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Master's Thesis of Public Administration

**A study on the Development Strategies
of Fire Service Organization**

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Abstract

A study on the Development Strategies of Fire Service Organization

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Recently, the new government abolished the Ministry of Public Safety and Security and established newly the National Fire Agency. In line with this, the government pronounced that it would push for the transition of fire officers' position from local to national position. With the new fire service policies of the government, we have got a better opportunity to improve the fire service organization system in Korea than ever before. However, in spite of the establishment of the NFA and the government's commitment to the transition of fire officers' position, the reality is that there still exist the pending issues related with fire service affairs and organizations in terms of legislation, finance, and organization & command system, etc.

Therefore, first, this study analyzed and summarized a variety of

dissertations and research reports regarding the distribution of fire service affairs, fire service finance, and fire service organization through literature review.

Second, this study made use of an analytical method presenting statistical data related with the changes of the current fire service and disaster environment to show the present changes in fire service and disaster circumstance. As a result, the roles of fire service have changed in various ways from the past prevention and alertness of fire, fire suppression to rescue and EMS activities, various disaster management activities and the public safety management activities. As the demands of future fire service policy have increased in accordance with changes of fire service environment, new contemporary fire service policy is required. First, the incidence of disaster has increased and types of disaster have varied. Second, demands for fire service have increased drastically. Third, demands for improving the quality of fire service have increased.

Third, this study analyzed the distribution system and criteria of fire service affairs. It also reviewed the changes of fire service affairs in legislation. As a result, it is not appropriate to distribute the affairs with the simple disciplines in complicated contemporary public administration. The distribution of state affairs and autonomous affairs should be determined in terms of efficiency of performing a certain affair. The percentage of state fire service affairs in fire service related legislation has increased from 15.4% in

1991 to 48.5% in 2012. In contrast, percentage of autonomous fire service affairs is in decline. It is imperative that the range of fire service affairs designated as autonomous affairs should be re-established as national affairs through the revision of the Local Autonomy Act to secure the public safety in accordance with the changes of the fire service and disaster environments.

Fourth, this study analyzed the composition of fire service financial resources and the current status of fire service finance. As a result, although the proportion of state fire service affairs has increased, the financial burden ratio of central government is imperceptible. The financial burden ratio of central government was only 4.5% as of 2015. The financial support capacity of local government for fire service has decreased gradually in accordance with continuous deterioration of its own revenue base. The fiscal self-reliance ratio of localities has declined by 0.2% from 53.9% in 2008 to 53.7% in 2017. The local fire service organizations have much difficulty in reinforcing fire service personnel or modernizing fire service equipment as necessary. It is evident that the financial conditions of local governments play an important role in fire service force arrangement. It seems to be difficult to find a complete alternative to address the issues on the current fire service finance. Therefore, it is more realistic to pursue staged and gradual changes than drastic change of the structure of fire service finance. Until financial conditions between central and local government are improved, it is necessary to share the rate of responsibility for fire service on a fifty-fifty basis by

regarding fire service affairs as joint affairs between central and local government. As a result, the central government would have to share at least around 40% in fire service budget. The concrete alternatives for securing fire service financial resources will be support expansion of central government subsidy, support expansion of emergency medical service fund, and introduction of Fire Service Tax, etc.

Fifth, this study analyzed the current fire service organization and command system and pointed out the problems of the current command system through case study on Sewol Ferry Disaster. As a result, the current fire service command and control system is dualized due to the organizational structure between central and local government. This dualistic command and control system on the scene leads to confusion of command system and difficulties in moving in perfect order in case of emergency or disaster. In this respect, unified chain of command system also should be structured in accordance with establishment of NFA and the transition of fire officers' position which new government pronounced.

Lastly, this study reviewed fire service finance and organization system in foreign countries. As a result, each country operates various forms of fire service finances and organizations in terms of organizational and financial framework. Revenue source of fire service finance varies by country. Unlike Korea which covers fire service finance with local tax as general financial resources, local governments in the States raise fire service financial

resources in a variety way. There exists a difficult aspect to suggest a standardized management model of fire organization among countries because the operation form of fire service organizations vary in different localities even in the country. However, Korea faces an unprecedented security threat due to North Korea's nuclear testing. In this regard, it is imperative to manage and operate fire service organizations at the nationwide level. Accordingly, in Korea, it is integral for protecting the lives of its people and their properties to move in an orderly way with the nationalized and comprehensive fire service organization system.

Keywords: fire service, fire service affairs, redistribution, central government, local government, finance, organization

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I. Introduction

1. Backgrounds and Purpose

In the wake of the Sinking of Sewol¹ in April 2014, there has been renewed focus in Korea on the capacity of the nation's public institutions to secure the people's safety in the face of large-scale disasters. Interest has been focused on rescue and relief abilities in the disaster scene. As a result, the Ministry of Public Safety and Security² (MPSS) was established in November 2014. National Emergency Management Agency (NEMA), the previous disaster management organization, was integrated into the MPSS.

Nevertheless, whether or not the prior government was willing to admit their mistakes made in the past, learn from the past tragedies and really try to change seemed questionable. Although nearly three years have passed since the Sewol sank, little has changed. Accidents large and small have persisted, such as the deadly collapse of a ventilation grid at a pop concert in 2014, a 106-car pileup on Yeongjong Grand Bridge in 2015 and a freeze of the

¹ The Sinking of Sewol occurred on the morning of April 16, 2014, en route from Incheon to Jeju. The South Korean ferry capsized while carrying 476 people. In all, 304 passengers and crew members died in the disaster.

² Ministry of Public Safety and Security (MPSS) is an organization for safety of people and disaster management that handles all sorts of disasters and safety problems. It was established in an effort to create a prompt, comprehensive system, to cope with disasters and safety problems by building a systematic disasters and safety management system.

Ministry of Public Safety and Security homepage when an earthquake hit Gyeongju, Gyeongsangbuk-do Province in 2016. At Last, an unprecedented 5.4 magnitude earthquake strongly hit Pohang area causing huge property loss and many casualties.

The previous disaster management organizations failed to show their ability and willingness to change and to improve the emergency response capability. Old mistakes were repeated, and nothing much has been improved. It seemed as though only the name and size of the organizations had been changed. Now, few people seem to feel safer now than before the Sinking of Sewol.

In the meanwhile, in recent years, the new government took a huge step to strengthen the disaster management system by abolishing the existing Ministry of Public Safety and Security (MPSS) and instead newly establishing a new agency, National Fire Agency (NFA) as a national emergency and disaster management organization. The government also pronounced that it would push to change over fire officers' position from the present local position to the national position until 2019. However, in spite of the government's commitment to the transition of fire officers' position, the reality is that there still exist pending issues related with fire service affairs and organizations in terms of legislation, finance, and organization & command system, etc.

Realistically, there are many problems in the existing organizational framework for fire service affairs that limit the government's ability to respond to the various emergencies and disasters effectively. For instance, recently a number of large-scale fires and disasters have occurred that crossed over jurisdictional boundaries for local governments, causing serious problems in assigning responsibility and coordinating response. In addition, the range of nation-wide fire service has been increasing gradually. According to the statistics of Korea Local Government Association, the percentage of national fire service affairs in fire service related legislation has increased steadily. In contrast, percentage of autonomous fire service affairs is in decline.

Moreover, there exist serious gaps among local governments that reflect financial dependence in these localities in terms of the quality of fire service. These problems involve not only the difficulty in responding to the large-scale incidents and disasters, but loss of fire-fighter's lives in disaster sites. However, it is not sufficient to blame financial dependence and inadequate resources for fire-fighting equipment and personnel reinforcement. Therefore, it is imperative to reform the fundamental system to make fire service more effective and efficient which would improve the public safety and security.

At present, fire service affairs are provided for the Local Autonomy Act as local affairs and most of the fire service affairs are executed by local fire-fighters. Central Fire Service in NFA, that is a central fire service organization,

directs and supervises the local fire service organizations by exercising the right to appoint the heads of the fire service headquarters. Fire service cannot function effectively through this type of a dualistic organization system.

As mentioned above, we have got a better opportunity to improve the fire service organization system in Korea than ever before. Therefore, the main purpose of this study is to analyze the various issues on the existing fire service operations and organizations from multiple angles and suggest the future policies for development of fire service operations and organizations. To accomplish the purpose of this study, this paper discusses and considers the issues on the changes of the current fire service and disaster circumstances, the changes of the fire service affairs in fire service related legislation, fire service finance, fire service organization and command system.

2. Scope and Methodology

My research question is that “the redistribution of fire service affairs between central and local governments, the reorganization of fire service financial and organizational structure are beneficial for the people’s safety and security?” In other words, this paper discusses the redistribution of fire service affairs between central and local governments, the reorganization of fire service financial and organizational structure as a way to improve the emergency response capability in fire service operations and organizations

and ultimately contribute to the public safety.

The scope of this study is set up intensively in five directions. First, to show the present changes in fire service and disaster circumstances, this study makes use of an analytical method presenting statistical data related with the changes of the current fire service and disaster environment.

Second, this study also analyzes various disaster and fire service related legislation to find out whether the fire service affairs need a transition to state affairs in accordance with the changes in fire service and disaster environments. To this end, this study reviews the classification system of state affairs and autonomous affairs in Local Autonomy Act, and analyzes the changes of the fire service affairs between central and local governments in the 11 individual fire service related acts in recent years.

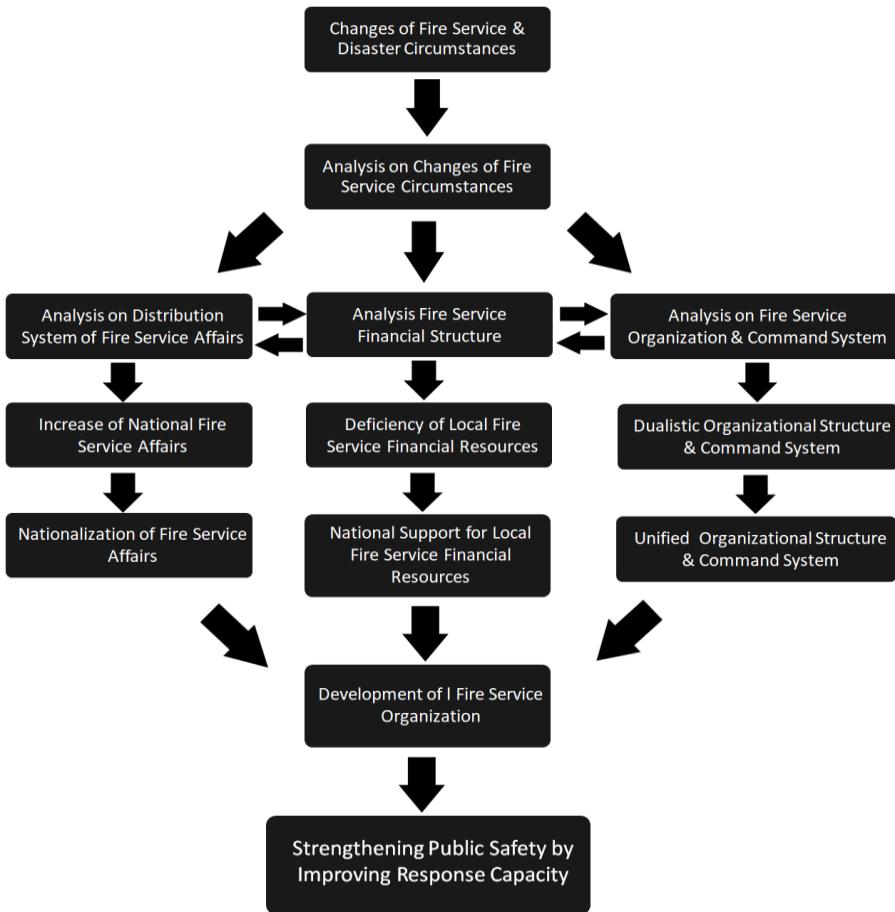
Third, this study investigates human resources and budgetary resources in operation of fire service between central and local governments.

Fourth, this study analyzes the control and command system of fire service organizations in parallel with case study on Sewol Ferry Disaster.

Lastly, this study draws the implications in fire service organization and fire service finance systems abroad through the comparative analysis on the foreign fire service organizational and financial systems in terms of organizational and financial framework.

3. Analytical Framework

<Figure 1-1> Research Flow Chart



The analytical framework in my study largely is divided into five parts such as fire service environment, fire service affairs, fire service finance including personnel, fire service organization & command system as shown in <Figure 1-1>.

First, analysis on changes in fire service and disaster circumstances will be performed through statistical analysis on data of fires, rescue and EMS

activities, large-scale disasters, etc. In line with the changes in environments, increase or decline in demands for fire service will also be investigated.

Second, the proportion of fire service affairs as state affairs in legislation will be analyzed through literature review. Those analyses are needed to review the evidence for expanding financial support of central government.

Third, fire service finance sharing structure between central and local government will be analyzed by comparing the current local fire service finance by city and province and reviewing the proportion of government support for fire service. Along with this, deficiency in fire service personnel and equipment also will be reviewed by comparing foreign cases. The alternatives for expanding local fire service finance will be investigated and suggested.

Fourth, the issues on fire service organization and command system will be analyzed. To verify this issue, case study on Sewol Ferry Disaster will be performed.

Lastly, the cases in advanced foreign countries such as the United States, Japan will be reviewed in terms of organizational and financial framework. The nationalized Israeli fire service also will be reviewed.

II. Literature Review

1. Discussions on Distribution of Fire Service Affairs

Hong (2004) argues that characteristic of fire service should be regarded as joint affairs. In Germany, the concept of joint affairs is provided in German constitution. Although federal government and state government performed various affairs with concerted effort even before the revision of the constitution in 1969, joint decision and joint financial burden was formalized by introducing joint affairs in the provision of the constitution. In Germany, joint affairs are referred to affairs that federal government and state government alike are supposed to cooperate in the restricted fields by the constitution.

Nam & Jung (2007) argue that fire service affairs are joint affairs which are characterized by state affairs in spite of the fact that they are provided as autonomous affairs. He says that it becomes impossible to respond the disasters efficiently at the local level as large-scale disasters occurs more often than not due to the global warming. In reality, as the scale of emergencies and disasters transcend the jurisdiction of a certain locality and are converted into the state level, it will be the abandonment of constitutional duty to neglect the responsibility of the nation based on Local Autonomy Act which provides fire service affairs as autonomous affairs.

Kang (2002) argues that fire service affairs have somewhat mixed characteristic as state affairs and autonomous affairs. In this regard, efficiency of fire service affairs will be secured in that fire service affairs are performed more effectively by collaborative efforts of central and local government.

Ryu (2013) argues that imbalance in fire service among the localities can occur considering the differences in fiscal self-reliance ratio among the localities. According to the study of Kim & Lee (2013), there exist relative differences in response efficiency among localities. They argues that fire service affairs should be redistributed rationally between central and local government considering the distinctiveness of fire service affairs.

2. Discussions on Financial Structure of Fire Service

Lee (2006) argues that it is important to secure financial resources stably to respond to large-scale and complicated disasters in a more sophisticated modern society rapidly and appropriately. But, it should be determined with political support of the people because the increase in financial resources finally falls heavily on the people. He suggests the following alternatives for expanding fire service financial resources

Jeon (2016) argues that first, central government should expand the support for fire service financial resources and re-establish the roles between central and local government. Second, the autonomy and independence

should be ensured by introducing the special account for fire service. Third, it is necessary to increase fire service financial resources by expanding taxability.

