

## **FIRE FIGHTING ABILITY VISTAS IN TURKEY AND COMPARISION WITH EUROPAN UNION COUNTRIES**

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### **ABSTRACT**

In the twenty-first century, residential, commercial and also rural areas which we live and use are getting larger rapidly because of several reasons. And population growth is also increasing along with these circumstances. Turkey is a developing country in this century and growth of fire fighting abilities are not as much as the growth mentioned. It is obvious that fighting is very important for the developing countries lacking enough development on emergency management. A well-developed response, equipment and personnel will help for the development of fire fighting. This paper is a collected work and discusses the abilities of fire fighting of Turkey for metropolitan cities and shows the differences from European Union Country Cities which are selected as samples.

### **Introduction**

Fire, an indispensable aspect in our lives, can cause losses of lives and property due to several reasons when it goes out of control. And danger increases with developing technology and expanding residential areas. Countries have established agencies and developed models within possibilities, experiences, living standards and degrees of development in order to cope with fire hazards.

When we look at developed countries, firefighting and ambulance services are working together with predefined access routes. And also social securities of firefighters, clothing and equipment needs according to the mission statements, number of personnel, equipment and vehicles are defined with regulations. However, in Turkey, firefighting is not even considered as a particular branch (Kurutuz, 2003). Fire brigades are considered in the planning stages of a city in developed countries, by planning the elimination of the factors causing fire hazards and by prioritizing pre-hazard legislations. Whereas in Turkey, buildings are not mostly used on their purposes (Kurutuz, 2003). Another dramatic aspect is that, there are 1369 streets which are not accessible for the fire brigades in Istanbul, Turkey's largest city (Erden, 2000).

In İstanbul, growth of urban and industrial areas is given figure 1 (Kaya, 2007). It can be seen from the Figure 1 and Table 1 that there are %128.45 of growth in European side of Istanbul just in 14 years, population increased to over 15 million but the growth of fire brigades is the same.

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Table 1: Result of Growth

Classes	Area (hectare)		Change (%)
	1987	2001	1987-2001
Urban Area and Industrial Area	13 460	30 750	+128.45

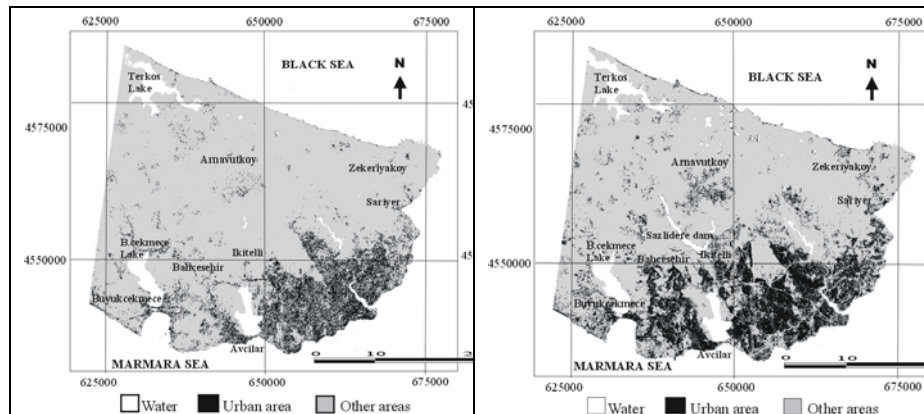


Figure 1: Classified Landsat 7 ETM+ images of 1987 and 2001 (Kaya, 2007).

### Structure of Fire Brigades in Turkey and Some European Countries

Reliable information about the fire disaster protection in Turkey can not be reached before the second half of the 16<sup>th</sup> century. First studies started by Ferman (order) of Sultan in 1560. Then, Davit, a french, organized the first fighting team named as “Tulumbacı Takımı”. By the time the numbers of “Tulumbacı Takımı” changed and evaluated and than transformed into military system and they transferred to the manucipilies in 1923. At present, a governmental foundation representing the national fire brigade organization hasn’t yet been established. Fire brigades of every city are bound to their city’s local authority (Yentürk, 2001).

Fire departments which are placed at low-risk areas or containing a limited number of personnel and vehicles are called squads, and departments placed at high-risk areas containing more personnel and vehicles are called groups. Currently there is no operating information system is present for the Fire Department of Istanbul although there has been a study for this purpose previously. There are personnel called “mıntıkacı” (zone master) helping the brigade finding the shortest route in the region they know. “Mıntıkacı” is the member of the squad or group knowing every street of the region. When assigned, “mıntıkacı” is given a training of every road, street, building and door number related to the region (Erden, 2001).

