minimizing the damages caused by the disaster (For example, there was a manual that said “Try to come up with another event that could shift the public’s attention”)
 - Many families of victims of the Sewol incident said that they were angry with the government because the government did not tell the families what was going on or how they were going to rescue the people. The only thing the officials said was “I will check it out.” Because the government officials did not share information with the families of the victims, the family members relied on various volunteer specialists in different areas. However, since the different specialists had different opinions and said different things, this caused even greater confusion.

- **Inadequate education on disaster management**
 - No mandatory education for disaster management at elementary, middle and high schools
 - No repetitive, long-term education
 - Not enough places for people to actually experience the impacts of various kinds of disasters, and learn what to do when those disasters occur

- **Centralized power causing inefficiency**
 - Not enough power for local governments to deal with disasters by addressing regional differences
 - Not enough power to the workers who are at the scene: they have to get approval from their bosses who were not at the scene (wastes time reporting to the boss, loses “golden time” to save lives)
 - When there is a big disaster, people believe that high-level government officials should be in charge of managing the disaster, because ministers or leaders in different agencies would not follow the directions of officials in lower positions. Because of this, administrators in high position who are not familiar with disaster management often get the power to manage the disasters. In contrast, in America, power is given to the employees working at the scene of the disaster. For example, when the Pentagon was attacked at 9.11, the fire chief of Arlington County was in charge of the disaster response. The Arlington County Fire Department was the lead agency in the response to the Pentagon attack and ACFD Assistant Chief James Schwartz implemented an incident command system (ICS) to coordinate response efforts among multiple agencies. Although he was a fire chief of a small county, he successfully managed the disaster and led different agencies in managing the disaster. As shown in the following narration:

“When terrorists crashed a jet airliner into the Pentagon on September 11, 2001, thousands of responders came to the scene from many different jurisdictions and also from Federal and State government agencies. Numerous voluntary organizations and private businesses also offered assistance. Coordinating all of these resources while the fires still burned was a massive challenge, but the Arlington County Fire Department was well-trained in ICS, and Incident Command was established on site within minutes of the attack. The After Action Report highlighted the strength of ICS, the leadership of public officials, and collaborative relationships of supporting jurisdictions, government agencies, non-governmental organizations, and the private sector in the response and recovery efforts. Arlington Fire Chiefs Edward Plaughter and James Schwartz were praised for their strategic vision and leadership in building ICS in the Arlington County Fire Department and using it effectively in the response to attack on Pentagon.”¹³

- **Media problems¹⁴**

The following are excerpted from “*Media Outlets Apologize Over Sewol Ferry Disaster Coverage*” by In Soo Nam at The Wall Street Journal on May 16, 2014:

During the Sewol ferry incident, the news media exhibited many problems that need to be addressed if correct, verifiable information is to be disseminated to the families of the victims as well as to the citizenry at large.

At the time of the incident, news media companies, including the major broadcasting companies, often did not check the accuracy of information before broadcasting or writing it, seeking speed rather than accuracy in order to attract an audience. The competition to report things faster than other broadcasting companies encouraged the reporting of anything that seemed likely to catch people’s attention, whether or not the facts had been thoroughly checked.

The South Korean news media was harshly criticized for this, and some media companies had to issue apologies for publishing incorrect information that added to the confusion during the disasters.

For example, the JoongAng Ilbo, one of the most influential newspapers in Korea, posted a full-page apology for incorrect, misleading and sometimes provocative coverage of the sinking of the Sewol ferry.

“Looking back on our reporting behavior for the past month, we feel miserable. Our incorrect reports have caused confusion and pain to readers and the families of the ferry victims. We feel ashamed and apologize for that,” the newspaper said in the name of all JoongAng reporters.

The newspaper particularly regretted that it had published the government’s announcements and press statements without double-checking and sometimes carried photos of ill-fated passengers without blurring the faces to protect privacy.

A few hours after the ferry sank, many media outlets, prompted by a text message from an education officer in the Ansan city where Danwon high school is located (the high school whose students were on the Sewol ferry boat), reported that all the students on the ship had been rescued and revised the number of total passengers several times, simply reflecting the government's highly inaccurate information. This failure to check the accuracy of the information brought confusion to the citizens, and disappointment to the families of the victims.

In addition, a cable-news channel released a live interview with an individual claiming to be a private diver who had come to the site to work as a volunteer on April 18. This individual claimed to have been to the sunken Sewol as a private volunteer diver, and said that the people were still alive and trapped inside the sunken Sewol but that the Coast Guard prohibited further diving activity to save them. This interview generated terrible confusion and outrage among the families of the disaster victims. They shouted at the government officials and other divers, demanding that they dive into the sea to quickly save their children and families. They were angry at the government, but at the same time, they now seemed hopeful as they believed their families were still alive and could be rescued. However, this was completely untrue, and it was later reported that this same individual had made inaccurate statements several times in the past. This incident made the families even more hopeless and disappointed. If the cable channel had properly checked this individual's information and identity, they probably would not have broadcasted the live interview and would not have caused such despair to the families of the victims.

Another cable TV station also made an apology for an inappropriate question it asked to a rescued high-school student during an interview. The reporter asked a student who just have been rescued how he felt to be rescued while the other students are still in the ferry. The reports and interviews like this were quite cruel to the survivors, needlessly making them feel guilty for being survivors. In its apology, the Joongang Ilbo said it would now refrain from reporting only for the sake of arousing interest.