Ha (2008) suggests the expansion in subsidy of central government, adjustment of calculation method of fire service grants, and establishment of special account for fire service as the concrete alternatives to secure fire service financial resources as follows.

<Table 2-1> Summary of Alternatives for Expanding Fire Service Financial Resources

Type of Alternative	Contents	
Expansion of Fire Service Related Tax	Establishment of Special Account	
	Tax Rate Structure	Application of Flexible Tax-rate
	Expansion of Taxability	Imposing on Fire Insurance Premium and Damage Insurance Premium Imposing on Income Tax, Property Tax, and Consumption Tax
	Improvement of Subsidy System	Upgrade of Rate of Subsidy
Sharing of Basic Local Government	Application of BYOB Principle	

3. Discussions on Fire Service Organization

According to Korean Association for Local Government Studies (2010), it points out that although National Fire Agency (NFA) is an independent organization, local fire organizations belong to the localities and there is no fire service organization act.

Joo & Kim (2003) emphasize on the importance of integrated emergency management system. They also argue that fire service organizations should be re-organized towards strengthening connectivity between central and local fire service organizations to establish efficient disaster management system. The function of direction and supervision of central fire service organization for local fire service organizations should be strengthened.

III Review on the Fire Service Circumstances

1. Fire Service and Fire Service Affairs

Generally, fire service means the prevention and suppression of fire, but it is not easy to define the conception of fire service administratively. The conception of fire service not only has changed over time, but has varied according to the nations or regions, ideology and political orientations in terms of the public administration. As times have been changed and society has become more complex, the administrative demands have changed in a variety way. Accordingly the conception of fire service is not restricted to the fragmentary phenomenon of fires, it has extended to the natural and social disasters.

Therefore, fire service affairs primarily refers to fire prevention or alertness, fire suppression, and all the activities conducted by fire service organizations in terms of public administration.³ To further extend the conception of fire service affairs, it could include the human and material management performed by fire service organizations to provide goods and

³ Article 1 of Framework Act on Fire Services (Purpose) The purpose of this Act is to prevent, take precautions against, or suppress fires, and to safeguard the life, body and property of citizens by providing rescue and first-aid services, etc. in times of fires, calamities, disasters, and other emergency situations, thereby contributing to maintaining public peace and order, and promoting public welfare.

services for demands of the people. In this respect, it is possible that the conception of fire service affairs involves the extended affairs related with natural and social disasters rather than the activities of fire service organizations in accordance with Framework Act on Fire Services.

2. Function and Scope of Fire Service

The function of fire service is provided in the enactment purpose of Framework Act on Fire Services at the legal aspects. In Korea, the fire service as an administrative expression for the function of fire service set out from fire suppression affairs, it led to fire prevention due to the social recognition of the importance for fire prevention.

Fire Services Act enacted and proclaimed in 1958 was the first fire service related special law in the modern sense in Korea. It provided that the function of fire service aimed at protecting the life and property of the people by preventing, alerting, and suppressing fires, damage from storm and flood, and snow damage. However, as Fire Services Act was abolished and Framework Act on Fire Services was established in 2003 as shown in <Table 3-1>, the function of fire service was extended to a variety of fields such as rescue & EMS activities in emergencies. Especially in recent years the demands for rescue & EMS affairs have increased drastically, the proportion of rescue & EMS affairs out of the total fire service affairs surpassed the one

of fire prevention and suppression. Affairs such as location-tracking service, wildfire suppression, animal rescue, first response for environmental pollution incident, etc. were added to fire service affairs.

Therefore, it can be said that fire service affairs in general are extended from fire suppression to rescue & EMS activities.

<Table 3-1> Major Changes in Function of Fire Service in Legislation

Division	Major Contents of Change	Remarks
Enactment of Fire Services Act (1958)	Article 1 (Purpose) This Act aims at protecting the life and property of the people by preventing, alerting, and suppressing fires, damage from storm and flood, and snow damage, and maintaining the public order, improving the social welfare	Enactment of fire service related legislation
The second amendment of Fire Service Act (1967)	Article 1 (Purpose) This Act aims at protecting the life and property of the people by preventing, alerting, and suppressing fires , and maintaining the public order, improving the social welfare	Damage from storm and flood, and snow damage were excluded
The ninth amendment of Fire Service Act (1983)	Article 70 (Organization & Operation of EMS Brigade) The director general of a fire-fighting headquarters, or the head of a fire station shall organize and operate emergency medical services teams, to perform emergency medical services, such as administration of first aid to an emergency patient injured in an emergency or urgent transportation of him/her to a medical institution	Organization & operation of EMS brigade
The tenth amendment of Fire Service Act (1989)	Article 70 (Organization & Operation of Rescue Squad) The director general of a fire-fighting headquarters, or the head of a fire station shall organize and operate rescue squads, expeditiously and smoothly to perform operations to save the life, etc. of a person in need of rescue in an emergency.	Organization & operation of rescue squad

Enactment of Disaster Control Act (1995)	Article 1 (Purpose) The purpose of this Act is to establish the disaster management system of the State and local governments in order to protect the lives and property of people from disasters, and to provide the necessary matters concerning disaster management, such as the prevention and control of disasters, emergency rescue, and other disasters management	Control authority at disaster scene
The twenty-first amendment of Fire Service Act (1999)	Article 1 (Purpose) The purpose of this Act is to prevent, take precautions against, or suppress fires, and to safeguard the life, body and property of citizens by providing rescue and first-aid services, etc. in times of fires, calamities, disasters, and other emergency situations, thereby contributing to maintaining public peace and order, and promoting public welfare.	Calamities, disasters, and other emergency situations were added
Enactment of Framework Act on the Management of Disasters and safety (2004)	Article 1 (Purpose) The purpose of this Act is to establish disaster and safety control systems of the State and local governments, and to prescribe matters necessary for the disaster prevention, preparedness, response and recovery, activities for safety culture and disaster and safety control, in order to preserve national land against various disasters and to protect citizens' lives, bodies and property	NEMA was established
Enactment of Framework Act on Fire Services (2003)	Article 1 (Purpose) The purpose of this Act is to prevent, take precautions against, or suppress fires, and to safeguard the life, body and property of citizens by providing rescue and first-aid services, etc. in times of fires, calamities, disasters, and other emergency situations, thereby contributing to maintaining public peace and order, and promoting public welfare	Fire Services Act was abolished

Source: National Law Information Center

Fire service affairs are classified into four categories such as the prevention affairs to prevent fires, the suppression affairs to suppress fires, the rescue affairs to save lives, and the EMS affairs to first-aid services in times of fires, calamities, disasters, and other emergency situations.

3. Changes in Roles of Fire Service

Large-scale emergencies and disasters consistently have occurred due to the consequences of global warming around the world. The number of emergencies and disasters is on the rise annually owing to extreme weather and insensitivity towards safety domestically. Especially it seems that a high incidence of construction site safety accidents, household gas explosions, chain-reaction collisions caused by insensitivity towards safety will not be greatly reduced as shown in <Table 3-2>. The extent of the damage is expected to grow serious in the event of an emergency or disaster because of enlargement, centralization, and deterioration of industry facilities, increase in the number of multiuse facilities, high crowding of living space.

<Table 3-2> Major Emergencies and Disasters for Last 18 Years (2000~2017)

Year	Disaster	Casualties	Type	Region
2000	Chain-reaction collision in Chupungryong highway	118	Traffic Accident	Gyeongsangbuk-do Province
2001	Localized heavy rain in Gyeonggi region	59	Heavy Rain	Gyeonggi-do Province
2002	Chinese airplane crash in Gimhae-si	128	Aircraft Explosion & Crash	Gyeongsangnam-do Province
2003	Daegu subway fire	213	Fire	Daegu Metropolitan City
2004	Commercial bus crash in Pyeongchang	15	Bus Crash	Gangwon-do Province
2005	Concert hall stampede in Sangju-si	11	Stampede	Gyeongsangbuk-do Province

2006	Chain-reaction collision in Seohaedaegyo Bridge	11	Traffic Accident	Gyeonggi-do Province
2007	Chemical carrier sinking accident in Yeosu-si	14	Sinking Accident	Jeollanam-do Province
2008	Icheon warehouse fire	40	Fire	Gyeonggi-do Province`
2009	Fire in Busan indoor shooting ranges	17	Fire	Busan Metropolitan City
2010	Chain-reaction collision in Incheon Bridge	24	Bus Crash	Incheon Metropolitan City
2011	Landslide in Mt. Umyeon	18	Landslide	Seoul Special City
2013	Panama cargo ship sinking accident	11	Sinking Accident	Gyeongsangbuk-do Province
2014	Sewol ferry disaster	304	Sinking Accident	Jeollanam-do Province
2014	Train accident in Sangwangsimni Station	477	Train Accident	Seoul Special City
2014	Fire in underground construction site in Goyang terminal	124	Fire	Gyeonggi-do Province`
2015	Chain-reaction collision in Yeongjong Grand Bridge	132	Traffic Accident	Incheon Metropolitan City
2015	Apartment Fire in Uijeongbu-si	130	Fire	Gyeonggi-do Province`
2015	Middle East Respiratory Syndrome (MERS)	224	Infectious Disease	Nationwide
2016	Gyeonju Earthquake	-	Earthquake	Gyeongsangbuk-do Province
2017	Pohang Earthquake	82	Earthquake	Gyeongsangbuk-do Province

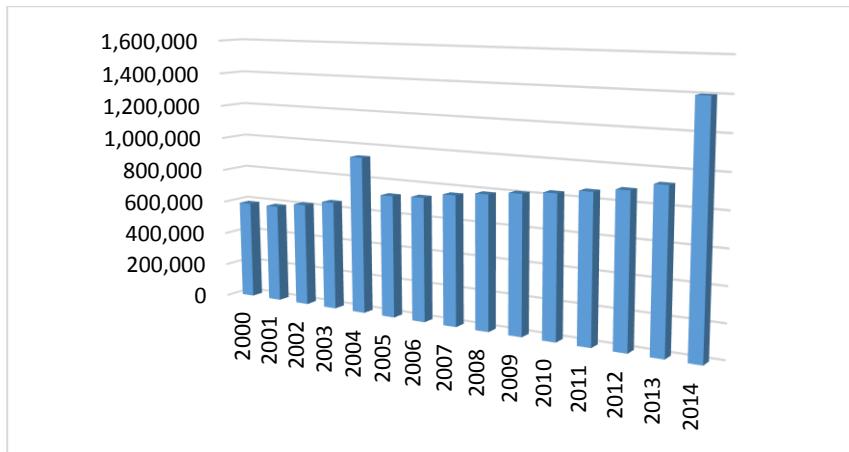
Source: MPSS (2016) *Fire-fighting Administrative Statistics*

Since the demands of future fire service policy have increased in accordance with changes of fire service environment, new contemporary fire service policy is required. First, the incidence of disaster has increased and types of disaster have varied. Second, conditions of fire service activity have deteriorated. Third, demands for fire service have increased drastically as the

following Tables shown. Fourth, demands for improving the quality of fire service have increased. Fifth, there has been a growing need to adapt to development and change of society.

As mentioned above, the roles of fire service have changed in various ways from the past prevention and alertness of fire, fire suppression to rescue and EMS activities, various disaster management activities and the public safety management activities.

<Figure 3-1> Trend of Change Status of Fire Inspection Subjects in Last 15 Years
(2000~2014)⁴



Source: MPSS (2016) *Fire-fighting Administrative Statistics*

⁴ Ministry of Public Safety & Security (2016) *Fire-fighting Administrative Statistics*.

<Table 3-3> Fire Occurrence Status for Last 6 Years (2010~2015)⁵

Year	Number of Fires	Casualties			Damage (Hundred million)
		Total	Fatalities	Injuries	
2015	44,435	2,090	253	1,837	4,331
2014	42,135	2,180	325	1,855	4,054
2013	40,932	2,184	307	1,877	4,345
2012	43,247	2,221	257	1,964	2,895
2011	43,875	1,862	263	1,599	2,565
2010	41,863	1,892	304	1,588	2,665
Average Annual Increase	0.2%	4.0%	2.2%	4.5%	12.9%

Source: MPSS (2016) *Fire-fighting Administrative Statistics*

- Average annual increase rate
 - ☞ Number of Fires: 0.2%↑ / Casualties 4.0%↑ / Damage 12.9%↑

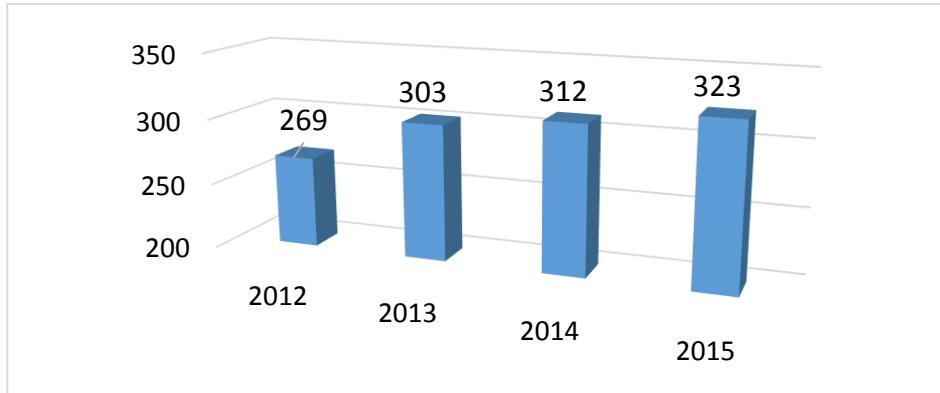
Since 2000, the number of fire inspection subjects has increased as shown in <Figure 3-1>. Along with the data, the number of fires has increased, especially gradually in recent years, as shown in <Table 3-3>; 41,863 in 2010, 43,875 in 2011, 43,247 in 2012, 40,932 in 2013, 42,135 in 2014, and 44,435 in 2015. Consequently, the number of casualties in fires have also increased gradually from 2010 to 2015 as shown in <Figure 3-3>. The general situation for the last six years is shown in <Table 3-3>. During the last six years, fires increased by 0.2%; the casualties 4.0%, and the damages 12.9%.

Along with this trend of increase in fires, large scale fires also have occurred more often than not annually causing serious and huge losses of both

⁵ Ministry of Public Safety & Security (2016) *Fire-fighting Administrative Statistics*.

life and property as shown in <Table 3-4>.

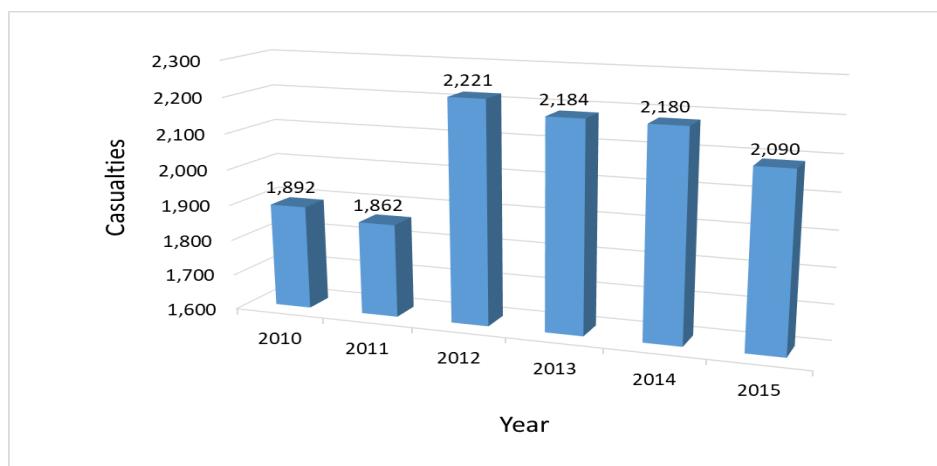
<Figure 3-2> Trend of Change Status of Skyscrapers and Underground Related Mixed-Use Buildings in Last 4 Years (2012~2015)



Source: MPSS (2016) *Fire-fighting Administrative Statistics*

The number of multiuse facilities, skyscrapers, and underground facilities in urban areas has increased steadily as shown in <Figure 3-2>, which could cause a lot of casualties in the event of a simple fire or emergency.