Structures of the fire departments of some European countries are summarized below (Yentürk et al., 2002);

#### *Germany*

In this country, a coordination group between ministries is present within the Ministry of Interior. This group is continuously in contact with the local authorities. Local authorities are controlled by mayors having the full responsibility. Also an emergency squad is present within the municipalities. The municipality manages fire and rescue missions in emergencies also with the help of federal army and the police organization.

#### *Austria*

“Federal Alarm Centre” is working within the Ministry of Interior in Austria. This centre is the brain of the civilian defense system. Alarm centres focused on city scale are present within this system. City alarm centres are in continuous coordination with the Federal Alarm Centre.

#### *Belgium*

Coordination Centre for Crisis Management is formed within the Ministry of Interior. A directorate general for civilian defense, also related with the Ministry of Civilian Defense, is working within the verge of this centre. Governorship informs the directorate general.

#### *Finland*

In this country, a directorate of general rescue services is present within the verge of the Rescue Department of the Ministry of interior. This directorate is in touch with the government offices in cities. These offices are in coordination with the emergency control centers and the centers are in coordination with municipalities.

#### *France*

In this country, a civilian security department is workin under the Ministry of Interior. This department is the brain and summit of the civilian defence organizations.

#### *Ireland*

Interdepartmental advising committee formed within the central government is the summit of emergency management in Ireland. Almost every ministry is involved in this committee and this committee provides support and advice to the local units via three sources.

#### *Spain*

Central government manages the general directorate of civilian defence. This directorate also works within the Ministry of Justice and the Ministry of Development and Housing, managing the national emergency plans through the support of state governors.

#### *Sweden*

Local administrative board is held responsible by the government for rescue services. If a board is not present for a region, then local authorities are held responsible.

#### *Italy*

Emergency management in Italy is organized at two different levels. These are central level and non-central organizations.

#### *Greece*

Emergency plans in Greece are made on three different scales. These are emergency plans within central government, within Secreteriat General of Civilian Defence bound to the Ministry of Interior, and within national scale.

Emergency management and civilian defence structures of the EU countries showcase a wide administration span. There is a flexible expansion concept on the introduces organizations. Fire departmenst are generally in contact with local authorities in these expandable models. These organizations also contribute to the core of the emergency management systems. Geography and land area of EU countries highly influence the organization structure of civilian defence organizations. For example, in countries with relatively low populations, hierarchical structure of the central authority is clear and sharp. But in countries showcasing differences in geography and ethnology, fire fighting and civilian defence structures have local characteristics (Yentürk et al., 2002).

### **Some Data About Fire Fighting for Turkey and Some European Countries**

There are 420 fire stations, 2100 vehicles, and 26500 firefighters in Turkey's city fire brigades. Those firefighters intervene against 71600 fires and 15200 technical rescue and the fire stations (as of 2000 data). The average of fire vehicles is over 20 and the fire stations need to be improved (Yalın, 2002). The number of fire-fighters by 1000 inhabitants is given in Table 2.

Table 2: Number of fire-fighters by 1000 inhabitants for 8 countries

Countries	fire-fighters by 1000
Turkey	0,4
Austria	36
Switzerland	30
Luxemburg	16
Germany	15
France	4,2
Italy	0,9
Spain	0,3

On the other hand, the annual expenses per person for fire departments in the European countries are given in Table 3. Although there are not any clear statistical records for Turkey, it is guessed that Turkey would be very low-ranked on the mentioned table (Yentürk et al., 2002).

Monetary and personnel inadequacy are not the only reasons for the ineffective fire fighting services in Turkey. Lack of voluntary collaboration is one of the main effects. As can be seen from Table 4, in most countries, the percentage of volunteers dominate the total fire fighting personnel numbers (Yentürk et al., 2002; Atlas of World, 2007).