Reflecting people's anger over media coverage of the tragedy, the Korean public lost trust and confidence in the news media. This incident showed how serious of a problem the Korean news media has had, and how much improvement is needed if the news media is to be considered credible and responsible in covering disasters.

(Media Outlets Apologize Over Sewol Ferry Disaster Coverage, The Wall Street Journal, In Soo Nam, May 16, 2014)

As a result of these shortfalls, the Korean government took actions to address the emergency management system and organization. After the Sewol ferry incident, NEMA and the Korea Coast Guard were abolished. Instead, the Ministry of Public Safety and Security was established on November 19, 2014 to manage all sorts of disasters and safety problems, including natural disasters and "social" disasters. It was established to create a prompt, comprehensive system and to build a powerful "control tower" for disaster and safety.

B. MPSS (Ministry of Public Safety and Security)

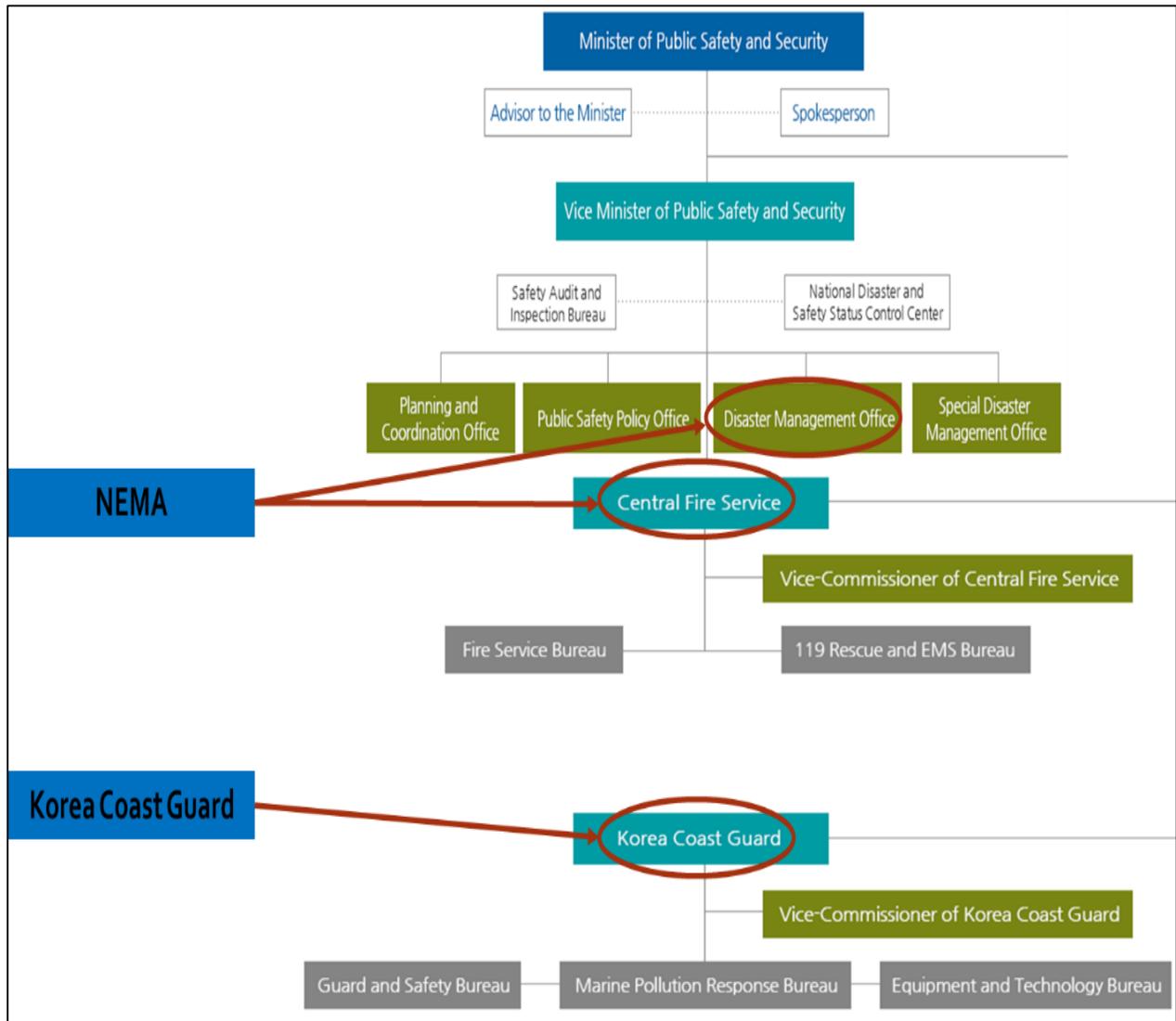
1) Overview



Vision of MPSS (Source: MPSS website, www.mpss.go.kr)

- **Size**
 - Has more than 10,000 employees: 5th largest government agency in Korea following the Police Agency, the Ministry of Science, ICT (Information and Communication Technologies) and Future Planning, the Ministry of Justice, and the Tax Service Agency
 - About 9400 employees were transferred into MPSS from NEMA, the Coast Guard, part of the Ministry of Public Administration and Security, and part of the Ministry of Maritime Affairs and Fisheries. About 80% of the transferred employees are from the Coast Guard.
 - Among the transferred employees, staff from the Coast Guard are national public service employees while staff from NEMA are local public service employees. In Korea, public service employees, or public officials are divided into national public service employees, who work for the central government, and local public service employees, who work for the local government. Many people prefer to become national public service employees because it is easier to get a promotion and it has a more prestigious reputation in society. This difference has become a source of contention within MPSS. Former NEMA employees, who are local public service employees, have demanded that the government change their status to national public service employees so that they would not be discriminated against inside the new agency by former Coast Guard employees, who are national public service employees.
 - About 700 new employees: Most of the new employees would work at the scene of the disaster when the disaster occurs

- **Leaders**
 - Minister and Vice Minister are both former senior military officers, an army general and a navy admiral



Organization Chart of MPSS and how NEMA and Korea Coast Guard have been transferred (Source: MPSS website, www.mpss.go.kr)

2) MPSS Goal

After establishing MPSS, the new ministry announced its goal and innovation plan.