<Figure 3-3> Trend of Number of Casualties in Fires for Last 6 Years (2010~2015)



Source: MPSS (2016) *Fire-fighting Administrative Statistics*

<Table 3-4> Large-scale Fire Occurrence Status for Last 6 Years (2010~2015)

Year	Number of Fires	Casualties			Damage (Million)
		Total	Fatalities	Injuries	
2015	6	157	11	146	78,587
2014	6	163	33	130	56,572
2013	8	119	7	112	100,195
2012	13	265	17	248	3,382
2011	2	19	7	12	242
2010	3	45	14	31	5,875
Annual Average	6.3	128	14.8	113.2	40,808

Source: MPSS (2016) *Fire-fighting Administrative Statistics*

- Criteria of Large-scale Fire: more than 5 deaths or more than 10 casualties or damage more than 5 billion won

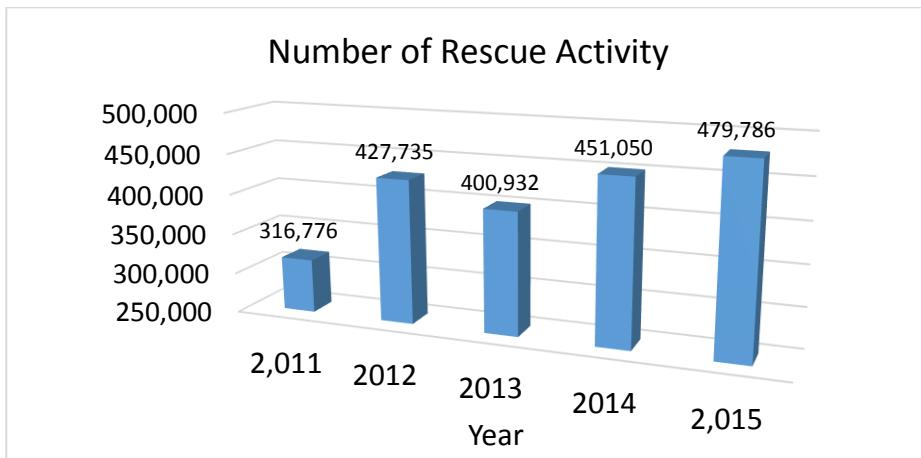
<Table 3-5> Rescue Activity Status for Last 5 Years (2011~2015)

Division	Annual Average	2011	2012	2013	2014	2015
Number of Rescue Activity	415,256	316,776	427,735	400,932	451,050	479,786
Number of People Rescued	109,802	100,660	102,787	110,133	115,038	120,393

Source: MPSS (2016) *Fire-fighting Administrative Statistics*

- Average annual increase rate
 - ☞ Number of Rescue Activity: 12.6%↑ / Number of People Rescued 4.9%↑

<Figure 3-4> Trend of Number of Rescue Activities for Last 5 Years (2011~2015)



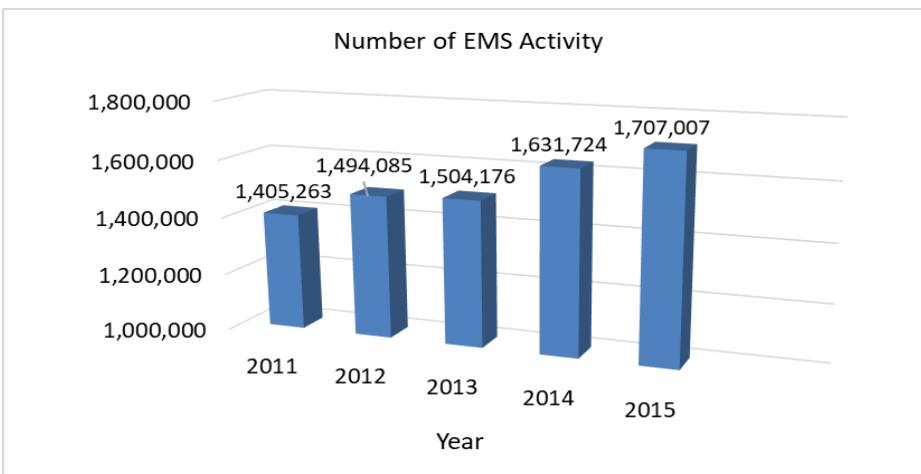
<Table 3-6> EMS Activity Status for Recent 5 Years (2011~2015)

Division	Annual Average	2011	2012	2013	2014	2015
Number of EMS Activity	1,548,451	1,405,263	1,494,085	1,504,176	1,631,724	1,707,007
Number of People Evacuated	1,595,899	1,453,822	1,543,379	1,548,880	1,678,382	1,755,031

- Average annual increase rate

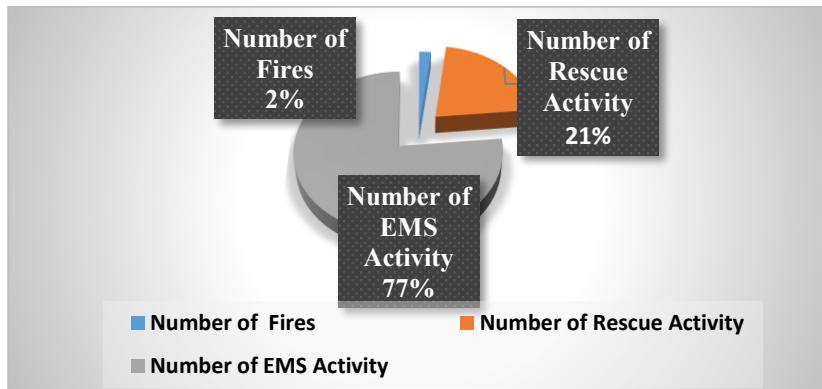
☞ Number of EMS Activity: 4.1%↑ / Number of People Evacuated 3.9%↑

<Figure 3-5> Trend of Number of EMS Activities for Last 5 Years (2011~2015)



With rapid development of Korean economy, the recent fire service circumstances also have changed a lot. As a result, the rescue & EMS activities have increased drastically as shown in <Figure 3-4 & 5>. The role of fire service is not restricted within the fire prevention and fire suppression at the local level any more. The rescue & EMS activities have formed an ever-greater part of fire service affairs as shown in <Figure 3-6>.

<Figure 3-6> Response Activity Status of Fire Service in 2015



Source: MPSS (2016) *Fire-fighting Administrative Statistics*

The statistics above indicate that the concept of jurisdiction of the cities and provinces has collapsed slowly as the scale of emergencies and disasters has become larger in terms of response system. Moreover, each local government has difficulties in responding to disaster with its own resources and personnel whenever the disaster occurs in a large scale or nation-wide.

IV. Analysis on Distribution System of Fire Service Affairs

1. Affairs and Distribution of Affairs

1-1. Conception

Affairs is defined as a series of operations or activity processes to enable organization to make rational decisions and to deal with necessary information for efficient organization management. Distribution of affairs is to divide activities or duties involved in performing administrative functions, and is used mixed with the same terminology as distribution of attribution, function, powers, and authority, etc.⁶ Therefore, the concept of distribution of affairs should be understood as dividing and distributing affairs involved with rights and duties.

1-2. Distribution System of Affairs

Distribution of affairs is required in establishing an appropriate relationship between central and local government in managing organization

⁶ Affairs are also described as responsibilities, activities, and duties

to realize efficient administration. Central administrative authority is relegated to local government through a transfer of authority in Korea under local autonomy. Responsibility for the execution of affairs is also transferred to local government. As such, distribution of affairs transferring central authority to local government is referred to as local transfer (devolution), which means that state affairs under authority of central administration organization as authorized by legislation are changed to autonomous affairs performed by local government under its own authority and responsibility. Therefore, distribution of affairs by local transfer should be primarily focused on articulating power relationship between central politics/administration and local government politics/administration and the technological and functional relationship establishment between them for efficient operation of public administration.

2. Distribution Criteria of Affairs

2-1. Conception

The distribution criteria of affairs means the criteria applied in dividing affairs performed by two or multiple administrative organizations. To interpret in a broad sense, it is the distribution of administrative affairs between central and local government, and among local governments.

2-2. Contents of Distribution Criteria of Affairs

In general, the distribution criteria of affairs applicable in Korea is classified as follows.

2-2-1. Responsibility

Responsibility means that basically the affairs should be distributed to be under the control of local residents.

2-2-2. Economic Feasibility

Economic feasibility means that fundamentally the affairs between central and local government should be distributed in the direction of maximizing efficiency. The affairs which can be performed most efficiently by central government should be in charge of central government, and the affairs which can be performed most efficiently by local government should be in charge of local government. Therefore, it is desirable that central government performs the affairs which require a nationwide management, the affairs which have external effects, and the affairs which need considering economy of scale. It is advisable that local government performs the affairs which require considering the local characteristic.

2-2-3. Equity

Equity means that basically the affairs should be distributed in the direction of assuring the fairness among local governments. If there exist administrative and financial gaps to perform a certain affair among local governments, the results of performing the affair will be able to vary greatly among local governments. As a result, there could be significant gaps in the extent of benefit received among the residents of each local government.

Therefore, in the case of affairs to cause serious imbalance among local governments, it is desirable that central government performs the affairs directly rather than transferring to local governments. At least the way will make it possible to maintain a minimum level in providing administrative service to residents.

2-2-4. Clarity

Clarity refers to clarity of administrative responsibility. It means that affairs should not be distributed overlapping between central and local government, and among local governments. When the affairs are distributed overlapping between central and local government, and among local governments, this makes it difficult to locate the administrative responsibility and expenditure-bearing.

The distribution criteria of affairs discussed above has limitations in its practical application because of its abstractness.

3. Distribution Criteria of Affairs in Legislation

The local autonomy system in Korea is protected by the constitutional system which is shown by the section 1 of the article 117 of the Constitution of the Republic of Korea which states that the local government handles the affairs relating to the public welfare, deals with the properties and enacts law in regards to autonomy within the limit of law and by the section 2 which states that the type of a local government is decided based on the law.

The affairs of a local government mean affairs that a local government acts as a managing authority. The local council is able to intervene in principle with respect to the affairs of a local government and the effects of conducting affairs belong to a local government.

Affairs are classified into three categories, State affairs, affairs of local governments, and delegated affairs according to the Local Autonomy Act. State affairs provided in the Local Autonomy Act are as follows.⁷

1. Affairs necessary for the survival of the nation, such as diplomacy, national defense, administration of justice, national tax, etc.

⁷ Article 11 of Local Autonomy Act

2. Affairs which are required to be managed in a uniform manner throughout the nation, such as policies of price, finance, export, import, etc.

3. Nationwide affairs, such as the coordination of demand and supply, import and export, etc. of agricultural, forestry, livestock and marine products and grains.

4. Affairs of nationwide or similar scale such as the comprehensive national economic development plan, national rivers, state-owned forests, the comprehensive national land development plan, designated harbors, national expressways, national roads, national parks, etc.

5. Affairs which need uniformity and coordination of standards throughout the nation, such as labor standards, units of measurement, etc.

6. Affairs of nationwide or similar scale such as the postal and railroad services.

Affairs of local governments provided in the Local Autonomy Act are provided comprehensively as follows.⁸ (57 affairs in 6 sections) Provided, if it is otherwise prescribed by other Acts, this shall not apply.

1. Affairs concerning the jurisdiction, organization, administrative management, etc. of local governments.

2. Affairs concerning the promotion of welfare of residents.

3. Affairs concerning the promotion of industries including agriculture, forestry, commerce, industry, etc.

⁸ Article 9, section 2 of Local Autonomy Act

4. Affairs concerning local developments, and establishment and management of living environmental facilities for residents.

5. Affairs concerning the promotion of education, sports, culture and art.

6. Affairs concerning local civil defense and local fire fighting.

Delegated affairs are divided into two categories, agency delegated affairs and collective delegated affairs. The head of a local government deals with the agency delegated affairs which are treated as the state affairs, not the affairs of a local government.⁹ Therefore, the effects of conducting the agency delegated affairs belong to the State. The Article 9.1 of the Local Autonomy Act states that a local government handles the autonomous affairs within its jurisdiction and the affairs entrusted to it under acts and subordinate statutes. The affairs entrusted to it under acts and subordinate statutes mean collective delegated affairs.

4. Fire Service Affairs in Legislation

4-1. Fire Service in Local Autonomy Act

As the article 9.2 of the Local Autonomy Act states, affairs concerning

⁹ Agency delegated affairs are generally based on article 102 (Delegation of State Affairs) of Local Autonomy Act and do not need an individual legal basis while collective delegated affairs need an individual legal basis without a general provision.

fire-fighting belong to local government. According to the act, fire-fighting affairs should be performed by the local governments, not central government. However, the Local Autonomy Act was established in 1949 shortly after the establishment of Korean government for the first time and it was in 1988 that fire-fighting affairs were provided as affairs of local governments through a complete revision. In addition, the provision of general fire-fighting was revised into local fire-fighting in 2011¹⁰, which means that the scope of fire service affairs was limited within localities, but to interpret the provision inversely, fire service affairs beyond localities could be state affairs.

It is difficult to find out the fundamental differences between state affairs and autonomous affairs. In general, the affairs directly related with the survival of the nation and the affairs which need a nationwide unification or unity could be state affairs. The affairs related with promoting the public welfare in accordance with local characteristic could be autonomous affairs.

However, it is not appropriate to distribute the affairs with the simple disciplines in complicated contemporary public administration. The distribution of state affairs and autonomous affairs should be determined in terms of efficiency of performing a certain affair.

As mentioned above, the present fire service and disaster environments have changed drastically in comparison with the time of the revision and the

¹⁰ Subsection 6 (b) of article 9.2: Prevention of, vigilance over, extinguishing, and investigation of local fires, rescue and first aid activities.

range of nation-wide fire service has been increasing gradually. In fact, specifically the percentage of state fire service affairs in fire service related legislation has increased from 15.4% in 1991 to 48.5% in 2012. In contrast, percentage of autonomous fire service affairs is in decline.

Furthermore, to review the provision of the article 9.2 of the Local Autonomy Act in detail, there is a phrase fire-fighting literally, not fire service. In other words, at that time legislators narrowly interpreted fire service affairs to be small-scale fire prevention, fire suppression, and rescue & EMS at the local-level. However, the present disaster environments became quite different from the past ones. For instance, large-scale accidents, fires, and disasters have not only increased gradually over the decades in Korea, but large-scale disasters including earthquake and tsunami have occurred worldwide. Therefore, it is necessary that the range of fire service affairs designated as autonomous affairs should be re-established in accordance with the changes of disaster environments.

4-2. Fire Service Affairs in Government Organization Act

The article 34.7 of the Government Organization Act states that in order to take charge of affairs concerning fire service, the National Fire Agency shall be established under the jurisdiction of the Minister of the Public Administration and Security. The purpose of this Act is to prescribe the outline for the establishment and organization of national administrative

agencies and the scope of functions thereof in order to perform national administrative affairs systematically and efficiently.

