Abstract

Purpose: Framework act on the management of disasters and safety is the highest law covering disasters and safety in South Korea. Disaster management infrastructure has been expanded through the enactment and revision of the Framework act on the management of disasters and safety. However, there is still a high awareness that disaster management should be led by the administration. In the modern society, where self-help is emphasized above all else in the event of a disaster, it is difficult to expect effective disaster response through administrative initiative alone. This study intends to review measures to improve Framework act on the management of disasters and safety through evacuation that enables the primary victims, the residents, to respond to disasters most effectively.

Method: The items such as 'enhancement of disaster site response capacity' and 'emphasis on the role of local governments in disaster and safety management', which were newly revised in 2015, were reviewed. The problems of the current Disaster Safety Act were reviewed from three perspectives: 'Incomplete disaster prevention administration in case of a disaster', 'Various aspects of local residents for evacuation', and 'Insufficient structure of public-private cooperative system for evacuation'.

Results: First, it is necessary to recognize the incompleteness of disaster prevention administration during a disaster. Rather than increasing dependence on the administration, improvement should be made with the direction of how the residents can increase their independence and self-reliance. Second, the evacuation order should be improved to be 'situational information' that informs residents that they are in a situation that makes them think of evacuation, rather than 'action directive type'. Third, the Framework act on the management of disasters and safety should stipulate in detail the establishment and reinforcement of public-private cooperation networks that utilize the capabilities of residents.

Conclusion: For effective evacuation in the event of a large-scale disaster, the response capacity between various actors in the local community must be quickly aggregated. In addition, through improvement of the Disaster Safety Act in the future, the evacuation plan should start with reestablishing the relationship between the administration and residents. Residents should be aware of their own role for evacuation, and the administration should have a system that can support it as much as possible.

[Keywords] Disaster Response, Correspondence of Administrations, Dependent on Government Response, Correspondence of Inhabitants, Evacuation Plan

1. Introduction

Framework act on the management of disasters and safety is the highest law covering disasters and safety in South Korea. Framework act on the management of disasters and safety was created to preserve the land from various disasters and to protect people's lives, bodies, and property. It establishes the disaster and safety management system of the national and local governments, and stipulates disaster prevention, preparedness, response, and recovery, activi-
ties for safety culture, and other matters necessary for disaster and safety management. This Act confirms that it is the basic duty of the state and local governments to prevent various disasters and to minimize damage in case of disasters. According to this Act, when all citizens and the State and local governments engage in acts related to the safety of people’s lives and bodies and property protection, they give priority to safety so that the people can live in a society that is safe from disasters.

The Framework act on the management of disasters and safety was to unify the diversified disaster-related laws and to reinforce the functions of generalizing and coordinating the disaster management tasks that were dispersed in each ministry. The Framework act on the management of disasters and safety was amended on December 30, 2014 and partly revised on July 14, 2015 due to problems that appeared in the process of resolving the Sewol ferry disaster in April 2014. Although South Korea’s disaster management infrastructure has been expanded through enactment and revision, there is still a strong perception that disaster management should be led by the administration. In particular, in modern society, where self-help is emphasized above all else, it is difficult to expect effective disaster response through administration alone.[1][2][3][4][5][6].

In South Korea, guidelines on national behavior by type of disaster are prepared and disseminated at the governmental level for prompt response in the event of a disaster. Natural disasters are classified into 18 categories, such as typhoons, heavy rains, and heavy snowfalls, and the items that people should do in case of disasters are summarized. The main content of the guidelines on national behavior by type of disaster is to explain evacuation tips according to the situation. Although it corresponds to a general rule according to a disaster situation, it is unreasonable to regard it as a universal solution for disaster evacuation that can be applied to all regions of South Korea. Disaster safety conditions and demand differ from region to region. Even if people live in the same area, evacuation methods (evacuation shelters, routes, etc.) may vary depending on the population and characteristics of residence. In the case of local governments in South Korea, evacuation plans for residents (areas of concern for casualties, etc.) are being prepared according to the guidelines of the Ministry of Public Administration and Security. However, as a uniform preparation plan, regional characteristics are not taken into account, and there are problems such as lack of localization. In this regard, the evacuation plan for residents in South Korea is still in its infancy. While reviewing the Framework act on the management of disasters and safety, this study provides directions for evacuation, one of the non-structural measures that can protect lives from disasters.