The MPSS Innovation plan

- **Improve the disaster management system**
 - Set up a Safety Innovation Master Plan by the end of February 2015: reflect comments and advice from specialists in various fields, and reflect the ideas of the citizens.

- Conduct meetings with various government agencies: discuss about budgeting for safety in various different agencies, evaluate each agency's projects for disaster management.
- Reorganize the standard requirements of safety inspections.
- Warn agencies of the seriousness of these issues, and penalize officials who do not adequately address their role in managing disasters.

- **Establish a Special Disaster Management Office**
 - Manage special disasters, train specialists and use special equipment for special incidents such as nuclear power accidents, chemical accidents, airplane accidents, cyber accidents etc.

- **Increase public participation**
 - Top Down strategy: 3 stages of safety inspection
 - 1st stage: self-inspection (agencies and organizations conduct their own internal inspections to determine if there are any problems regarding safety issues).
 - 2nd stage: private-public combination inspection (government officials and citizens together inspect different agencies and organizations).
 - 3rd stage: close examination (conduct more in-depth inspection with specialists from different fields to ensure that agencies and organizations have no safety problems and that they follow safety standards).
 - Bottom Up strategy: Citizens' report on safety problems through the internet.

- **Establish safety culture through education**
 - Education based on disaster vulnerability and risk exposure.
 - Education based on the different stages of life.
 - Strengthen safety education in elementary, middle and high schools (make it mandatory).

- **Improve the infrastructure of disaster management**
 - Foster safety industry (technology, disaster insurance).
 - Hire more people for monitoring.

- **Increase the role of local governments**
 - More support from the central government: more funding and human resources for disaster management in local governments, give incentives to local governments that manage disasters well.
 - More responsibility to the local government: Analyze the level of safety in each region based on how well they manage the disasters and publicize the level of regional safety. According to MPSS, there will be five graded levels, level 1 being the lowest level and showing that the local government did very poorly in managing disasters, and level 5 being the highest level and showing that the local government did very well in managing disasters. However, as of the writing of this paper, MPSS had not clarified who is going to grade the levels, what is going to be put into consideration when grading etc., just that there are going to be 5 levels, and those five

levels would represent how safe the city is, or how well the local governments manage disasters. MPSS also said that it would be graded annually, so that the local citizens can see how much effort the local government has put into in dealing with disasters, and how much they have improved, factors which voters might consider at election time.

- Publicize the Map of Safety (the map that shows safety levels of different regions regarding transportation, crimes etc.).

3) Major Incidents Since the Establishment of MPSS

Two major incidents that have occurred since MPSS was established were the Eujungu Apartment Fire and the Yeongjong Bridge Car Pileup. Although neither incident was a national disaster, the incidents clearly show some of the challenges that lie ahead if MPSS is to create and foster an atmosphere of safety protection and effective emergency management in Korea.

- **Eujungbu Apartment Fire (Jan 10, 2015)**



Helicopters trying to extinguish fire at Eujungbu apartment (Source: Gyunggi Province Website, gnews.gg.go.kr)

The Eujungbu Apartment Fire occurred on January 10, 2015. The fire was caused by an electrical short circuit. Five people died and 125 were injured in the fire.

A number of problems have been cited in news reports regarding the fire:

- The door to the balcony at the top of the apartment building that was supposed to be open in case of emergency was locked, and so the residents who were trying to go to the top of the building to be rescued by the helicopters were unable to do so.
- There were many cars illegally parked near the apartment which made it difficult for the fire truck to enter the road. It only took 6 minutes for the fire apparatus to arrive to the vicinity of the apartment building. However, firefighters then lost valuable time having illegally parked cars towed away. Parking near densely-populated apartment buildings has been a serious problem in Korea. Because there are not enough places to park for people living in apartments, they

often park their cars at nearby streets even though it is illegal. This makes it difficult for emergency vehicles such as fire trucks, police cars, and ambulances to enter or pass through the streets in an emergency.

Time is a critical factor in responding to fires. In America there are fire lanes reserved for emergency vehicles; however, in Korea there are no specific fire lanes. Instead, firefighters ask for citizen's cooperation using microphones and hand signs in emergency situations. According to a survey done by MPSS (MPSS website), 64% of the firefighters complained that citizens are not cooperative and do not give way to fire trucks. In contrast, citizens complain that fire trucks use their sirens even when there are no emergency situations.