5. Changes of Fire Service Affairs in Legislation

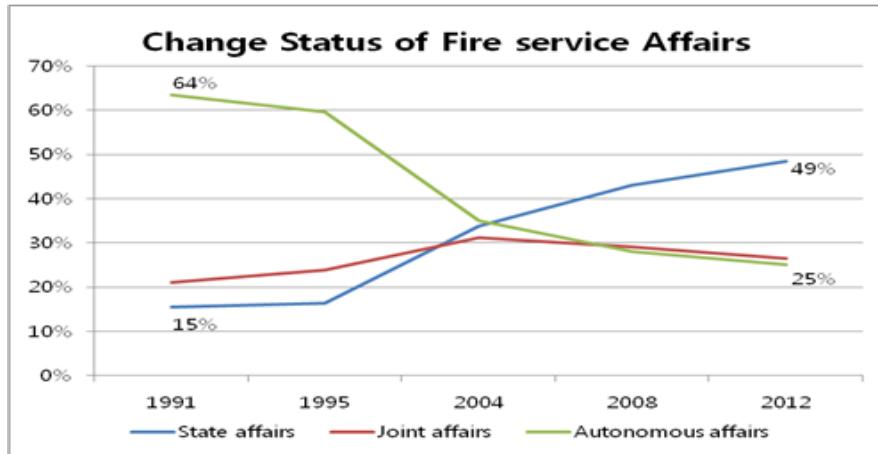
The percentage of State affairs in the fire service affairs has been increasing steadily as shown in <Table 4-1>. That is, the number and percentage of State affairs provided for 11 fire service related acts has been increasing - 8(15.4%) in 1991, 11(16.4%) in 1995, 27(33.8%) in 2004, 52(43%) in 2008, 66(48.5) in 2012.

<Table 4-1> Change Status of Fire Service Affairs in Legislation

Year	Total	State affairs	Joint affairs	Autonomous affairs	Remarks
2012 (11 Acts)	136	66 (48.5%)	36 (26.5%)	34 (25.0%)	
2008 (10 Acts)	121	52 (43.0%)	35 (29.0%)	34 (28.1%)	
2004 (7 Acts)	80	27 (33.8%)	25 (31.2%)	28 (35.0%)	NEMA
1995 (3 Acts)	67	11 (16.4%)	16 (23.9%)	40 (59.7%)	
1991 (2 Acts)	52	8 (15.4%)	11 (21.1%)	33 (63.5%)	

Source: Korean Association for Local Government Studies (2012)

<Figure 4-1> Trend of Change Status of Fire Service Affairs in legislation



Fire service affairs are provided for totally 11 related acts. They consist of Framework Act on the Management of Disasters and safety, Framework Act on Fire Services, and Act on 119 Rescue and Emergency Medical Services, etc as shown in <Table 4-2>.

<Table 4-2> Division Status of Fire Service Affairs in Individual Acts

Act	Total	State Affairs	Joint affairs	Autonomous affairs
Framework Act on the Management of Disasters and safety	13	6	4	3
Framework Act on Fire Services	23	12	7	4
Fire-fighting System Installation Business Act	7	3	2	2
Installation, Maintenance and Safety Control of Fire-fighting System Act	16	9	1	6
Safety Control of Dangerous Substances Act	8	1	1	6
Special Act on the Safety Control of Publicly Used establishments	13	6	4	3
Fire-fighting Industry Promotion Act	14	14	-	-
Fire Officers Act	11	4	7	-

Act on the Establishment of Obligatory Fire-Fighting Unit	4	4	-	-
Rescue and Aid at Sea and in the River Act	11	1	2	8
Act on 119 Rescue and Emergency Medical Services	16	6	8	2
Total	136	66	36	34

Source: Korean Association for Local Government Studies (2012)

Especially, as of April 2004 when National Emergency Management Agency (NEMA) inaugurated, the percentage of joint affairs in the fire service affairs has tended to increase more and more. In contrast, it is true that autonomous affairs take up many parts in the current fire service related acts, but autonomous affairs have been decreasing since 2004. As shown in <Table 4-1>, the change status of fire service affairs can be defined as the increase of national fire service affairs conclusively.

6. Rational Redistribution of Fire Service Affairs

The serious drawback in the legal area is that there exist serious contradictions and collisions between Local Autonomy Act and fire service related legislation.

First, the fire service affairs have been treated as affairs of local government because of the local connectivity of the fire service affairs traditionally. One of the reasons why the fire service have been treated as the affairs of local government is derived from the fact that generally most of the

western countries including the states have treated the fire service affairs as the affairs of local government. However, the fire service affairs in most foreign countries are just be small-scale fire prevention and fire suppression at the local-level in a restricted sense.

Second, as <Table 4-2> indicates, the fire service affairs in Korea are not restricted to fire prevention and fire suppression at the local-level and they were expanded to the area of comprehensive public administration including safety supervision on hazardous material, EMS & rescue activities, and fire service industry on a nationwide scale.

Third, to review the provision of the article 9.2 of the Local Autonomy Act in detail, there is a phrase fire-fighting literally, not fire service. In other words, at the time of the revision, legislators narrowly interpreted fire service affairs to be small-scale fire prevention, fire suppression, and rescue & EMS at the local-level. However, the present disaster environments became quite different from the past ones. For instance, large-scale incidents, fires, and disasters have not only increased gradually over the decades in Korea, but large-scale disasters including earthquake and tsunami have occurred worldwide under the influence of global warming. Accordingly, the reality is that the fire service affairs cannot be dealt with as the affairs of a certain local government today.

Fourth, as many statistics indicates, the present fire service and disaster circumstances have changed drastically compared with the time of the

revision of the Local Autonomy Act and the range of nation-wide fire service has been increasing gradually. In fact, specifically the percentage of state fire service affairs in fire service related legislation has increased from 15.4% in 1991 to 48.5% in 2012. In contrast, percentage of autonomous fire service affairs is in decline.

Fifth, according to the Government Organization Act, the fire service affairs might belong to state affairs. The fire service affairs need not be performed by local government on the ground of the fact that the Local Autonomy Act stipulates the fire service affairs as autonomous affairs. The fire service affairs could be performed by central government or a local government according to the characteristic of fire service affairs. The existing autonomous affairs or state affairs could be changed in accordance with the changing public administration environments.

At present, the redistribution of the fire affairs between local and central government has been demanded for effective and rapid response to various emergencies in accordance with the changes of fire service and disaster circumstances. Getting out of justification for strengthening local autonomy as a contemporary trend, it is imperative to secure the public safety which is guaranteed by the Constitution.

Therefore, it is necessary that the range of fire service affairs designated as autonomous affairs should be re-established as national affairs through the revision of the Local Autonomy Act to secure the public safety.

V. Analysis on Fire Service Finance

1. Composition of Fire Service Financial Resources

Based on the nation as a whole, the composition of fire service financial resources is classified into two types as shown in <Table 5-1>. The first one is national financial resources such as general budget of NFA (including Government Subsidy), Emergency Medical Service Fund¹¹ of the Ministry of Health and Welfare. The second one is local financial resources such as Region Development Tax¹², Fire Safety Grants¹³, etc.

<Table 5-1> Scale of Financial Resources of Fire Service by Type for Last 5 Years (2011~2015)

Division	[Unit: One million won, %]				
	2011	2012	2013	2014	2015
Total Budget	2,656,632 (100)	2,615,213 (100)	3,150,214 (100)	3,216,221 (100)	3,770,236 (100)
Central Government Subsidy	19,271 (0.7)	15,981 (0.6)	31,149 (1.0)	20,971 (0.7)	158,420 (4.2)

¹¹ Article 19.1 of Emergency Medical Service Act (Establishment, Management and Operation of Emergency Medical Service Fund) The Minister of Health and Welfare shall establish an Emergency Medical Service Fund to efficiently perform emergency medical services.

¹² Article 141 of Local Tax Act (Purposes) Local resource and facility tax may be imposed in order to secure financial resources necessary for protecting and developing local resources, such as underground and marine resources, tourism resources, water resources and special geographical features, for conducting safety management projects, such as fire-fighting activities and prevention of specific disasters in a region.

¹³ Article 9-4 of Local Subsidy Act (Grant of Fire Fighting Safety Subsidies)

Region Development Tax	650,616 (24.5)	750,301 (28.7)	880,821 (29.1)	948,138 (30.6)	1,209,493 (32.1)
Fire Safety Grants	-	-	-	-	314,100 (8.3)
Emergency Medical Fund	28,030 (1.0)	27,627 (1.0)	31,889 (1.0)	34,637 (1.1)	45,102 (1.2)
Special Grants	16,400 (0.6)	9,150 (0.3)	-	-	-

Source: MPSS (2016) *Fire-fighting Administrative Statistics*

2. Current Status of Fire Service Finance

There have existed serious gaps among local governments that reflect financial dependence in these localities in terms of the quality of fire service. As a result, the people cannot receive the equal fire service throughout the nation due to the financial gaps among local governments. Investigating human resources and budgetary resources of fire service affairs between central and local governments, this chapter confirms that the redistribution of fire service affairs between central and local governments is a substantial way to improve the emergency response capability of fire service organizations and contribute to the public safety.

2-1. Fire Service Budget with High Proportion of Personnel Expenditure

Fire service budget was 3,770,236 million won in 2015, which showed a 17.2% year-on-year increase compared with the previous year as shown in <Table 5-2>.

<Table 5-2> Status of Year-on-year Increase of Fire Service Budget

Division		2014	2015	Increase	Percent
Total		3,216,221	3,770,236	554,015	17.2%
Central	Subtotal	115,698	250,280	134,582	116.3%
Provincial	Subtotal	3,100,523	3,519,956	419,433	13.5%
	National Expenditures	55,608	158,420	102,812	184.9%
	Local Expenditures	3,100,523	3,519,956	419,433	13.5%

Source: MPSS (2016) *Fire-fighting Administrative Statistics*

Fire service budget was 3,216,221 million won in 2014. Fire service budget is primarily spent to pay personnel expenditure. Operation expenses such as personnel expenditure account for 74.1% of total fire service budget, working expenses account for 24.3% as shown in <Table 5-3>. A greater proportion of operation expenses show that fire service budget is rigid and uncontrollable. The central budget is 250,280 million won (6.6%), provincial budget is 3,519,956 million won (93.3%).

<Table 5-3> Provincial Fire Service Budget in 2015

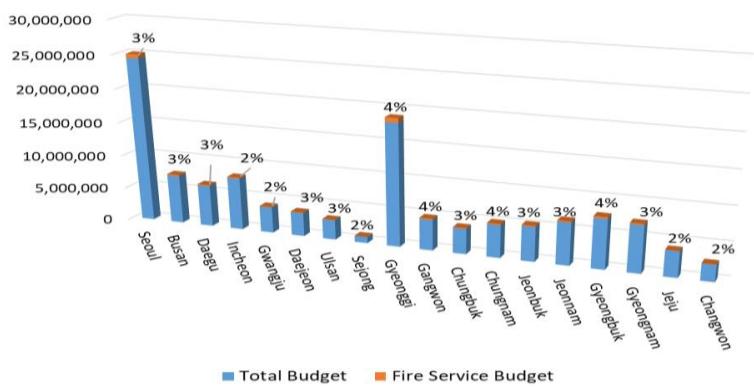
Province	Total Budget (A)	Fire Service Budget (B)				Rate (B/A) %	Region Development Tax (C)	Rate (C/B) %
		Total	operation expenses	working expenses	financing activities			
Total	120,121,167	3,519,956	2,611,299	855,855	52,802	2.9	1,209,493	34.4
Seoul	24,413,332	611,756	480,820	130,799	137	2.5	233,203	38.1
Busan	7,224,548	199,790	159,550	40,099	141	2.8	114,038	57.1
Daegu	6,176,000	160,149	122,789	37,360	-	2.6	40,123	25.1

Incheon	7,764,571	186,163	142,519	43,245	400	2.4	111,938	60.1
Gwangju	3,848,511	91,025	71,929	18,896	200	2.4	26,434	29.0
Daejeon	3,508,414	98,818	74,355	23,955	508	2.8	29,930	30.3
Ulsan	2,917,152	76,420	51,744	24,517	159	2.6	28,000	36.6
Sejong	917,000	20,032	12,090	7,942	-	2.2	2,227	11.1
Gyeonggi	18,124,910	699,136	492,784	156,612	49,740	3.9	294,100	42.1
Gangwon	4,558,880	181,186	128,538	52,648	-	4.0	29,000	16.0
Chungbuk	3,758,801	124,910	90,310	33,234	1,366	3.3	28,900	23.1
Chungnam	4,870,991	174,167	122,514	51,502	151	3.6	57,000	32.7
Jeonbuk	5,136,641	149,155	114,839	34,316	-	2.9	27,469	18.4
Jeonnam	6,281,978	179,930	136,068	43,862	-	2.9	58,400	32.5
Gyeongbuk	7,341,210	260,641	183,000	77,641	-	3.6	48,000	18.4
Gyeongnam	6,985,132	187,258	137,536	49,722	-	2.7	51,143	27.3
Jeju	3,819,405	63,477	43,720	19,757	-	1.7	9,540	15.0
Changwon	2,473,691	55,943	46,195	9,748	-	2.3	20,048	35.8

Source: MPSS (2015) *Fire-fighting Administrative Statistics*

<Figure 5-1> Provincial Fire Service Budget out of Total Budget in 2015

[Unit: One million won]

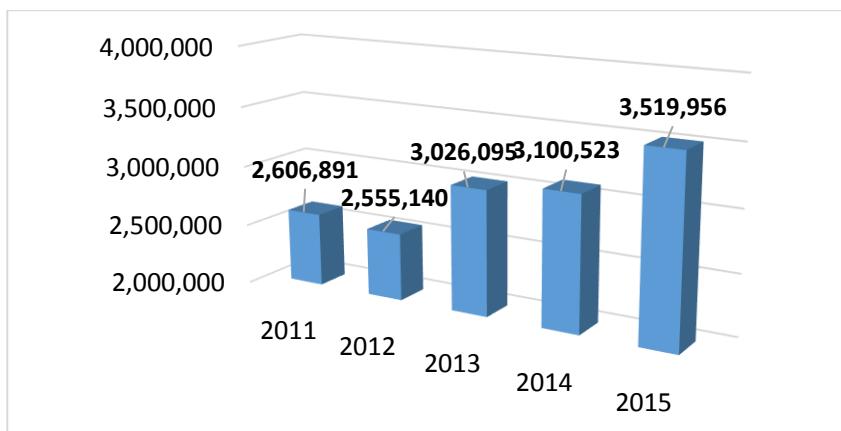


2-2. Steady Increase of Fire Service Budget

The fire service budget of cities and provinces has increased steadily as shown in <Figure 5-2>.

<Figure 5-2> Increase Trend in Provincial Fire Service Budget for Last 5 Years

[Unit: One million won]



Source: MPSS (2016) *Fire-fighting Administrative Statistics*

2-3. High Proportion of Local Expenditures in Provincial Fire Service Budget

The provincial fire service budget is classified into national expenditures and local expenditures according to the subject of financial burden. At present, the local government bears most of the provincial fire service budget as shown in <Table 5-4>. The proportion of national expenditures (financial burden of central government) was just 4.5% (158,420 million won), the proportion of local expenditures (financial burden of local government) was

95.5% (3,361,536 million won) as of 2015. High proportion of local expenditures have persisted for a long time. To review the changes in the proportion of local expenditures, 98.2% in 2011, 98.3% in 2012, 97.9% in 2013, 98.2% in 2014, and 95.5% in 2015. Although the proportion of local expenditures was somewhat improved in 2015, the proportion stayed between 97% and 98% before 2014.