In summary, with the enactment of the Framework act on the management of disasters and safety in Korea, disaster management tasks were collectively adjusted and related infrastructure was gradually expanded, contributing to the development of national disaster management. However, administration alone cannot solve disaster management in modern society. The reason is that disasters have become more complex and diversified. In disaster management in modern society, not only the role of the administration but also the role of the residents, who are the primary victims of disasters, is important. Disaster management cannot be effective simply through administrative initiatives. Residents, including administrative and non-governmental organizations or organizations that will be useful for disaster response, should cooperate.

This study examines the role of residents regarding evacuation, which can be the primary action for disaster response among disaster management strategies. Evacuation, which is one of the most reliable non-structural measures that can protect human life from disasters, may not be enough to simply follow the evacuation order of the administration. This is not to encourage individual actions that do not have on-the-ground information. Control according to the administrative disaster order must be maintained. In other words, it is undesirable to excessively depend on the administration in performing the role of residents as important as the role of administration in a disaster situation. It is necessary to develop a self-reliant awareness of local residents to take an interest in identifying local risks and to respond to disasters.
2. Framework Act on the Management of Disasters and Safety and Evacuation

2.1. Composition and major revisions of framework act on the management of disasters and safety

Framework act on the management of disasters and safety was enacted in South Korea after Typhoon Rusa in 2002 and the Daegu subway arson accident in 2003. It is a positive law enacted to realize the spirit of the Constitution. It has a status as a basic law over other related laws by stipulating essential and common matters for disaster and safety management.

Framework act on the management of disasters and safety consists of a total of 10 chapters. Chapters 2 and 3 define administrative functions and plans for disaster management, and Chapters 4 to 7 deal with disaster prevention, preparedness, response, and recovery, which are the 4 stages of disaster management. Chapter 8 focuses on Policies for Promotion of Safety Culture in South Korea.

Table 1. Composition of framework act on the management of disasters and safety.

<table>
<thead>
<tr>
<th>CHAPTER 1. GENERAL PROVISIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHAPTER 2. SAFETY MANAGEMENT ORGANIZATIONS AND FUNCTIONS</td>
</tr>
<tr>
<td>CHAPTER 3. SAFETY MANAGEMENT PLANS</td>
</tr>
<tr>
<td>CHAPTER 4. PREVENTION OF DISASTERS</td>
</tr>
<tr>
<td>CHAPTER 5. PREPARATION FOR DISASTERS</td>
</tr>
<tr>
<td>CHAPTER 6. DISASTER RESPONSE</td>
</tr>
<tr>
<td>CHAPTER 7. RESTORATION OF DISASTERS</td>
</tr>
<tr>
<td>CHAPTER 8. PROMOTION OF SAFETY CULTURE</td>
</tr>
<tr>
<td>CHAPTER 9. SUPPLEMENTARY PROVISIONS</td>
</tr>
<tr>
<td>CHAPTER 10. PENALTY PROVISIONS</td>
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<tr>
<td>ADDENDA</td>
</tr>
</tbody>
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Among the newly revised items from 2014, the main issues related to disaster sites and local governments are as follows. First, it is the enhancement of disaster site response capabilities.

In Framework act on the management of disasters and safety Article 52, It was stipulated that the head of a emergency rescue control group(fire chief, land disaster) and the chief of a regional rescue center(the head of Coast Guard, maritime disaster) should exercise on-the-spot command for emergency rescue.

Specifically, 1. Directing and controlling the operation of personnel, materials, and equipment of the emergency rescue staff and emergency rescue agencies, 2. "head of a local countermeasure headquarters, head of consolidated support headquarters cooperates with fire chiefs in emergency rescue activities." 3. Designation of a dedicated public office for media briefing at the disaster site 4. Consultation with the head of consolidated support headquarters when emergency rescue activities are completed, and notification to the head of a local countermeasure headquarters 5. In the early stage of a disaster, prevention of confusion and reinforcement of expertise in rescue operations.