- Not appropriate leadership: the minister did not visit the site and just listened to the report in his office through the phone. He claimed that he would make the employees working at the scene of the disaster uncomfortable and hinder the process if he made a visit. However, he went to the disaster scene after 4 days as he was being harshly criticized by both congressmen and citizens.
- Communication problem are still not fixed: Reports about the damage (number of houses being burnt etc.) were wrong because firefighters and the city council did not share the information. According to Dong-A Daily, the Gyeonggi Province Fire Service announced that 95 houses of Daebong Green Apartment were burnt at first, and it was spread to 95 houses of Dream Town Apartment. However, the Eujungbu City Council announced that 92 houses of Daebong Green Apartment and 93 houses of Dream Town Apartment were burnt. This shows that the agencies that should have cooperated in times of disaster did not even share the basic information needed to effectively respond to the disaster.¹⁵
<http://news.donga.com/3/all/20150113/69052085/1> (Jan 15, 2015 / Kang Hong Gu, Kim Jae Hyung)
- **106-Car Pileup Accident on Yeongjong Bridge (Feb 11, 2015)**
 - On February 11, 2015 two people were killed in a car accident on the Yeongjong Bridge in Incheon, South Korea, which led to a massive 106-vehicle pileup. According to the police and fire authorities, due to extremely foggy weather and icy road conditions, an airport limousine bus crashed into a car at 9:34 am which led to the massive pileup on the Yeongjong Bridge. By 1:20 pm, the accident had left 2 people dead and more than 75 people injured. Foggy weather and icy road conditions had repeatedly been pointed out as major hazards that could cause a serious car crash on the Yeongjong Bridge. However, on the day of the accident, with visibility less than 100 meters, neither government authorities nor the bridge management company had taken any action to reduce vehicle speed and prevent an accident other than to recommend drivers to drive slowly. Since there was no speed camera on the bridge due to lack of budget, the speed

limit was not something that the drivers had to abide by, and so the pileup occurred as car after car could not stop in time

- This accident also showed that the new agency, MPSS, was not ready to act as the “control tower” in case of emergencies and was still experiencing significant confusion in its command system, including the roles and responsibilities of departments and employees. When a journalist called MPSS one hour after the incident and asked about the amount of the damages caused by the accident, the MPSS employee answered that MPSS was not investigating the damages because the police department was investigating. Meanwhile, the Central Fire Service said that the Public Safety Policy Office should be in charge, the Public Safety Policy Office said that the Special Disaster Management Office should be in charge, and the Special Disaster Management Office argued that the Police Agency should be in charge. It was revealed that the Special Disaster Management Office ought to have been in charge according to the manual; however, some positions of that office were still vacant, and so did not have enough personnel to be in charge of the disaster. (Source: DongA Daily, Hong-Ku Kang, Jae-Hyung Kim, available at: <http://news.donga.com/3/all/20150113/69052085/1>)

C. Disaster Volunteerism in Korea

The previous sections have focused on official aspects of emergency management. Following is a discussion of another aspect, disaster volunteerism.

Volunteerism (working without being paid) has not historically been a popular activity in Korea, although its level of activity has recently increased. However, “cooperation” has long been seen as a virtue in Korea, for example by giving and accepting diverse forms of assistance during an emergency. As Table 3 shows, there are some Non-Government Organizations (NGOs) active in Korea. But unlike U.S. volunteerism, when a Korean person helps another, he or she traditionally expect that the person receiving help will at some point return the favor.¹⁶

There are not many professional voluntary organizations comparable to American NGOs in Korea. Instead, Community-Based Organizations (CBOs) have played a major role in Korean emergency management, especially in rural areas, including for example “Young Men’s Group,” “Married Women’s Group,” etc. To promote voluntary organizations in Korea, NEMA, as a government institution, became a member of several voluntary organizations such as the Korean Disaster Safety Network (KDSN) and the Citizen Corps Active in Disaster (CCAD).¹⁷

<Table 3. NGOs Active in South Korea> ¹⁸

Name	Activity
Global Care	Medical service
Good Neighbors	Medical service, provide the necessities of life such as food, blankets to the victims
Good People World Family	Medical service, community reconstruction
Korea Committee for UNICEF	Funding (fund countries, or organizations in need of help)
Korea Food for World Aid	Medical service, funding (fund countries, or organizations in need of help)
Korea International Volunteer Organization	Medical supplies, provide the necessities of life such as food, blankets to the victims
Loving Concern International	Medical service
Save the Children	Medical supplies, provide the necessities of life such as food, blankets to the victims
World Vision	provide the necessities of life such as food, blankets to the victims, community reconstruction
Korea Food for the Hungry	Medical service, provide the necessities of life such as food, blankets to the victims

❖ **South Korean NGO Activities** ¹⁹**World Vision**

- 2006 Storm in Vietnam
 - \$251,650 was donated to the storm damaged area
- 2006 Flood in North Korea
 - 150 tons of flour donated
 - 20 farming equipment donated
- 2006 Flood in Kenya
 - \$75,000 was donated to damaged area
 - Sent medical teams
 - 5,724 mosquito nets donated
 - 1000 blankets donated
 - Medicine for the Malaria donated

Korea Food for the Hungry

- 2006 Earthquake in Indonesia
 - Donated \$100,000 to earthquake damaged area
 - Sent medical teams
 - Provided the First Aid kits

- 2006 Landslide in the Philippines
 - Provided free food center

- 2005 Severe earthquake in Pakistan
 - Sent medical teams
 - Provided \$100,000 worth of clothing

Good Neighbors

- 2005 Earthquake in Pakistan
 - Dispatched 36 medical staffs in total for this specific earthquake, volunteer workers, and employees
 - Provided clothing, heating devices, and other necessities

- 2004 earthquake in Iran
 - Provided medical supplies

- 2003 War in Iraq
 - Sent medical staff
 - Provided necessary things for daily life to 24,000 people
 - Repaired electricity and water sewage system
 - Donated 73,000 articles of clothing
 - Repaired schools

❖ Volunteers and activity in the U.S and Korea

Parts of the following are excerpted from Kyoo-Man Ha's "*The role of community-based organization in emergency management in rural Korea*"

United States

In the U. S., many of the residents in a community may offer to work with voluntary organizations when disaster strikes. These volunteers are not paid, but they contribute to emergency management for their own community and neighbors. Also, there are many voluntary organizations (such as the American Red Cross, the Salvation Army, All Hands, and others) in which residents can enroll.