<Table 5-4> Increase Status in Provincial Fire Service Budget

[Unit: One million won]

Year	Total Budget	National Expenditures	Rate (%)	Local Expenditures	Rate (%)	Year-on-year Increase
2011	2,606,891	47,301	1.8	2,559,590	98.2	127,514
2012	2,555,140	43,608	1.7	2,511,532	98.3	▲51,751
2013	3,026,095	63,038	2.1	2,963,057	97.9	470,955
2014	3,100,523	55,608	1.8	3,044,915	98.2	74,428
2015	3,519,956	158,420	4.5	3,361,536	95.5	419,433

Source: MPSS (2015) *Fire-fighting Administrative Statistics*

The subject of financial burden of local expenditures is regional local government, not basic local government. The proportion of local expenditures of special city or metropolitan cities in provincial fire service budget is relatively low, the proportion of local expenditures of provinces is relatively high.

3. Challenges on Fire Service Finance

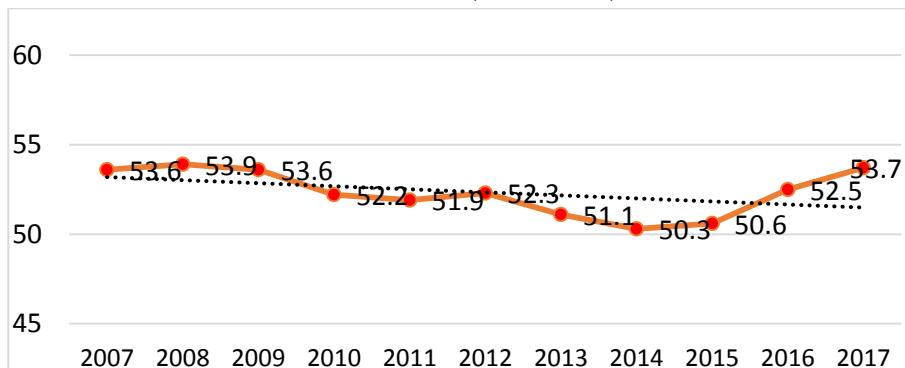
3-1. Distribution structure of fire service finance

In spite of changes of fire service related environments such as the consistent increase in demands for fire service, the continuous expansion of fire service affairs, the distribution structure for financial resources of fire service has not changed. Especially, although the proportion of state fire service affairs has increased, the financial burden ratio of central government is imperceptible. As shown in <Table 5-3>, the financial burden ratio of central government was only 4.5% as of 2015.

3-2. Decline in Financial Support Capacity of Locality for Fire Service

The reality is that the financial support capacity of local government for fire service has decreased in accordance with continuous deterioration of its own revenue base.

<Figure 5-3> Nationwide Average of the Fiscal Self-reliance Ratio of Localities for Last 11 Years (2007~2017)

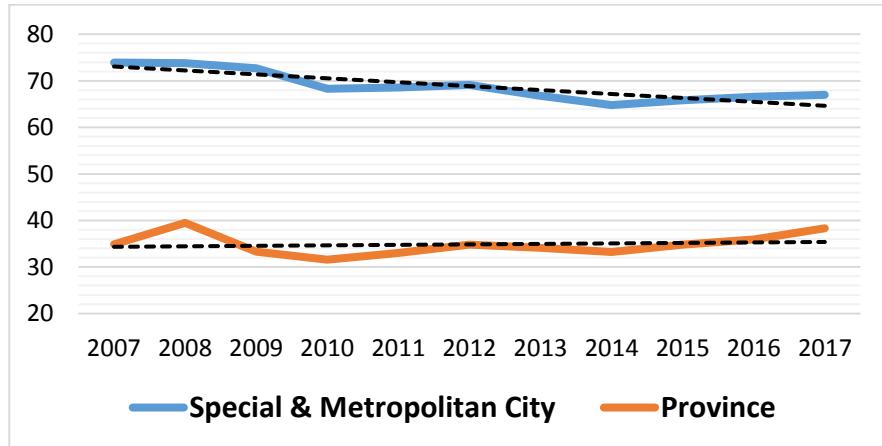


Source: 「Overview of Integrated Finance of Local Government」

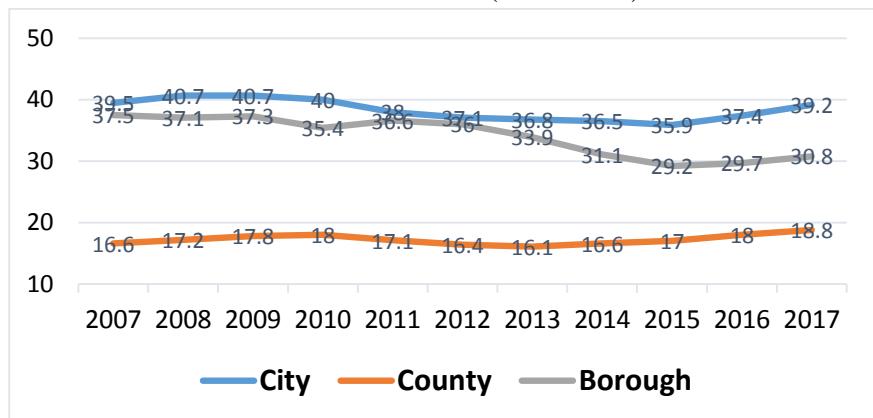
The fiscal self-reliance ratio of localities has declined by 0.2% from 53.9% in 2008 to 53.7% in 2017 as shown in <Figure 5-3>.

Especially, its own revenue base of the regional local government bearing most financial resources of fire service has more deteriorated than basic local government. The fiscal self-reliance ratio of special city and metropolitan cities has decreased by 6.8% from 73.8% in 2008 to 67% in 2017, the fiscal self-reliance ratio of provinces has declined by 1.2% from 39.5% in 2008 to 38.3% in 2017 as shown in <Figure 5-4>. During the same time, the basic local governments such as the cities and towns have changed little as shown in <Figure 5-5>.

<Figure 5-4> Fiscal Self-reliance Ratio of Special City and Metropolitan Cities for Last 11 Years (2007~2017)



<Figure 5-5> Fiscal Self-reliance Ratio of City, County, and Borough
for Last 11 Years (2007~2017)

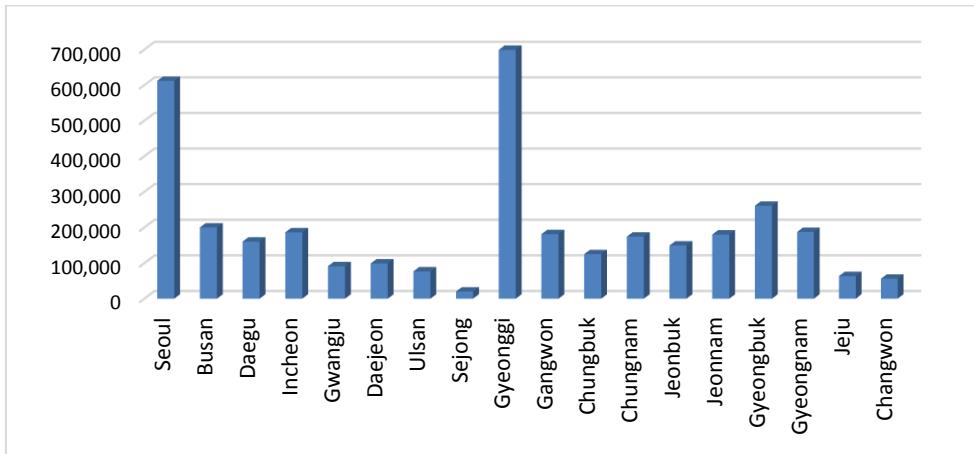


3-3. Concern about Decline in Quality of Fire Service

The distribution structure for financial resources which fails to correspond with the changing public administration environments, and the financial difficulties of localities bring about deficiency in financial resources of fire service. As a result, the local fire service organizations have much difficulty in reinforcing fire service personnel or modernizing fire service equipment as necessary. Looking into general status of provincial fire officers in accordance with each provincial fire service budget as shown in <Figure 5-6>, it is evident that the financial conditions of local governments play an important role in fire service force arrangement.

<Figure 5-6> Provincial Fire Service Budget in 2015

[Unit: One million won]



Source: MPSS (2016) *Fire-fighting Administrative Statistics*

The number of fire service personnel is so low compared with other countries' and working conditions of fire service personnel are rather poor as shown in <Table 5-5>. Some local governments are in the middle of lawsuits as they did not pay overtime allowances to fire service personnel due to deficiency in financial resources.

<Table 5-5> The Number of Population to assume per capita and Working Week in Major OECD Countries

Division	Korea	Japan	France	German	USA	UK
Number of Population to assume per capita	1,210	820	1,029	1,432	1,075	1,298
Working Week	56	40	48	56	40	48

Source: MPSS (2016) *Fire-fighting Administrative Statistics*

The number of fire service personnel subject to injury or death on the job has not declined remarkably as shown in <Table 5-6> due to the obsolescence of fire service equipment, the shortage of safety equipment as shown in <Table 5-7> and <Table 5-8>.

<Table 5-6> General Status of Death and Injury of Fire Officers (2010~2015)

Division	Total	Annual Average	2010	2011	2012	2013	2014
Total	1,629	325.8	348	363	292	294	332
Death	33	6.6	8	8	7	3	7
Injury	1,596	319.2	340	355	285	291	325

<Table 5-7> Obsolescence Rate Status of Fire Engines in 2015

Division	Number of Fire Engines	Number of Fire Engines over Durable Period	Obsolescence Rate (%)
Total	5,682	1,202	21.2

<Table 5-8> Obsolescence and Shortage Rate Status of Personal Safety Equipment in 2015

Division	Total	Air Respirator	Fire Suit	Fire Helmet	Fire Shoes	Fire Gloves	Fire Hood
Holding Criteria Per Capita	10	1	2	1	2	2	2
Holding Criteria	350,564	38,842	68,220	38,842	68,220	68,220	68,220
Holding Number	343,810	39,817	71,462	43,614	63,166	65,218	60,533
Obsolescence Number (Obsolescence Rate)	56,806 (16.5)	8,728 (20.0)	31,119 (43.5)	16,959 (38.9)	-	-	-
Shortage Number (Shortage Rate)	15,743 (4.5)	-	-	-	5,054 (7.4)	3,002 (4.4)	7,687 (11.3)

4. Review on Alternatives to Expand Fire Service Finance

4-1. Support Expansion of Central Government Subsidy

According to the analysis of Korean Association for Local Government Studies, fire service affairs consist of 48.5% of state affairs, 26.5% of joint affairs, and 25% of autonomous affairs. Nevertheless, the proportion of fire service financial resources supported from central government accounts for just 4.5%. In this respect, this is one alternative that the amount of central government subsidy should be adjusted upward. The basic direction of upward adjustment of central government subsidy as follows. The central government should bear 100% of expenditures in case that fire service affairs are state affairs. The central government should bear 75% of expenditures in case that fire service affairs are joint affairs. The local government should bear 100% of expenditures in case that fire service affairs are autonomous affairs.

4-2. Support Expansion of Emergency Medical Service Fund

Emergency medical service fund is organized and operated as rescue & EMS related budget at present. However, the proportion as fire service financial resources have stayed around 1%. Concretely, it has supported reinforcing 119 EMS helicopters and ambulances. As mentioned above, the

number of rescue activities was 479,786 and average annual increase rate of rescue activities was 12.6% as of 2015. The number of EMS activities was 1,707,007 and average annual increase rate of rescue activities was 4.1% as of 2015. This is another alternative that considering this reality of fire service, the proportion of emergency medical service fund should be adjusted upward.

4-3. Introduction of Fire Service Tax

This is another alternative that fire service tax should be levied with being separated from individual consumption tax as local tax, managed as fire service special account, and utilized only for a purpose of fire service. The primary financial resources of fire service in Germany is fire service tax. At present, Germany levies fire service tax as an objective tax on fire insurance, etc.

VI Analysis on Fire Service Organization & Command System

1. Current Fire Service Organization

1-1. Overview

The fire service organization of the Republic of Korea consists of the National Fire Agency under the Ministry of Public Administration and Security Affairs and the city or circuit fire service headquarters. Under the National Fire Agency there are National 119 Rescue Headquarters and a National Fire Service Academy, and under the city or circuit fire service headquarters there are fire stations and local fire academy. The National Fire Agency is the central government, the city or circuit fire service headquarters are managed by the local government respectively.

1-2. History of NFA

The Fire Bureau in the Ministry of Home Affairs was established in 1948. The Headquarters of Civil Defense and the Fire Bureau in the Ministry of Home Affairs was established in 1975. The Civil Defense Headquarters and the Fire Bureau within the Ministry of Home Affairs was established in 1991. It was reorganized into the Headquarters of Civil Defense and Disaster

Management in the Ministry of Government Administration and Home Affairs in 1998.

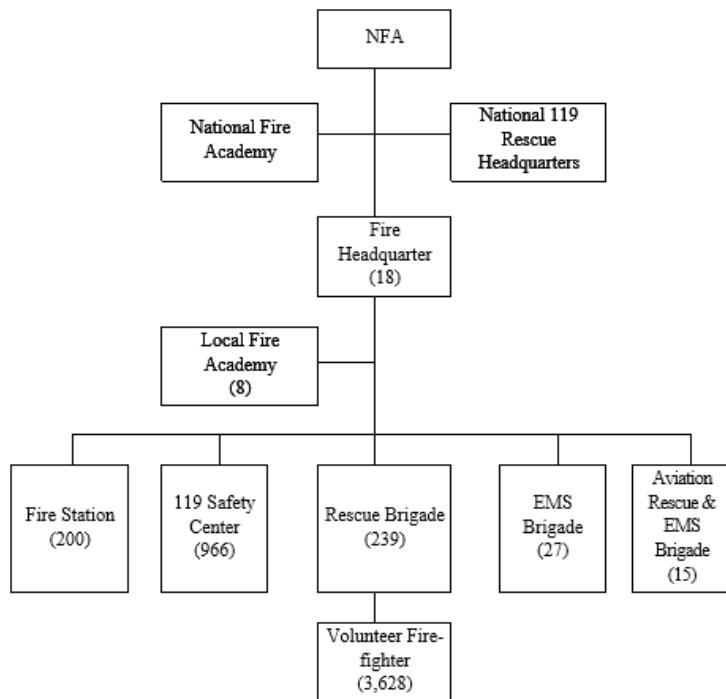
The National Emergency Management Agency (NEMA) under the Ministry of Government Administration and Home Affairs was established in 2004. It was expanded and reorganized into the Safety Management Headquarters in the Ministry of Security and Public Administration in 2013.

The revised bill for the National Government Organization Act (Concerning the establishment of the Ministry of Public Safety and Security) was passed by the National Assembly in 2014. The Ministry of Public security and Safety (MPSS) was established in 2014. In accordance with inauguration of new government, MPSS was abolished and the National Fire Agency was established newly in 2017.

1-3. Organization of NFA

The National Fire Agency consists of two bureaus, two offices, and thirteen divisions including the National Fire Academy and the National 119 Rescue Headquarters.