Second, the role of local governments in disaster and safety management was emphasized. Local governments were allowed to supervise the safety inspections. According to Article 27, the owner of the building notifies the result of the safety inspection to the head of the local government, and the head of the local government is responsible for monitoring and managing the implementation status and appropriateness. According to Article 32-2, public officials performing safety inspections of local governments are allowed to exercise Judicial Police Power. In the event of non-compliance with the duties of the local government head, the Prime Minister or the Minister of Public Administration and Security stipulates that necessary measures, such as an agency warning, be taken(Article 77). In other words, under the principle of local...
responsibility, local governments are primarily responsible for disaster and safety management and have overall coordination of disaster management within their jurisdiction.

2.2. Key points to evacuation in the framework act on the management of disasters and safety

The main purpose of the Framework act on the management of disasters and safety is to unify the diversified disaster-related laws and to reinforce the functions of generalizing and coordinating disaster management tasks that have been dispersed in each ministry. Evacuation plans for local governments in South Korea are prepared according to the guidelines of the Ministry of Public Administration and Security.

Since evacuation plans tend to be uniform throughout the country, the reasons for the lack of localization can be said to be various. However, it is worth noting that disaster response is considered to be administrative-led from a macro perspective. The responsibilities of the state expressed in the Framework act on the management of disasters and safety in South Korea are as follows.

“Article 4(Responsibilities of State, etc.) (1)The State and local governments shall be responsible for protecting lives, bodies, and property of people from disasters or various other accidents, shall endeavor to prevent disasters or various other accidents and to mitigate damage therefrom, and shall formulate and implement plans to promptly deal with and recover from the damage.”

The responsibilities of citizens under the Act are as follows:

“Article 5(Obligations of People) People shall fully cooperate with the State and local governments in performing disaster and safety management affairs, and endeavor to protect buildings and facilities they own or use from any disaster or various other accidents.”

In the Framework act on the management of disasters and safety, disaster response activities are the responsibility of the state, and the people are required to cooperate. This appears to have formed a structure in which the people directly or indirectly depend on the administration for disaster response in a broad framework.

Evacuation is one of the most effective ways to protect lives during disaster response. It can be effectively implemented only when the administration and the local community, the basis of life of the people, cooperate with each other[7][8][9][10]. In the case of evacuation in a large city, it is effective only when the actors of various local communities quickly aggregate their response capabilities after a disaster occurs. If the evacuation plan is applied to a community that has an administrative-dependent disaster response structure, local residents will recognize that evacuation is carried out after receiving disaster information from the administration. In other words, evacuation can be recognized as a passive concept based on administrative recommendations and orders[11][12][13].

Framework act on the management of disasters and safety should be improved from the following three perspectives, away from the concept of administrative dependence.

First, it is necessary to recognize the incompleteness of the administration for disaster response. Currently, most evacuation plans in South Korea deal with administrative-led measures. If an evacuation plan is established in the framework act on the management of disasters and safety as stipulated in the national responsibility and public responsibility structure, it is impossible to escape from the passive aspect of evacuation of residents after the disaster information is transmitted by the administration. Such an evacuation scheme cannot sufficiently respond to local disasters or disasters according to local circumstances. Therefore, in addition to emphasizing the national responsibility for disaster response, an evacuation plan should be prepared that recognizes the incompleteness of disaster administration[14][15].

Second, when evacuating, the diversity of the residents' situation should be considered. The evacuation orders stipulated in the Framework act on the management of disasters and safety are as follows.

“Article 40(Evacuation Orders) (1)Where it is necessary to prevent any harm to people’s lives or physical safety when a disaster occurs or is likely to occur, the head of a Si/Gun/Gu and the
head of a local control group (limited to cases where the authority prescribed by Presidential Decree is exercised; hereafter the same shall apply in this Article) may order residents or persons within the relevant areas to evacuate or to evacuate vessels, automobiles, etc. In such cases, evacuation shelters may be designated beforehand.”

According to the Framework act on the management of disasters and safety, the head of the local municipality may order an evacuation and designate an evacuation site. However, issuing uniform disaster information to a specific area cannot guarantee the safety of local residents in the event of a disaster. For example, where localized torrential rains cause rapid flooding, it may be safer for residents to evacuate to the roof of their own building or to a nearby tall building rather than follow Evacuation Orders. This is because the evacuation action that an individual should take may differ depending on the geographical characteristics of the living space, the situation and conditions, etc.[16][17].