After residents become a member of voluntary organization in the community, they are systematically trained. In general, each volunteer is interviewed and screened, and then, he or she will be placed in an appropriate volunteer position. Subsequently, they are trained through practical training. The training these residents receive proved to be very critical for a volunteer's success. Furthermore, the volunteers are also evaluated throughout the training program.

A voluntary organization usually performs its work by utilizing the services of its volunteers, not the government. However, there are some organizations where volunteers work during an emergency in the community under the training and leadership of the government. For example, Citizen Corps is a U.S. national government program with training and management provided by the government, but with the front-line work done by volunteers. Thus, programs under Citizens Corps are referred to as "partner programs."

An example of a "partner program" is the Community Emergency Response Team (CERT) program. At the national government level, the U.S. Federal Emergency Management Agency (FEMA) manages the CERT program by providing training materials, guidance, and funding. State governments pass along the funds to local governments. Local level government officials then use the FEMA materials to recruit and train CERT volunteers in the community. But the CERT volunteers themselves do not become government employees. They are volunteers.

The value of such volunteer efforts can be seen when a major disaster or emergency challenges the official rescuers who only have a limited number of resources with which to deal with a large incident. In such situation, a volunteer organization (like CERT) can play an important role in supporting the needs of the official rescuers by helping to deal with problems - such as disrupted transportation and communication as well as safety. Community members who wish to play a role as volunteers in the time of disaster get prior education and training in order to become CERT members. After the training, these volunteers have certain knowledge of what to do, or how to help others when disaster strikes.

In this way, American residents can play an active role as disaster volunteers, helping their own community and neighbors during an emergency. Nowadays in the U.S., the importance of disaster volunteers and volunteer organizations is recognized at national, state, and local government levels, and these volunteer efforts are incorporated into official disaster response plans.

Korea

The activities of voluntary organizations in Korea were not popular or active until recently. However, as many Korean people begin to understand the importance of volunteerism, and as people's standard of living has been improved enough for them to think of helping others, people have started joining voluntary activities to deal with emergencies in their own community, or even in other communities such as in the case of oil spill on Korea's West Coast at the end of 2007.

As Korea does not have a long history of voluntary organizations or emergency management, the existing voluntary organizations did not know how to systematically train the volunteers, and they did

not even think that the volunteers had to be trained in certain way prior to the disasters. In the 2007 oil spill on Korea's west coast, large numbers of volunteers from all different parts of Korea came to the west coast to work as volunteers. However, because these volunteers were not trained or educated for volunteer work, they did not know what to do, and did not have knowledge of their own safety rules. After working as volunteers on the west coast, many of them suffered from mental and physical illness, primarily because they did not have appropriate orientation or training before cleaning up the oil spill. During the first weekend following the accident, 100,000 volunteers came to help. They began the massive cleanup job without protective masks and so inhaled toxic particles. In addition, the cold weather was hard to endure for many, especially the middle-aged volunteers. Many exhausted middle-aged volunteers and workers gathered in small groups at the parking lot and gulped down soju (Korean alcohol) to warm themselves...not a good idea!

Community Based Organizations (CBOs)²⁰

Although disaster-related voluntary organizations have not played an active role in managing large disasters in Korea, Community-Based Organizations (CBOs) have played major roles in managing local emergencies within their communities, especially in rural areas. Three most recognized CBOs are the Young Men's Group, the Married Women's Group, and the Senior Citizen's Group. These groups' main role, or mission is not to manage disasters; however, they were the non-government groups who played major roles in managing disasters in their own communities during emergency situations.

The U.S. FEMA has differentiated CBOs from disaster-related voluntary organizations. According to FEMA, the original mission of a CBO is related neither to emergency nor to disaster. Rather, it has its own mission, but that mission is considered to be a significant source of volunteer service during emergency. Examples are Meals on Wheels, the Elks, Boy Scouts and other groups. On the other hand, the original mission of a disaster-related voluntary organization is to provide emergency service to the community via its volunteers.

From a long time ago, CBOs played an important role in dealing with community affairs in rural Korea. For example, Doorae (farmers' cooperation group) and Poomasi (communal sharing of labor) played an important role within the community. Although their mission or role is to cooperate in farming and sharing labor, they also cooperated and offered help in other fields such as managing disasters. They also sometimes helped other regions. However, in Korea, when one CBO helps another in a different region, the latter is supposed to pay back the former. Their relationship is a give-and-take one, which is not legally binding but culturally binding. Although CBOs play a major role in the community, the local government have not set up any formal or official relationship with it, partly because they are not a professional organization in terms of emergency management with emergency management specialists, and the local government felt no need or obligation to build formal relationship with the CBOs.