< Figure 6-1> Organization System of Central and Local Fire Service



Source: MPSS (2015) *Fire-fighting Administrative Statistics*

1-4. Local Fire Organization

The fire department was established in Seoul Metropolitan City and Busan Metropolitan City in 1972, and in 1975, it was responsible for fire-fighting affairs in the fire department of the Civil Affairs administration of each circuit. Since 1976 the mayor and county guard were in charge of firefighting work only in areas where fire stations were not established, but in 1992 the circuit Fire headquarters was established and reached the present. Fire Headquarters are established under mayor or governor in each city and

province. Fire stations, 119 safety centers, local fire academies, and aviation rescue & EMS brigades are operated under fire headquarters as shown in <Figure 6-1>. Most of the fire headquarters perform fire service affairs with similar organization system.

2. Current Fire Service Command System

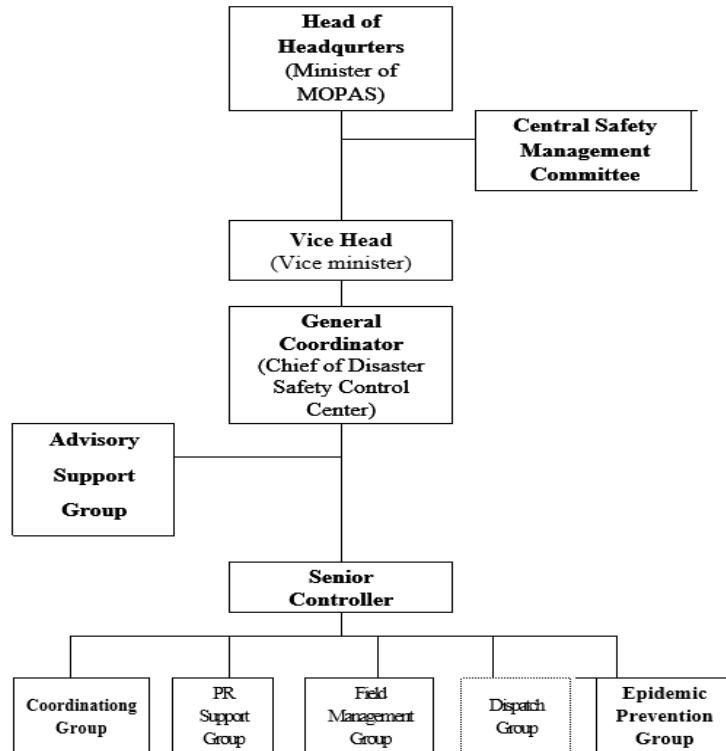
2-1. Overview

As discussed above, the current fire service command and control system is dualized due to the organizational structure between central and local government. When emergency or disaster occurs, commander in chief (mostly fire chief) takes orders from the director of the fire headquarter under mayor or governor, and at the same time, takes orders from administrator of NFA. This dualistic command and control system on the scene leads to confusion of command system and difficulties in moving in perfect order in case of emergency or disaster.

NFA takes responsibility for practical affairs for regular period. When a disaster strikes, an ad hoc organization called CDSCH forms. The Central Disaster and Safety Countermeasures Headquarters (CDSCH) is in charge of prevention and status control of natural disasters, as well as recovery planning, and executes necessary measures related to such disasters. The Minister of

the Ministry of Public Affairs and Security (MOPAS) heads the CDSCH while vice minister of MOPAS serves as its vice-chief as shown in <Figure 6-2>.

< Figure 6-2> Organization Chart of Central Disaster and Safety Countermeasures Headquarters



Source: Framework Act on the Management of Disasters and Safety

Twenty-three personnel from 21 government organizations serve on its council. Also, the Central Safety Management Committee serves the function of providing coordination and support for the CDSCH, and the Central Emergency Rescue Control Squad supports CDSCH when a massive search and rescue service is required.

2-2. Case Study on Sewol Ferry Disaster

2-2-1. Summary of Sewol Ferry Disaster

When the ferry started to sink on April 16, 2014, it was carrying 474 passengers. Once it started to sink near the island of Jindo, located on the southwest coast of the Korean peninsula, it took about hours until it was out of sight. Of all passengers, 325 were students of Danwon High School who were on a school trip to the island of Jeju. A total of 174 people were rescued, 75 out of 325 students, 3 out of 14 teachers, 20 out of 29 crew members, and 76 out of 108 ordinary passengers. A total of 295 people were found dead and 9 people are missing. On April 20, the government declared the affected area as a special disaster area and all mainstream media outlets reported on the issue. The entire nation grieved for months, as well as overseas Koreans who heard about the news. The Ferry disaster also initiated a national discussion on relevant issues of safety standards, disaster management, vulnerability and preparedness that eventually turned into a discourse of self-criticism of the Korean society. Some scholarly works have since been published that discuss the problems and implications of the event.

2-2-2. Lessons Learned from Case Study

The case study describes a horrifying example of poor emergency response and weak organizational coordination in the critical moments of an unfolding crisis. Analyzing the elements of that severely inadequate response is worthwhile.

The central government operates the Central Disaster and Safety Countermeasures Headquarters (CDSCH) at the central level, while setting up the Joint Field Office (JFO) at the local level. However, each delegate from different departments does not always coordinate on related issues. At times, delegates also fail to follow the chain of command. In the case of the Sewol Ferry Disaster, disaster management was lacking or insufficient in the way the national and local governments responded, especially during and initially after the disaster. To illustrate, during the release of reports on the incident, the head of CDSCH changed the count of the ferry passengers a number of times, and this caused confusion to many people, possibly the whole nation.

Many advanced nations such as the USA have their own national disaster response framework, however, in the case of Korea, the importance of such framework has not been considered before the Sewol Ferry Disaster. Nevertheless, at present, the second minister of MOPAS is designated as the vice head of CDSCH. The vice head of CDSCH should have a lot of experience in the emergency and disaster site to respond to emergencies and disasters immediately and effectively. Therefore, it is imperative to designate the administrator of NFA as the vice head of CDSCH, which will enhance the

response capacity of government in case of large-scale emergencies and disasters. In addition, the disaster management system in Korea is focused on central government, but CDSCH should play a supporting role and the disaster management should be performed in the field. The field centered right of command should be established in emergencies and disasters as the commander in chief in the field was a Fire Chief in the region at the time of 9/11 terrorist attacks.¹⁴ The commander in chief in the field in Hudson River mid-air collision¹⁵ of New York.in 2009 was a Chief of Port Authority of New York. It was because the initial response should be entrusted to the person who know the field well in emergencies and disasters.

¹⁴ The September 11 attacks (also referred to as 9/11) were a series of four coordinated terrorist attacks by the Islamic terrorist group al-Qaeda on the United States on the morning of Tuesday, September 11, 2001. The attacks killed 2,996 people, injured over 6,000 others, and caused at least \$10 billion in infrastructure and property damage.

¹⁵ The 2009 Hudson River mid-air collision was a flight accident that occurred on August 8, 2009, at 11:53 a.m. (15:53 UTC). Nine people died when a tour helicopter and a small private airplane collided over the Hudson River.

VII Fire Service System in Foreign Countries

1. United States

1-1. Organizational System

1-1-1. Federal Organizational System

1-1-1-1. Organization and History of USFA

The United States Fire Administration (USFA) is currently an entity within the Federal Emergency Management Agency (FEMA) of the Department of Homeland Security (DHS) as shown in <Figure 7-2>. Its mission is to provide leadership, coordination, and support for the nation's fire prevention and control, fire training and education, and emergency medical services activities, and to prepare first responders and health care leaders to react to all hazard and terrorism emergencies of all kinds. The USFA consists of NETC Management, Operation and Support Services Division, National Fire Academy Division, National Fire Programs Division as shown in <Figure 7-1>.

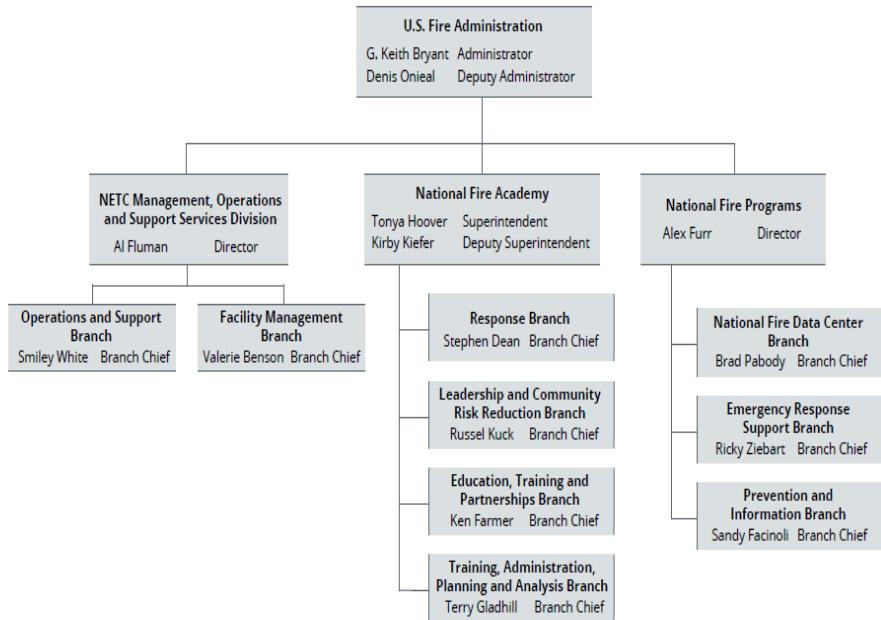
The genesis of USFA and FEMA's fire prevention and control activities can be found in the landmark 1973 report of the National Commission on Fire Prevention and Control, entitled America Burning. The commission

recommended the creation of a federal fire agency which would provide support to state and local governments and private fire organizations in their efforts to reduce fire deaths, injuries, and property loss. The commission recommended that this new agency be placed within the Department of Housing and Urban Development.

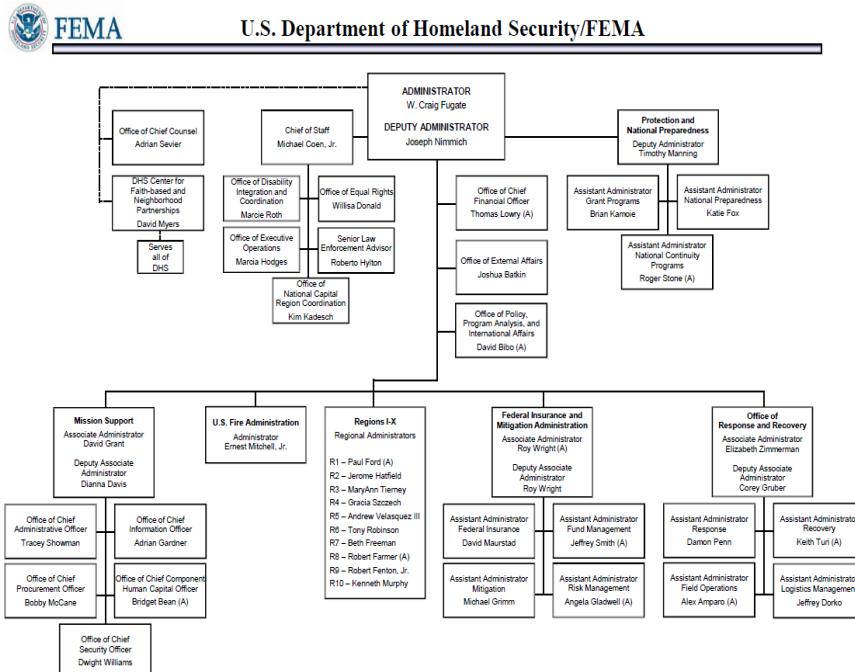
Congress instead opted to place the agency in the Department of Commerce, and with the passage of the Federal Fire Prevention and Control Act of 1974, the National Fire Prevention and Control Administration (NFPCA) was established. In 1978, Congress changed the name of NFPCA to USFA, and in 1979, President Carter's Reorganization Plan No. 3 placed the USFA within the newly created FEMA. Also in 1979, the National Fire Academy (NFA) in Emmitsburg, MD, was opened, offering courses and training to fire service personnel and other persons engaged in fire prevention and control.

During the early 1980s, the Reagan Administration proposed the elimination of the USFA (while preserving the Fire Academy). Although Congress did not allow the termination of the USFA, the agency suffered severe staff reductions and the Fire Academy was separated from the USFA and housed organizationally with other FEMA emergency training programs. In 1991, the NFA was subsequently reorganized back into the USFA, where it remains today.

< Figure 7-1> Organization Chart of USFA



< Figure 7-2> Organization Chart of FEMA



1-1-1-2. Objective of USFA

One of USFA's key objectives is to significantly reduce the nation's loss of life from fire, while also achieving a reduction in property loss and non-fatal injury due to fire. Although fire loss has improved significantly over the past 25 years, the fire problem in the United States remains serious. The United States still has one of the highest fire death rates in the industrialized world. According to the National Fire Protection Association (NFPA), in 2013 there were 3,240 civilian fire deaths, 15,925 civilian fire injuries, and an estimated \$11.5 billion in property damage.¹⁶ According to the NFPA, there were 97 on-duty firefighter deaths in 2013.¹⁷

1-1-1-3. Programs of USFA

USFA programs include the following.

- a. Data Collection - USFA's National Fire Data Center (NFDC) administers a national system for collecting, analyzing, and disseminating data and information on fire and other emergency incidents to state and local

¹⁶ Karter, Michael J., National Fire Protection Association, *Fire Loss in the United States During 2013*, September 2014, available at <http://www.nfpa.org>.

¹⁷ National Fire Protection Association, *Firefighter Fatalities in the United States - 2013*, June 2014, available at <http://www.nfpa.org>.

governments and the fire community. The NFDC provides a national analysis of the fire problem, identifying problem areas for which prevention and mitigation strategies are needed.

b. Public Education and Awareness - Through partnerships and special initiatives, USFA involves the fire service, the media, other federal agencies, and safety interest groups in the development and delivery of fire safety awareness and education programs. These programs are targeted at those groups most vulnerable to the hazards of fire, including the young, elderly, and disabled.

c. Training - USFA's National Fire Academy (NFA) offers educational opportunities for the advanced professional development of the mid-level and senior fire/EMS officer and allied professionals involved in fire prevention and life safety activities. The academy develops and delivers educational and training programs with a national focus that supplement and support state and local fire service training. The NFA also offers training to support the nationwide implementation of the National Incident Management System (NIMS).

d. Research and Technology - Through research, testing, and evaluation, USFA works with public and private entities to promote and improve fire and life safety. Research and special studies are conducted on fire detection, suppression, and notification systems, as well as issues related to firefighter and emergency responder health and safety. Research results are published

and made available to the public free of charge through the USFA Publications Center.

The USFA builds a cooperation system with FEMA but in fact the USFA performs its affairs independently from FEMA. The USFA is in charge of the nation-wide fire service administration, coordination of individual functions, fire prevention and fire control planning, management and analysis of extensive fire data at the federal level.

1-1-2. Local Organizational System

Each state in the United States establishes and enforces fire service related legislation by state. However, it has somewhat structural uniformity because each state legislature or city council enacts and enforces the respective ordinance according to the code of the National Fire Protection Association (NFPA).

1-2. Financial System

Fire Administration basically belongs to local government in the United States, but the burden of financial resources varies widely in different localities. It is divided largely into two ways. The first one is that local government supplies the financial resources autonomously. The second one

is that federal or state government supports local government.

1-2-1. Federal Government

Federal government is the biggest provider of grants for EMS system and fire service. At present, 26 federal organizations are working on more than 1,000 grants projects. Federal government provides federal grants to state government in the form of formula grants or block grants. Mostly federal grants are distributed to local government through state government, but federal grants like Assistance to Firefighters Grant are distributed to fire station or EMS organization of local government directly.