Table 3. Annual Expenses per Person for Fire Departments (2002)

Countries	Annual expense per person (Euro)
Turkey	?
Finland	65
Norway	55
Sweden	45
Ireland	30
Switzerland	55
Germany	85
Australia	90
Belgium	45
France	30
Italy	20
Greece	20
Spain	20

Table 4. The Number of Fire-fighters, population and Total Area

Countries	The Number of Volunteer	The Number of Total fire-fighter	~ Population x 1,000,000	~ Area km <sup>2</sup>
Turkey	0	26,500	85,0	780,000
Finland	10,380	23,360	5,0	337,000
Norway	0	27,900	4,5	324,000
Sweden	4,000	29,500	8,0	450,000
Ireland	0	3,090	4,0	70,000
Switzerland	195,000	210,000	7,0	41,000
Germany	1,139,400	1,210,270	83,0	357,000
Australia	273,670	285,000	7,5	83,000
Belgium	6,000	6,215	9,0	30,500
France	206,900	243,660	59,0	347,000
Italy	23,500	55,210	57,0	301,000
Greece	0	6,300	10,0	132,000
Spain	10,420	12,980	40,0	504,000

In Figure 2, Percentage of The Total Fire Fighters On The Country's Population is Given in Chart Representation.

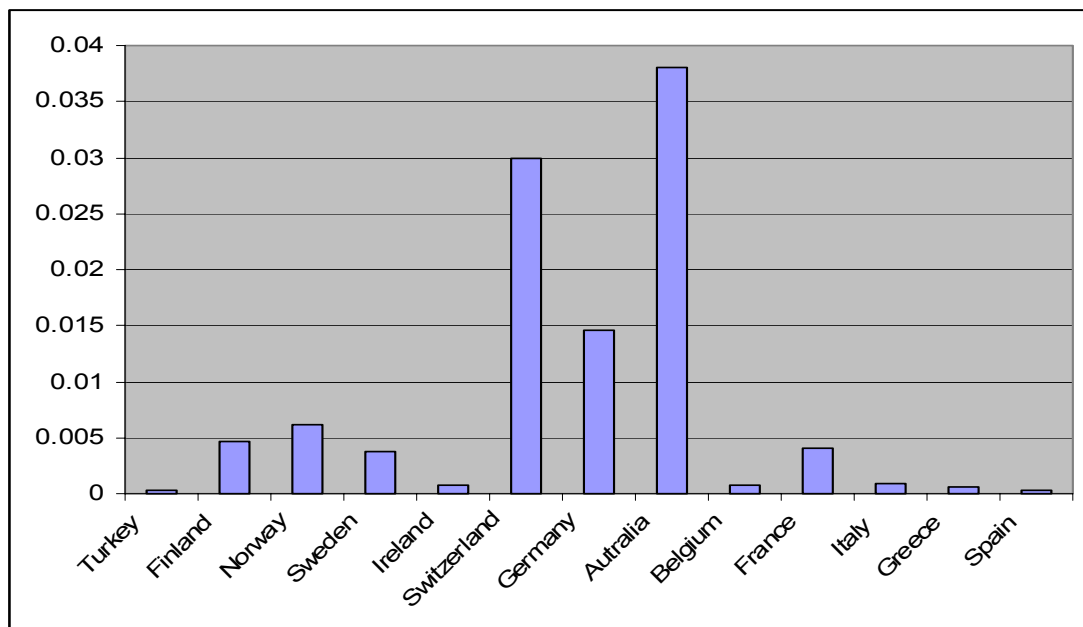


Figure 2. Percentage Of Total Firefighters On Population

## Conclusion

The Fire Department of Istanbul of Istanbul Metropolitan Municipality has planned staffing 1250 personnel recently. Currently, Istanbul has 2,000 firefighters within city limits, while world standards show that a fire fighting organization provides one firefighter per one

thousand residents. According to this, Istanbul should be employing 12,000 firefighters for its population of 12 million. However, there are ## firefighters employed in Istanbul (Erden, 2000; Kılıç, 2007).

Recent studies shows that the number of fire stations and fire fighters are too insufficient. For example; there is necessity of adding 39 new fire station to existing 39 fire stations in Istanbul (Erden and Coskun, 2006).

As one of the most important problems of developing cities on fire fighting, following can be mentioned: growing population, high frequency of job and city changes, decrease of voluntary fire fighters, decrease of social responsibilities of people, interference of dangers and developing technology on lives. Turkey also cannot make use of its volunteer potential. While rural fire fighting activities in most countries are handled by volunteers, in Turkey there are no fire fighting service for rural areas in that manner. (Yenturk et al., 2002).

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He was born in Malatya in 1964. He is graduated from ITU-Geodesy and Photogrammetry Engineering Department, then took his MsC degree in 1992, and took PhD degree in 1998. He has been an assistant professor in Surveying Tecniques Division since 2000. He is interested in GPS, GIS, Mobile GIS, Emergency Planning, and software development.