Volunteers in the US have received more systematic training and local government support than those received by volunteers in Korea. As voluntary activity in local emergency management is still in the incipient stage in Korea, systematic aspects, such as training the volunteers, have not been practically

set up. Volunteers in the communities in Korea do not receive systematic emergency training before working in an emergency site, which can be dangerous both to the disaster survivors and to the volunteers themselves. The injuries of volunteers during the oil spill on the west coast clearly shows the importance of systematic training of the volunteers. The local government of Korea should also provide support in training these volunteers and organizing voluntary organizations.

(Kyoo-Man Ha, The role of community-based organization in emergency management in rural Korea)

❖ Cases

West Coast Taean Oil Spill

Following the 2007 oil spill, Taean County officials did not accept additional volunteers, saying they had more than enough volunteers. However, many citizens and disaster survivors living in Taean County argued that there were more volunteers needed, especially in the areas where the news media did not provide coverage. Ferry service to the disaster area was run by a private company and the volunteers had to pay their own way to go to the disaster area to help in the recovery process. They also had to pay for their buses, meals etc. When people tried to register for volunteer work, some workers even tried to frighten them by saying that they might have to do the volunteer work in dangerous places; apparently the workers did not want to organize and deal with all the different volunteers.

Sewol Ferry Incident

- Private companies appeared to use volunteer work after this accident as a way to promote their public image, and advertise their products such as food products.
- Many volunteers became exhausted, some even fainted, and some got into car accidents after long hours of volunteer work. There were no proper manuals for volunteer workers to ensure their safety and health.
- The donated goods and food were only given to the families of the disaster victims. The volunteers, including private divers, who came to help as a volunteer workers had to use their own equipment, find their own clothes, blankets and food.
- While there were large numbers of volunteers, many of them did not know what they should do. Many of them seemed just to be onlookers, staring at one another, and this even made the families of victims uncomfortable. Many of the “volunteers” just left without giving any assistance.
- There was no official to organize the volunteer workers. The volunteers had to figure out what to do by themselves. Many officials just said “I don’t know” when the volunteers asked what they should do, where they could work, and what kind of works they should perform.
- There were not enough divers and so the private divers had to dive more than was safe/healthy for them because there weren’t enough divers to rotate.

IV. Observations, Recommendations, and Conclusion

Observations

To many Koreans, the concept of disaster management will be relatively new and unfamiliar since people often thought of disasters as destiny, and as the government historically did not put much effort to “manage” disasters with an effective system. It is only after the Sewol ferry incident that Koreans began to realize how important it is to effectively manage disasters, which can happen anytime, anywhere, without warning. The author, as one of those Koreans, did not have any idea how the Korean government tried to manage the disasters, and until doing this research did not even know that there was an organization called NEMA that dealt with disasters.

When the author began to research about the disaster management system in Korea, there were many difficulties due to the lack of accurate information. Since there were not many people interested in the field of disaster management, there were not very many news articles or published papers that dealt with disaster management in Korea. Also, the information was limited to a basic level since there were not many emergency management specialists who wrote concrete papers on the disaster management system in Korea. Thus, much of the information the author researched is from a very few emergency management specialists in Korea, particularly Professor Kyoo-Man Ha of Inje University.

What made it worse was that the Korean government did not open necessary information to the public. When the author was trying to find information and pictures of the recent disasters, which can be very controversial and can be critical toward the government, the information was not there. The information that the government provided was mostly focused on how the government officials are working hard to manage the disasters with pictures of officials visiting the disaster sites, meeting disaster victims etc. In contrast, in the U.S. various government organizations regularly produce reports called “After Action Reports” (“AARs”) analyzing the successes and failures of disaster operations. For example, if one types the words “Hurricane Sandy After Action Report” or “Hurricane Sandy AAR” into an internet search engine, one will see a list of reports from FEMA and other U.S. government agencies showing the successes and failures of disaster operations following Hurricane Sandy in 2012. While these AARs may not be 100% perfect, they show a level of government transparency that would be beneficial to any country, including Korea.

Furthermore, the news media also failed to provide adequate information. As mentioned above, the news media became too competitive in attracting people’s attention and did not check the accuracy of the information before publicizing it, which caused huge confusion, and the author also became careful in using the information they provided. In the author’s opinion, the news articles, especially in the case of Sewol ferry incident, were too emotional as well. Instead of logically analyzing what were good and bad points, what should be improved in managing disasters, the news media focused too much on the sorrows of the families of disaster victims, or the sad personal stories of the disaster victims which can

be touching or heartbreaking to the public and thus could attract the attention of the public. This trend was same for most of the disasters. The news media focused on tragic personal stories, heroes and heroines who sacrificed themselves to save others, people who were rescued and survived like a miracle etc. The author also think it is also important to touch on those issues; however, it would have been much better if they put equal emphasis on how the disaster management system worked in the time of disasters, provide comparison with other countries with developed disaster management system and suggest possible ways to improve the system with interviews from emergency management specialists.

Observations Regarding MPSS

After reading numerous articles, newspapers and after seeing how it has managed the recent disasters, the author was able to come up with several problems and criticisms regarding the new ministry MPSS.