1-2-2. State Government

Most of the financial resources of state government is provided through grants of federal government like Community Development Block Grant or Homeland Security Grant Program. This kind of grants are transferred to local government through various organizations of state government. The autonomous financial resources of state government consist of low interest loan, surplus vehicle and equipment, special purpose grant, matching grant, technical assistance, subsidized training, etc.

1-2-3. Local Government

The representative financing method of local government is tax, especially, property tax. Most of the local governments expend for fire service function from general account with other functions. Except for property tax, the part of sales tax is relegated to the only fire service function in some local governments. Some local governments levy an income tax instead of federal or local government.

2. Japan

2-1. Organizational System

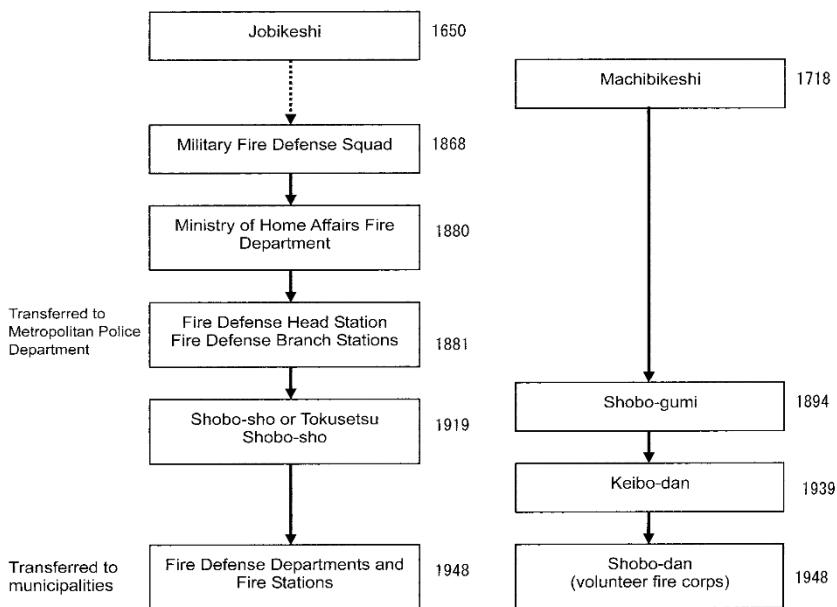
2-1-1. Overview of Organization and History

In 1948, the National Fire Defense Agency and the Fire Defense Institute, National Research Institute of Fire and Disaster were organized under the management of the National Public Safety Commission. The Fire Service Law was promulgated in June and enforced in August 1948. It defined the fire-fighting activities based on the principle of "fire service by the municipalities" and gave these activities a legal foundation.

In 1952, the National Fire Defense Agency was renamed National Fire

Department, and then to Fire Defense Agency in 1960 and made into an external organ of the Ministry of Home Affairs. With the Central Government Reform implemented in 2001, at present, it is called Fire and Disaster Management Agency (FDMA), an external organ of the Ministry of Internal Affairs and Communications as shown in <Figure 7-3>.

<Figure 7-3> Changes in the Fire Fighting Organizations

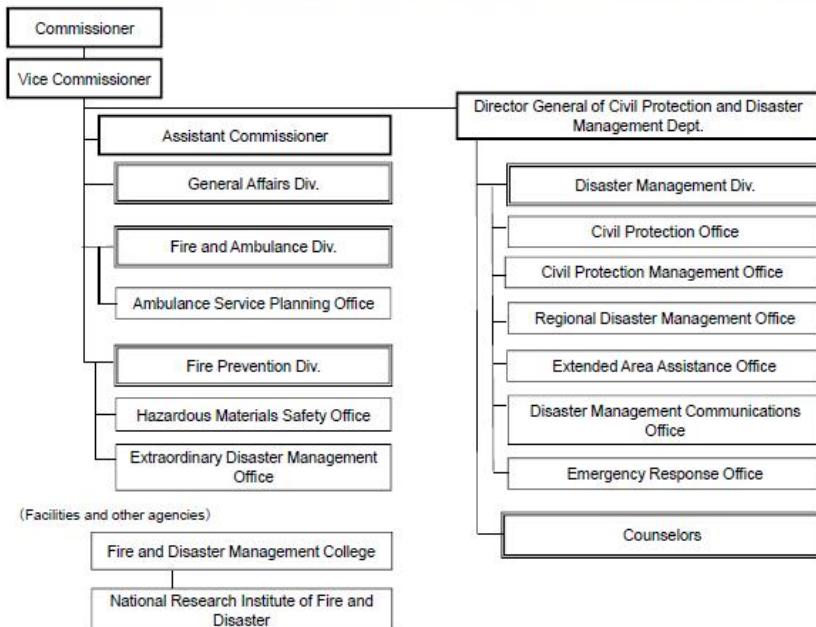


2-1-2. State

As a national organization for fire service, the Fire and Disaster Management Agency (FDMA) has been established as an external organ of the Ministry of Internal Affairs and Communications. The law prescribes that the FDMA conducts research, formulates plans, etc., concerning fire service systems

in order to strengthen the fire defense capabilities of the municipalities. To this end, it provides municipalities with advice, guidance and recommendations concerning their fire service organizations and activities. However it does not have the power to control such organizations and activities. Below are the main affairs under the jurisdiction of the FDMA.

< Figure 7-4> Organization Chart of FDMA



2-1-3. Perfectures

The main affairs under the jurisdiction of the prefectures are as follows. The prefectures comprise large area local governments that include municipalities. As such, they are expected to provide municipalities with advice and guidance so that they can fully carry out their fire service activities.

The main affairs also include liaison with municipalities and promotion of communication and cooperation among municipalities. The prefectures are also expected to provide education and training for fire service personnel and members of volunteer fire corps by establishing fire academies (or "fire training schools"). In general, the prefectoral organization for fire service is the division in charge of fire service established as part of the prefectoral government organization.

2-1-4. Municipalities

The municipalities are obliged to fully carry out the fire services in their areas. They implement the actual fire service affairs such as fire-fighting and rescue and ambulance services. However, for such reasons as finances, if it is deemed more efficient and rational to handle such affairs jointly with other municipalities, some municipalities are doing so by establishing "municipal corporations" or "area associations." The organizations for handling the fire services consist of fire departments, fire stations and volunteer fire corps. The municipalities are required to organize some or all of these organizations. The fire departments and fire stations are manned by professional fire fighters, while the fire corps consist of volunteer fire fighters who have their own occupations. The fire corps are independent from the fire departments and fire stations and there are no top-down relationships between these two. However,

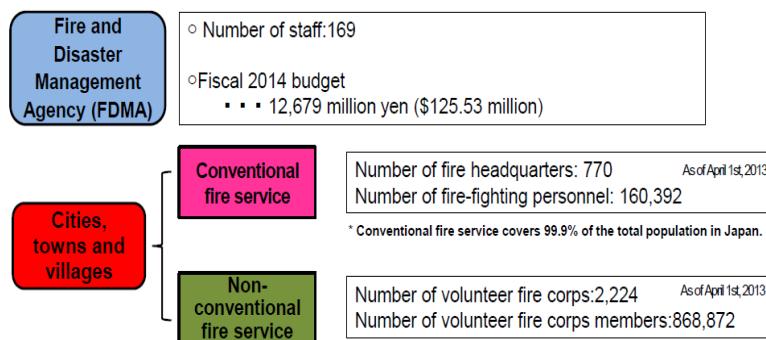
in cases where the fire corps are called out in emergencies, they must follow the orders of the chief of the fire department or fire station.

The 23 wards of Tokyo are exceptions. Fire services of these municipalities are handled by the Tokyo Prefecture. The system of handling fire services also includes entrustment. In the case of Tokyo, municipalities other than the 23 wards are entrusting the fire service operations to Tokyo Prefecture, with some exceptions such as Inagi City and island area.

As of April 2013, the municipalities that had established permanent fire service organizations (i.e. fire departments) numbered 1,684 (97.9% of all municipalities), covering 99.9% of the entire population. As of the same date, 720 fire departments had been established, with the fire service personnel numbering approximately 160,000 as shown in <Figure 7-5>.

All the municipalities have a volunteer fire corps. The basic rule is one corps in one municipality. However, there are municipalities that have established more than one corps. As of April 2013, the volunteer fire corps numbered 2,224, with about 860,000 members as shown in <Figure 7-5>.

< Figure 7-5> Fire Fighting System in Japan



2-1-5. Relationship between national government and local governments, and between local governments

In order to maintain the independence of municipal fire service organizations, the law prescribes that such organizations need not follow the operation and management or administrative control of the national or prefectural governments. This means that such organizations are not controlled by the national or prefectural governments concerning such matters as personnel management, organization, budget, or fire-fighting activities or other acts.

The national government can only advise, recommend or guide prefectures and municipalities but cannot control them. However, in case of emergencies such as earthquakes, typhoons and flood and fire disasters, it can request prefectural and municipal governments to provide assistance.

Likewise, the prefectural governments cannot control municipalities, but can provide advice, recommendations or guidance. In case of emergencies such as earthquakes, if the disaster occurs within the jurisdiction of the prefecture, the prefectural government can request the municipalities within its jurisdiction to provide assistance. If the disaster occurs outside its jurisdiction, it can request the relevant municipalities for assistance, if so requested by the Commissioner of the Fire and Disaster Management Agency (FDMA).

The municipalities can assist each other based on agreements. Even in

cases where there are no such agreements, they are obliged to make efforts to assist each other.

2-2. Financial System

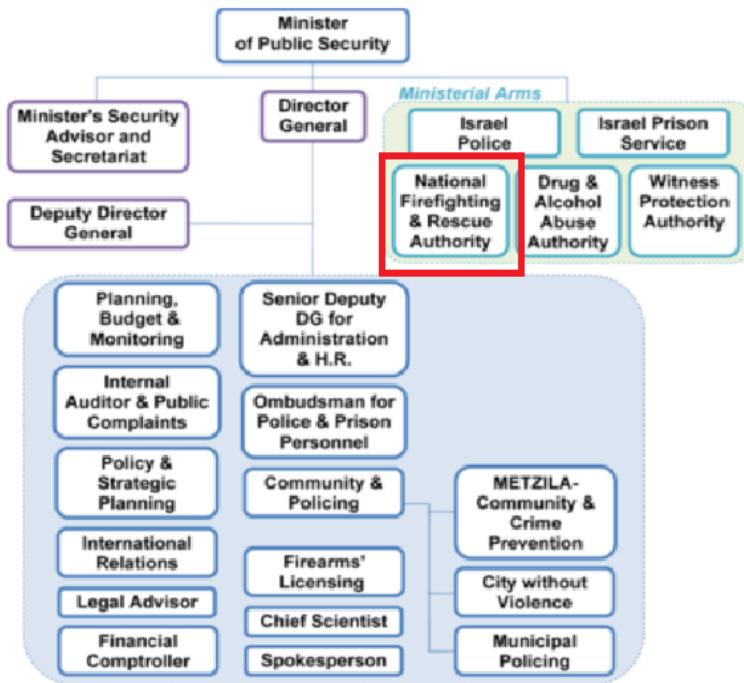
The characteristics of fire service finance in Japan are as follows. First, state, prefectures, and localities share the burden of supplying financial resources together, but in practice state and localities shoulder the financial burden of fire service function. Second, fire service function accounts for small percentage of expenditure in the expenditures of localities, and keeps dropping. Third, the proportion of personnel expenditure is highest, working expenditure is in the next highest proportion. Fourth, the proportion of general revenue such as local tax, local grant tax, and local transfer tax is absolute, the proportion of specific revenue is very low. Fifth, as central government intends to generalize the state subsidy as specific financial resources continuously, specific fire service financial resources are also generalized gradually.

3. Israel

3-1. Organization and History

The Israel Fire and Rescue Services is the Israeli state organization for fire-fighting and rescuing. The organisation provides rescue services from terror attacks, car accident and dangerous substance spillages, national EMS. They are also involved in public education and awareness campaigns.

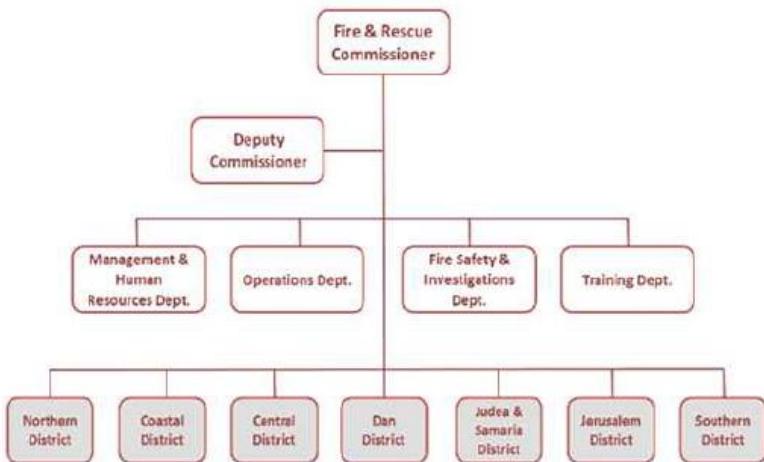
< Figure 7-6> Organization Chart of Ministry of Public Security



The Firefighting Services Law was passed in 1959 and took effect in 1960. It established a fully professional fire fighting force, as until then,

firefighters had previously been volunteers. Since the Carmel Fire¹⁸ of December 2010, Israel's firefighting and rescue services have been transformed and upgraded from a municipal based structure into a national force. All firefighters and rescue personnel are now government employees under the Ministry of Public Security as shown in <Figure 7-6>. The Total number of fire personnel is 2,443 including 1,806 fire-fighters, 12 HAZMAT personnel, 208 fire investigators, and etc.

< Figure 7-7> Organization Chart of National Fire & Rescue Authority



3-2. Mission

The authority is commanded by the Fire and Rescue Commission,

¹⁸ Mount Carmel Forest Fire (2010) was a deadly forest fire that started on Mount Carmel in northern Israel, just south of Haifa. It consumed much of the Mediterranean forest covering the region. The fire claimed 44 lives, making it the deadliest in Israeli history.

headed by a Commissioner as shown in <Figure 7-7>, which directs the Authority and coordinates its operations.

The Fire and Rescue Authority works to:

- The Israel Fire Extinguishing fires, preventing their spread, saving lives and salvaging property
- Preventing fires through safety precautions, education and regulations
- Rescuing trapped victims
- Dealing with hazardous material emergencies
- Saving lives and salvaging property in non-fire situations

3-3. Fire Reform

Creating a National Fire Authority On July 25, 2012, the Knesset¹⁹ approved a law establishing a National Fire Authority. The law entails dismantling the local fire authorities and creating 7 districts under the control of the Fire Commission, within the Ministry of Public Security. The law followed a government decision from January 2011, which, in light of the Mt. Carmel forest fire, called for the establishment of a National Fire Authority under the jurisdiction of the Ministry of Public Security.

The law changed the structure of the fire service from a municipality-

¹⁹ Knesset is the unicameral parliament of Israel.

based, divided force, into a single, unified, national force. The law also broadened the authority of the Fire Commissioner, who command over the force, determine the number and location of fire stations, and decide on the size of the force. As a result of the move to the Ministry of Public Security, all firefighters became central government employees.

3-4. Financial System

As a result of the reform, under the new national system, the state finances the fire service as part of the government budget.