Third, a cooperative system for evacuation should be established in advance. In South Korea, the concept of wide-area evacuation has not been actively introduced yet, and the agreement system for cooperation between local governments is insufficient. In addition, it is necessary to construct an evacuation cooperation system by spatially dividing not only within the region but also between regions. In inter-regional cooperation, when large-scale disasters are expected to cause damage across multiple local governments, wide-area evacuation is required. If the operation of evacuation is not prepared in advance through agreements between local governments, etc., a disaster may cause secondary damage[18][19].

The research model for this study is as follows.

**Figure 1.** Research model.

3. Legal Policy Improvement Plan

3.1. Awareness of the incompleteness of the administration for disaster response

There may be limitations in the subject of the evacuation order being the head of a Si/Gun/Gu or the head of a local control group. In particular, evacuation of a wide area, which is unfamiliar in South Korea, cannot be responded to with such an evacuation instruction by the head unit. The flow of decentralization in Korean governments gives the head of a Si/Gun/Gu or the head of a local control group the responsibility to protect the lives of local residents, but evacuation is not something to be discussed only from the perspective of decentralization.
Prior to the enactment of the Framework act on the management of disasters and safety, disaster management in South Korea was diversified and disaster management tasks were distributed among ministries. In order to improve this issue, many parts have been defined as administrative initiatives. Conversely, within the framework of the Framework act on the management of disasters and safety, it creates a state of over-administrative dependence. Until now, the idea that disaster prevention is the responsibility of the administration is widespread among residents.

Residents tend to think that they run away after an evacuation order is issued, and that the timing should be informed. In the future, it is necessary to improve the direction of how residents increase their independence and independence, rather than increasing their dependence on the administration. In addition, the more precisely the administrative evacuation order is provided, the stronger the relationship between residents' administrative dependence so far.

Self-help is divided into subjective self-help and passive self-help, and passive self-help has dependence on receiving information and evacuation. On the other hand, independent self-help is centered on the subjectivity of wanting to protect one's own life or the life of one's family, and based on this, information from the administration can be used well.

3.2. Consideration of diversity of residents' situation following evacuation

Evacuation Orders of Framework act on the management of disasters and safety are issued on a regional basis. Residents in the region have various types of residence, such as single-family houses, high-rise apartments, and country houses. Therefore, the legal structure that guarantees safety through uniform Evacuation Orders should be improved.

Similar to the Framework act on the management of disasters and safety in South Korea, Japan also stipulates the Basic Act on Disaster Control Measures with the term 'evacuation'. There are active studies in which these terms can limit the perception of residents in Japan. Specifically, both Japan and South Korea call evacuation, but English evacuation is divided into three categories. First, evacuation to protect life in a hurry is evacuation, second, gathering to shelter is sheltering, and third, continuing evacuation in temporary housing is refuse. In other words, evacuation in Evacuation Orders means Sheltering.

Evacuation is completely different depending on the conditions of each resident, such as location, house structure, and family conditions. Evacuation Orders must be converted into "situational information" that conveys that the residents themselves are in a situation where they can consider evacuation, not the current "action order type". However, in the case of a large-scale disaster, it is also necessary to exert force such as setting a boundary zone in a situation where it is difficult to leave it to the voluntary evacuation of residents.

3.3. Construction of a public-private cooperative system for evacuation

Through the Framework act on the management of disasters and safety, the 'Central Private-Public Cooperative Safety Management Committee' and 'local private-public cooperative Safety Management committee' is organized and operated, but it is insufficient.

In Article 12-2 of the same law, only the basis for the establishment of the committee was specified, and the regulations on cooperation with the private sector and companies with expertise in disaster prevention in disaster management are insufficient. This may lead to poor participation of local residents. Disasters cannot be dealt with by the administrative capacity, and non-governmental organizations, including residents, or organizations that can respond to disasters other than national organizations often have more local risks that impede evacuation. Therefore, public-private cooperation is essential.

In a large-scale disaster situation that surpasses the administrative capacity, it should be stipulated in more detail on the establishment and reinforcement of a public-private cooperation network that utilizes the capacity of the residents to break away from the administrative-led way of thinking.
Table 2. Framework act on the management of disasters and safety improvement measures.