- Just mixed different agencies into one without serious consideration of the specific roles and responsibilities or the command structure of the ministry. Ignored the difficulties of harmonizing the transferred agencies into one.
- The Minister, Vice Minister, and other administrators are former general, admiral, firefighters and policemen. While these individuals may be highly skilled within each of their own specialties, they are unlikely to have the expertise needed in a disaster to coordinate the activities of different government agencies and different levels of government, not to mention coordinating the disaster work of the non-profit sector, the private sector, and individual citizens. It is also questionable as to whether these persons will have the necessary skills and knowledge to address issues related to such areas as disaster mitigation and preparedness. Also, appointing military officers to be the Minister and Vice Minister of MPSS seems to indicate an emphasis on national security, to the detriment of comprehensive emergency management and the safety of the citizens in their everyday lives.
- MPSS is under the supervision of the Prime Minister, but in Korea, the Prime Minister (or Premier) is the principal executive assistant to the President. The Prime Minister is appointed by the President and approved by National Assembly. The Prime Minister is 2nd in order in administration and is the first in the order of succession to discharge the duties of the President when the President is unable to play the role as the head of the administration. But in Korea, power is centralized to the President, thus the Prime Minister's role and power are not that great. Many people feel that the new ministry should be under the direct supervision of the President, not the Prime Minister, so that the citizens would feel safer in case of any major disaster.
- According to a news report, several problems were criticized by a congressmen while investigating the accidents and assessing the role of MPSS during the accidents.

- There are still some positions in MPSS that remain vacant, indicating the lack of proper expert to lead the agency. For some positions, only one person applied and for some positions, no one applied. This means that the new agency is still not organized or properly structured to act as a “control tower” during disasters.
- Although the new agency is aiming to develop a system that enables the emergency rescuers to arrive at the disaster scene within golden time (5 minutes in case of disasters on land) by implementing a system to control traffic signals in case of disasters, this system is only being implemented in the larger cities.
- MPSS does not provide clear definition of “Control Tower”. Thus, it is unclear whether the new agency should just support different agencies, or if it should provide guidelines for every agency to follow in case of disasters. (In contrast, FEMA in the United States is rather clear in its role. The U.S has a “system” that allows FEMA to act as leading and supporting organization of large national disasters, and at the same time to train and educate State, local, and non-government emergency management specialists to effectively handle the immediate response to smaller or day-to-day incidents and to coordinate with the national government in the case of large disasters.)
- The Minister has seemed more interested in public relations than in disaster operations. For example, he visited Eujungbu apartment 4 days after the disaster when many people criticized him for not visiting the site, and he did not go to Yongdong bridge when there was a car crash with 106 cars. Instead, he visited traditional markets and had pictures taken of him giving a fire extinguisher to the owner of the shops. This looked like the act of a politician, and many Koreans think that the Minister should remember that he is the head of disaster management agency who should lead others at the scene of the disaster instead of thinking too much about the agency’s public image.

(Source: Kyunghyang weekly, April 21 2015, Hou Yoon, available at:

<http://weekly.khan.co.kr/khnm.html?mode=view&code=115&artid=201504141107331&pt=nv>)

Observations Regarding Disaster Volunteerism

In the eyes of the author, there are several problems of disaster voluntarism in Korea.

1. Volunteerism largely dependent on media reports

In Korea, the news media play an important role in disaster volunteerism as people volunteer mostly in areas that are being reported in the media. People tend to believe that they are playing an important role when they offer help to the residents of areas being covered by the media, and they want to be recognized for their efforts. Thus, many volunteers will only go to help at the time of large disasters such as Taean, Sewol, and also only at the time when the incident is a major issue in the news. In other

words, when the disaster is a major issue in the news, there are too many volunteers, but when the news media begin to deal with other issues, the number of the volunteers drops dramatically, and people begin to forget about the disasters.

2. People will volunteer for international disasters more often than domestic disasters

In Korea, there is a high demand and many opportunities for people to participate in international volunteer works. Many people, especially university students, are willing to pay money for the opportunity to work as volunteers in poor countries, countries struck by disasters, or countries that are still having difficulty recovering from the disasters. Students mostly participate in international volunteer work, and people also tend to donate more to international disasters. Students seem to feel that it is also a way of gaining valuable experience, something meaningful that would help their resume stand out among others when they enter the job market.

3. Many people think of volunteerism as a way to improve their reputation or their social status

Many people in Korea seem to think of volunteer work as a way to “show off”, to improve their reputation and their social status. Politicians and CEOs of private companies often work as volunteers, and they appear to use this in the news media to publicize their efforts and so improve their political reputation or the image of their company. They do not seem to participate in volunteer to help others, or to play a role in rebuilding their community, but for their own profit.

4. Lack of participation from students -> not educated from a young age

Paradoxically, even though students might want to participate as volunteers, it is not easy for them to participate because of their study requirements. Parents and teachers require them to focus on their studies rather than participate in volunteer work. Parents and teachers also worry that the students might not be able to concentrate on studying due to news about disasters, and try to hinder students from watching the news.

Also, adults often think that students do not have the ability to help in times of disasters. They often argue that the way they help others is to not bother adults but instead to focus on their own duty, which is studying hard.

In contrast, many U.S. schools encourage and sometimes even require their students to participate in some sort of volunteer activity. Also, in the U.S., many universities and employers will see students' volunteer activities as evidence of high motivation and ability on the part of the student.

Recommendations

The following are some of the suggestions that the author think would be important in successfully improving the disaster management system in Korea.