4. Implications

4-1. Organizational System

Each country operates various forms of fire service organizations in terms of organizational framework. There exists a difficult aspect to suggest a standardized management model of fire organization among countries because the operation form of fire service organizations vary in different localities even in the country.

It is generally accepted among countries that fire service affairs are basically autonomous affairs, but the general fire service organization in

developed countries is located in the framework of nationwide disaster management because there is an uncontrollable aspect with their own capacities in localities in case of large-scale emergencies and disasters

Developed countries including the United States are also expanding the central or federal organization's involvement in fire service affairs considering changing fire service environments comprehensively.

In case of the United States, it seems that it maintains the local fire service system because fire service organizations belong to localities, but it is because the United States is a federal system traditionally. Considering the area of a state in the United States is equal to the one of Korea²⁰, even though fire service organization system in the States is autonomous fire service system, it is similar to national fire service system by state compared with Korea.

Fire services in Japan, first established community-based municipal fire services, has been supporting and corresponding to various disasters and accidents starting with prevention of fires while also performing fire-fighting, emergency, rescue services to fulfill a significant role as leaders of national safety and security. Even though fire service organization system is community-based municipal fire service, the roles and function of fire service are comprehensive and strong compared with other countries.

²⁰ South Korea has an area of 38,691mi², the United States has an area of 3,797,000mi². The area of the States is over about ninety times the size of South Korea. The area of state of Virginia of 42,775mi²is similar to the one of South Korea.

In general, fire service affairs in foreign countries include prevention of fires, fire-fighting, rescue & EMS activities, and disaster response, etc. Especially, fire service affairs of Japan are most widespread and diversified expanding from prevention of fires, fire-fighting, rescue & EMS activities to protection of people, disaster response, and international fire service support compared with other countries.

Among fire service organization systems in foreign countries, Israel is remarkable for its unique fire service organization system. The Israeli government nationalized the Fire and Rescue Services. The reform streamlined efficiency and upgrade fire services.

4-2. Financial System

Federal or central government provides financial supports for local governments in charge of fire services such as fire suppression, rescue and EMS activities in various ways in most countries. It's because that national tax accounts for greater proportion than local tax in most countries. Even in the federal United States, many ministries and agencies provide a variety of federal subsidies for state and local governments to meet the financial demand for fire service.

Revenue source of fire service finance varies by country. Unlike Korea which covers fire service finance with local tax as general financial resources,

local governments in the States raise fire service financial resources in a variety way. They raise fire service financial resources by levying object taxes such as income tax and sales tax, and local tax as general financial resources as well as grants from federal and state government.

Especially, in the States, there is a growing tendency of imposing costs (user fee) on fire service beneficiaries individually. It is necessary to discuss imposing costs on service beneficiaries because individual compensatory relationship is formed in case of fire suppression, rescue and EMS activities. Plan to collect user fee need to be reviewed seriously in that first, fire services cost a considerable amount, second, equity with residents who do not use fire service is secured, third, excessive demands for rescue and EMS activities that is at issue recently show up.

In Israel, under the new system, the state finances the fire service as part of the government budget. Through organizational and financial reform the National Fire and Rescue Authority has made significant advancements in many fields. First, a national, state-of-the-art control center was constructed at the fire commission headquarters. In addition, the fire and rescue academy was renovated, and new training equipment is reinforced. The National Fire and Rescue Authority purchased dozens of new fire engines and new equipment, and an eight-aircraft firefighting squadron was established.

VIII Conclusion

In recent years, the new government took a huge step to strengthen the disaster management system by abolishing the existing Ministry of Public Safety and Security (MPSS) and instead newly establishing a new agency, National Fire Agency (NFA) as a national emergency and disaster management organization. The government also pronounced that it would push to change over fire officers' position from the present local position to the national position until 2019. However, in spite of the government's commitment to the transition of fire officers' position, the reality is that there still exist the pending issues related with fire service affairs and organizations in terms of legislation, finance, and organization & command system, etc.

With rapid development of Korean economy, the recent fire service circumstances also have changed a lot. As a result, the roles of fire service have changed in various ways from the past prevention and alertness of fire, fire suppression to rescue and EMS activities, various disaster management activities and the public safety management activities as discussed in Chapter 3. Especially, the rescue & EMS activities have formed an ever-greater part of fire service affairs.

The concept of jurisdiction of the cities and provinces has collapsed slowly as the scale of emergencies and disasters has become larger in terms of response system. Moreover, each local government has difficulties in

responding to disaster with its own resources and personnel whenever the disaster occurs in a large scale or nation-wide.

As discussed in Chapter 4, at present, the redistribution of the fire affairs between local and central government has been demanded for effective and rapid response to various emergencies and disasters in accordance with the changes of fire service and disaster circumstances. According to the Korean Association for Local Government Studies, the proportion of state affairs out of fire service affairs have increased gradually. Getting out of justification for strengthening local autonomy as a contemporary trend, it is imperative to secure the public safety which is guaranteed by the Constitution. In terms of economic feasibility, equity, and clarity as the distribution criteria of affairs, it is desirable that fire service affairs should be performed by central government as central government's affairs.

Therefore, it is integral that the range of fire service affairs designated as autonomous affairs should be re-established as national affairs through revising the Local Autonomy Act to secure the public safety firmly in accordance with the transition of fire officers' position in 2019.

Fire, emergency, and disaster cause immense casualties and damages once they break out. Especially, sometimes it is imperative to prepare expensive equipment if necessary to save only one life. It is because that the nation has the responsibility and duty to protect the lives of its people and their properties no matter where they are in accordance with the Constitution.

It is also important to secure financial resources stably for reinforcing fire service personnel and equipment to prepare for and respond to large-scale emergencies and disasters rapidly and efficiently.

This study analyzed the current fire service financial circumstances and reviewed a variety of alternatives to resolve the issues on fire service finance in Chapter 5. As discussed in Chapter 5, the standard for fire service force under the current legislation is stipulated based on the local area and population, but the financial differences among local governments tend to occur according to fire service budget scale of local governments because the substantial organization and operation for fire service force are entrusted to local governments. Looking into the general status of provincial fire officers in accordance with each provincial fire service budget, it is evident that the financial conditions of local governments play an important role in fire service force arrangement.

Inter-regional disproportion of fire service has increased because fire service resources completely depend on the local public finance in terms of operation of finance. As a result, the burden of local public finance grows heavier and problems of overlapping investments often happen.

In addition, it is difficult to perform the consistent fire service policy because fire service policy and budget are determined by interest and will of mayors and governors in terms of operation of policy. It also becomes a limiting factor in performing the fire service affairs actively responding to the

speedily changing fire service circumstances.

Finally, the concept of jurisdiction of the cities and provinces has collapsed as the scale of emergencies and disasters has become larger in terms of disaster response system. Moreover, the reality is that each local government more often than not has difficulties in responding to emergency or disaster with its own fire service financial resources and personnel when emergency or disaster occurs in a large scale or nation-wide.

However, it seems to be difficult to suggest a complete alternative to address the issues on the current fire service finance.

At present, the new government pronounced that it would try to change over fire officers' position from the present local position to the national position until 2019. However, in spite of the government's commitment to the transition of fire officers' position, there are still impending issues on local financial reshuffling and the subject of financial burden between central and local government, and the way of financial burden between central and local government. In addition, most of mayors and governors have expressed different opinions on the transition of fire officers' position.

Under these circumstances, it seems to be hard to put financial burden for fire service in accordance with the transition of fire officers' position on central government suddenly. It is more realistic to pursue staged and gradual changes rather than drastic change of the financial structure of fire service.

Until financial conditions between central and local government are

improved, it is necessary to share the rate of responsibility for fire service on a fifty-fifty basis by regarding fire service affairs as joint affairs between central and local government. As a result, the central government would have to share at least around 40% in fire service budget. The concrete alternatives for securing fire service financial resources will be support expansion of central government subsidy, support expansion of emergency medical service fund, and introduction of Fire Service Tax, etc. as reviewed above.

Therefore, fire service organization would have to make a ceaseless effort considering various conditions to win confidence and political support from both the politicians and the people for fire service because the expansion of financial resources boils down to national burden.

The current fire service command and control system is dualized due to the organizational structure between central and local government as discussed in Chapter 6. At present, the local fire service organizations belong to mayor and governors of localities, not to NFA. This dualistic command and control system on the scene leads to confusion of command system and difficulties in moving in perfect order in case of emergency or disaster. In this respect, unified chain of command system also should be structured by making local fire service organizations be under the command and control of NFA in accordance with establishment of NFA and the transition of fire officers' position which new government pronounced.

As discussed in Chapter 7, Israeli fire officers are in national position,

and Chinese and Taiwanese fire officers are also in national position. Their national situations are similar to ours in that Israel is always in state of readiness for war, and Taiwan and China are divided countries. Korea faces an unprecedented security threat due to North Korea's nuclear missile testing. In this regard, it is imperative to manage and operate fire service organizations at the nationwide level. Accordingly, in Korea, it is integral to respond in an orderly way with the nationalized and comprehensive fire service system for protecting the lives of its people and their properties compared with other countries.

Hitherto, a variety of strategies to develop the fire service organization were looked through in detail.

In conclusion, the reality is that the people's demands for fire service have surged and large-scale emergencies and disasters often occur than ever before. Under these circumstances, strengthening the capacity of fire service organization will contribute to secure and improve public safety and security ultimately. In terms of the distribution of fire service affairs between central and local government, fire service affairs designated as autonomous affairs should be re-established as national affairs through revising the Local Autonomy Act. At least, they should be dealt with as joint affairs between central and local government. Based on the revision of the Local Autonomy Act, the central government should expand the financial support for local fire service. There are a variety of alternatives to expand central government's

financial support, such as support expansion of central government subsidy, support expansion of emergency medical service fund, and introduction of Fire Service Tax, etc. Along with the establishment of independent NFA, the reorganization of local fire service organizations is required to construct the unified command and control system in case of emergency or disaster. It is desirable to put the current fire headquarters in cities and provinces under the direction and supervision of Administrator of National Fire Agency, not mayors and governors in cities and provinces by revising Government Organization Act and Local Autonomy Act, and ordinances of cities and provinces.

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국 문 추 록

소방조직 발전방향에 관한 연구

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최근 출범한 새 정부는 국민안전처를 폐지하고 새로이 소방청을 신설하였다. 이와 더불어 정부는 소방관의 국가직화를 추진할 것을 발표하였다. 정부의 새로운 소방정책에 힘입어 우리는 그 어떤 때보다 소방 조직체계를 개선할 최적의 기회를 맞았다. 그러나 정부의 소방청 신설과 소방관의 국가직화 약속에도 불구하고 법령, 재정, 조직 및 지휘체계의 측면에서 볼 때 소방사무 및 조직과 관련하여 아직 해결하지 못한 문제들이 여전히 남아있는 것이 현실이다.

따라서 먼저 이 연구는 소방 및 재난환경 변화를 입증하기 위해 현재의 소방 및 재난환경 변화와 관련된 통계적 자료를 제시하는 분석적 방법을 이용하였다. 그 결과로서, 소방의 역할은 과거 화재의 예방과 경계, 화재진압에서 구조 및 구급활동, 다양한 재난관리 활동, 공적 안전관

리 활동에 이르기까지 다양한 방식으로 변화되어 왔음을 보여주었다. 소방환경의 변화와 더불어 미래 소방정책에 대한 수요 또한 증가함에 따라 새로운 소방정책이 요구되고 있다. 첫째, 재난발생의 빈도가 증가해 왔고 재난의 형태도 다양해졌다. 둘째, 소방에 대한 수요가 급격히 증가해 왔다. 셋째, 그에 따라 소방의 품질 개선에 대한 요구 또한 증가하고 있다.

둘째, 이 연구는 소방사무의 분담체계와 기준을 분석하였으며 법령상 소방사무의 변화추이를 고찰하였다. 그 결과, 복잡한 현대 행정에 있어서 단순한 원칙들로 사무를 분담하는 것은 적절하지 못하다는 것이 드러났다. 국가사무와 자치사무의 분담은 특정사무 수행의 효율성 측면에서 결정되어야 한다. 법령상 소방사무 중 국가사무의 비율은 1991년 15.4%에서 2012년 48.5%로 증가했으며, 대조적으로 자치사무의 비중은 감소했다. 따라서 자치사무로 정해진 소방사무의 범위는 소방 및 재난환경의 변화에 따라 국민의 안전을 담보하기 위하여 지방자치법의 개정을 통해 국가사무로 재정립되어야 한다.

셋째, 본 연구는 소방재원의 구성 및 소방재정 현황을 분석하였다. 그 결과, 국가소방사무가 꾸준히 증가해 왔음에도 불구하고 중앙정부의 재정분담률은 변화가 거의 없었다. 중앙정부의 재정분담률은 2015년 기준 4.5%에 불과했다. 소방에 대한 지방정부의 재정지원능력도 자체 재정기반의 지속적인 악화로 인해 꾸준히 감소했다. 지방자치단체의 재정자립도는 2008년 53.9%에서 2017년 53.7%로 0.2% 감소하였다.

이에 따라 지방소방조직은 필요한 인력을 충원하거나 장비를 현대화하는데 큰 어려움을 겪고 있다. 지방정부의 재정여건이 소방력 보강에 중요한 역할을 하는 것은 명백한 사실이다. 현재의 소방재정에 관한 문제를 해결하기 위한 완벽한 대안은 존재하지 않는다. 따라서 소방재정구조의 급격한 변화보다는 단계적이고 점진적인 변화를 꾀하는 것이 좀 더 현실적이다. 중앙과 지방간 재정여건이 개선될 때까지 소방사무를 공동사무로 간주하여 50대 50의 분담기준으로 소방에 대한 책임비중을 공유하는 것이 필요하다. 중앙정부는 적어도 소방예산의 40% 정도는 분담해야 할 것이다. 소방재원을 확보하기 위한 구체적인 대안으로는 국고보조의 지원확대, 응급의료기금의 지원확대, 소방세의 도입 등이 있다.

넷째, 본 연구는 현 소방조직 및 지휘체계를 분석하였다. 또한 세월호 참사의 사례연구를 통해서 현 재난지휘체계의 문제점을 지적하였다. 그 결과, 중앙과 지방간 이원적 조직구조로 인하여 현 소방지휘 및 통제체계는 이원화되어 있다. 재난현장에서 이러한 이중적인 지휘 및 통제체계는 지휘체계의 혼선을 야기하고 일사불란한 대응을 어렵게 만든다. 이러한 점에서 일원화된 지휘체계가 구축되어야 한다.

마지막으로, 이 연구는 외국 소방재정 및 조직체계를 고찰하였다. 그 결과, 각 국가는 다양한 형태의 소방재정과 조직을 운영하고 있었다. 소방재정의 세입원은 국가마다 상이했다. 일반재원인 지방세로 대부분의 소방재원을 감당하는 한국과는 달리 미국의 지방정부들은 다양한 형태로 소방재원을 마련하고 있었다. 소방조직의 운영형태는 각 나라마다 그 지

역 특성으로 인해 국가간 표준화된 조직모델을 제시하는 것은 쉽지 않다.

한국은 북한의 핵, 미사일 등 전쟁 위협으로 인해 전대미문의 위기에 직면하고 있다. 이러한 점에서 국가적 차원에서 소방조직을 관리, 운영하는 것이 필요하다. 따라서 국가직화 된 광범위한 소방체계를 구축하여 일사불란하게 대응하는 것이 국민의 생명과 재산을 보호하는데 필수적이라 할 것이다.

주요어: 소방, 소방사무, 재배분, 중앙정부, 지방정부, 재정, 조직

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