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<th>Item</th>
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| Recognition of the incompleteness of the administration for disaster response | • According to decentralization, the mayor/gun/gu heads are given the responsibility to protect the lives of local residents, but evacuation is not something to be discussed only from the perspective of decentralization.  
• Currently, residents think that they should evacuate after the evacuation order is issued, so they think that the timing should be informed.  
• In the future, rather than increasing the dependence on the administration, it is necessary to improve how residents can increase their independence and self-reliance. |
| Consideration of the diversity of residents’ situations when evacuating | • Because local residents have various residence types, the legal structure of a uniform evacuation order should be improved.  
• Since evacuation is affected by the conditions of each resident, such as location, house structure, and family conditions, the evacuation order should be improved as 'situational information' rather than 'action directive'. |
| Formation of a precooperative system for evacuation                  | • Currently, the composition of the 'private-public cooperative safety management committee' has only specified the basis for its establishment, and the regulations on cooperation with the private sector and companies specialized in disaster prevention in disaster management are insufficient.  
• The details of strengthening the public-private cooperation network using the capacity of residents should be stipulated in detail. |

4. Conclusion

Disasters in modern society are becoming increasingly complex, diversified, and large-scale. This study explored ways to improve the Framework act on the management of disasters and safety so that residents can respond independently, away from the administrative-centered evacuation order structure.

Disasters are often difficult to respond to with normal rules. This is because laws such as the Framework act on the management of disasters and safety arise from past experience, but disasters occur beyond experience.

The basic policies for evacuation are stipulated in Article 40(Evacuation Orders) and Article 42(Compulsory Evacuation Measures) of Framework act on the management of disasters and safety. Although the Ministry of Public Administration and Security is preparing an evacuation plan for residents, this is only a description of the universal solution of evacuation and does not deal with the characteristics of each region. An evacuation strategy for disaster response should be a socially viable solution, not a general solution. Disaster conditions and available resources differ from region to region, and even in the same region, differences in evacuation methods must be considered according to the topography and residential characteristics. Evacuation is an important countermeasure to protect human life in the event of a disaster. It can be effective only when various community actors gather their ability to respond quickly and systematically. For this, the following factors should be considered.

First, it is necessary to consider the incompleteness of disaster prevention administration in the event of a disaster. Article 40(Evacuation Orders) of Framework act on the management of disasters and safety stipulates that 'The head of a Si/Gun/Gu and the head of a local control group may order the evacuation of local residents, etc.' However, the situation in which the
 evacuation order is not clearly communicated to the residents must also be considered. If an evacuation plan is established with the structure of “evacuation of residents after an administrative order,” there is a risk of being biased toward a passive plan of waiting for an administrative order even in a disaster situation in which residents must evacuate independently.

Second, various aspects of local residents regarding evacuation should be considered. In the event of a disaster, the head of the local government orders evacuation according to the law, but local residents are inevitably in various situations. A uniform evacuation order cannot guarantee the safety of local residents. For example, if flooding is expected due to localized heavy rain, it may be safer for residents to evacuate to the roof of the building where they are located than to evacuate to a designated shelter through an evacuation route.

Third, cooperation and participation of local residents should be considered. Although Article 12-2 of the Framework act on the management of disasters and safety stipulates the 'local public-private cooperation committee', only the basis for the establishment of the committee is specified. The lack of local residents' participation and lack of professionalism are pointed out as problems.

In summary, Framework act on the management of disasters and safety has been enacted and revised through disasters such as Seongsu Bridge Collapse in 1994, Sampoong Department Store Collapse in 1995, and Sewol Ferry Disaster in 2014 and an institutional mechanism to control disasters was also prepared. However, disasters in modern society are becoming more complex, diversified, and large. Administrative-led disaster management has limitations in efficiently responding to disasters in modern society. The future evacuation plan requires reestablishing the relationship between the administration and the residents, and the residents should be aware of their own role for evacuation, and the administration should have a system that can support it as much as possible.

5. References

5.1. Journal articles


[11] Iwahori T & Yamori K & Miyamoto T & Shiroshta H & lio Y. Disaster Education based on


5.2. Books


6. Appendix

6.1. Authors contribution

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<th>Initial name</th>
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