Recommendations for MPSS

- Need to hire staff who are specialists in preparation and mitigation stages of disasters. Also need to regulate job rotation in order to have well-trained long-term staff.
- Need to improve the agency's capacity to organize and to effectively utilize NGOs and volunteers.
- Need to stipulate the command structure at the time of disaster: need to give power to the minister of MPSS that will allow him/her to command other ministers when there is a disaster.
- Need to educate the citizens from a young age about the importance of disaster management and safety awareness (NEMA tried to educate the citizens by making videos that explain what to do in case of disasters so that citizens would easily understand; however, it was not effective as many Koreans were unaware of the importance of disaster prevention or disaster education).
- Should be the organization that supports, organizes and adjusts requirements or disputes during the disaster.
- Need to develop an emergency response "system" which includes general management, co-ordination, and response plans.

In addition, the author notes the following recommendations retrieved from a report written by the Joint UNEP/OCHA Environment Unit (retrieved on April 30, 2015):

"Emergency response involves the coordination of several organizations, like police, medical services, fire brigade, terminal operators among others. The basis of emergency response should be a balanced emergency plan. This emergency plan should cover:

"General management: The tasks and responsibilities of the parties involved should be clearly stated. The command and communication structure should be defined. Arrangements should allow for quick decision-making. The scale of the incident should determine the scale of the emergency response. Criteria for this purpose and standard procedures should be established.

"Co-ordination: Depending on the size of the incident, several levels of coordination may be necessary. In any case, there should be an on-scene command team in which all "core parties" are represented.

"Response plans: It is useful to develop response plans for different types of emergencies. In a port area, such plans should be developed for both on-land and marine emergencies. Marine emergencies may include spills, gas releases, fire and/or explosions on ships and nautical accidents, like collisions or groundings in the port area. Emergencies never become routine.

Even with excellent planning improvisation plays a large role in emergency response. Training and regular exercises are a necessity. People and organizations should be prepared to deal with unexpected situations.”²¹

Recommendations for Disaster Volunteerism

- Need more non-profit organizations related to disaster volunteerism that can actively work and participate when disaster occurs.
- Need to have more “affiliated” volunteers who are educated and well-trained to act as volunteer right away when disaster occurs.
- Need to make a system that can effectively utilize the disaster volunteers and need to make a safety module for the disaster volunteers to ensure the safety of volunteers.
- Need to develop a culture that values disaster volunteerism and should educate students the importance of volunteerism from a young age.

Conclusion

The Korean government has taken a huge step to improve the disaster management system by abolishing NEMA and the Coast Guard and instead establishing a new agency, MPSS. However, to the author, whether or not the government is willing to admit their mistakes made the past, learn from the past tragedies and really try to change still seems questionable. In the recent incidents such as Eujungbu Apartment Fire and the Yeongjong Bridge Accident, the new ministry failed to show its ability and willingness to change and to improve. Old mistakes were repeated, and nothing much has been improved. It seems as though only the name and the size of the organization have been changed.

The author realizes that it takes a long time for a system to change, especially for the government to change the system since there need to be new legislation, new manuals etc. However, the government should keep in mind that the change is highly related to the safety of the citizens, and that the main role of the government is to keep the citizens safe and protect them from any possible dangers.

¹ Kyoo-Man Ha, *Emergency Management in Korea: Just Started, but Rapidly Evolving*, p2.

² Kyoo-Man Ha, *Emergency Management in Korea: Just Started, but Rapidly Evolving*, p2.

³ Gyunggi Disaster Safety Headquarter (available at <http://119.gg.go.kr>)

⁴ Korea 4 Expats <http://www.korea4expats.com/article-yellow-dust-korea.html>

⁵ Kyoo-Man Ha, *Emergency Management in Korea: Just Started, but Rapidly Evolving*, p3.

⁶ Kyoo-Man Ha, *Emergency Management in Korea: Just Started, but Rapidly Evolving*, pp 3-4.

⁷ Kyoo-Man Ha, *Emergency Management in Korea: Just Started, but Rapidly Evolving*, p4.

⁸ Kyoo-Man Ha, *Emergency Management in Korea: Just Started, but Rapidly Evolving*, pp 9-10.

⁹ Kyoo-Man Ha, *Emergency Management in Korea: Just Started, but Rapidly Evolving*, pp 7-8.

¹⁰ Kyoo-Man Ha, *Emergency Management in Korea: Just Started, but Rapidly Evolving*, p7.

¹¹ Kyoo-Man Ha, *The Choice between Politics-Oriented and Risk-Oriented Management in Korea*

¹² Kyoo-Man Ha, *In Pursuit of Ideal Emergency Planning in Korea*

¹³ Kathleen G. Henning, *Emergency Management and the Leadership Challenge in Times of Disaster*,

¹⁴ In Soo Nam, *Media Outlets Apologize Over Sewol Ferry Disaster Coverage*, The Wall Street Journal, , May 16 2014

¹⁵ <http://news.donga.com/3/all/20150113/69052085/1> (Jan 15, 2015 / Kang Hong Gu, Kim Jae Hyung)

¹⁶ Kyoo-Man Ha, *Emergency Management in Korea: Just Started, but Rapidly Evolving*, pp 8-9.

¹⁷ Kyoo-Man Ha, *Emergency Management in Korea: Just Started, but Rapidly Evolving*, p9.

¹⁸ In-Young Han, *Disaster Relief in Korea*

¹⁹ In-Young Han, *Disaster Relief in Korea*

²⁰ Kyoo-Man Ha, *The role of community-based organization in emergency management in rural Korea*

²¹ Joint UNEP/OCHA Environment Unit, *Rapid Environmental Assessment 'Hebei Spirit' Oil Spill – Republic of Korea December 2007*, pp29-30.