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Araştırma Makalesi ● Research Article

The Evaluation of The Readiness of Fire Departments For Disasters And Emergencies: The Case Of Niksar Fire Department In Tokat, Turkey *

İtfaiye Teşkilatlarının Afet ve Acil Durumlara Hazırlıklarının Değerlendirilmesi: Niksar İtfaiyesi Örneği

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ÖZ

Yapılan bu çalışma ile ülkemizdeki itfaiye teşkilatlarının afet ve acil durumlara hazırlıklarını Niksar Belediye İtfaiyesi özelinde değerlendirmek amaçlanmıştır. Çalışmada metodoloji olarak anket yönteminden faydalanılmış olup personel, araç-malzeme ve yasal mevzuata uygunluk yönlerinden itfaiye teşkilatı değerlendirilmiştir. Araç sayısı bakımından Niksar İtfaiye teşkilatının mevcut durumu yasal mevzuata uygundur. İtfaiye personelinin büyük kısmı afet ve acil durumlarda birlikte görev yapacakları kurumları bilmektedir. Yasal mevzuatta öznel değerlendirmeye açık kısımların bulunmasının teşkilatlar arasında farklılıklar oluşturduğu ulaşılan sonuçlar arasındadır.

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ABSTRACT

This study aimed to evaluate the readiness of fire departments in Turkey for disasters and emergencies, with a particular emphasis on the Fire Department of Niksar Municipality. In the study, survey method was used, and fire department was evaluated in terms of its staff, vehicles, equipment, and compliance with legal regulations. In terms of the number of vehicles, Niksar Fire Department complies with the relevant regulation. A large part of its staff members knows with which institutions they are supposed to collaborate in the case of a disaster or an emergency. Among results obtained is the finding that the presence of certain provisions likely to lead to subjective interpretations of relevant regulations creates differences between fire departments.

1. Introduction

Coordination and execution of firefighting services in the world can be examined under three models as local model, central administration-local administration model, and central administration model. Local administrations in the Netherlands, Spain, United Kingdom where a local fire brigade model is adopted are the only responsible authority in their regions. In countries such as Belgium, Denmark, France, Germany, USA, Japan, where a central

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administration-local administration fire brigade model is adopted, local administrations are responsible for fire brigade services. The central administration, on the other hand, is responsible for coordination and some special tasks. In Italy, Greece and Israel, where a central administration fire brigade model is adopted, the national fire brigade carries out all fire brigade services and coordination (Yentürk et al., 2002).

The U.S. Fire Administration (USFA) is a part of the Federal Emergency Management Agency (FEMA) of the Department of Homeland Security (DHS). In the US, there are three different types of fire brigades: professional fire brigade, combination fire brigade (with both professional and volunteer firefighters), and volunteer firefighters. The Israeli fire service organization worked with a municipal service model until 2012, and the national model was introduced with the establishment of the National Fire Authority in 2012. According to the 2017 data of International Association of Fire and Rescue Services (CTIF), there are 2,000 professional firefighters and 2,200 volunteer firefighters in Israel (Karatutlu, 2021). In France, there are two types of fire brigades: military fire brigades and fire brigades affiliated to the General Directorate for Civil Protection and Crisis Management (DGSCGC), trained and supervised by the Ministry of Interior. 78% of French firefighters are volunteers, 22% are professional (5% military, 17% civil) firefighters (URL 12).

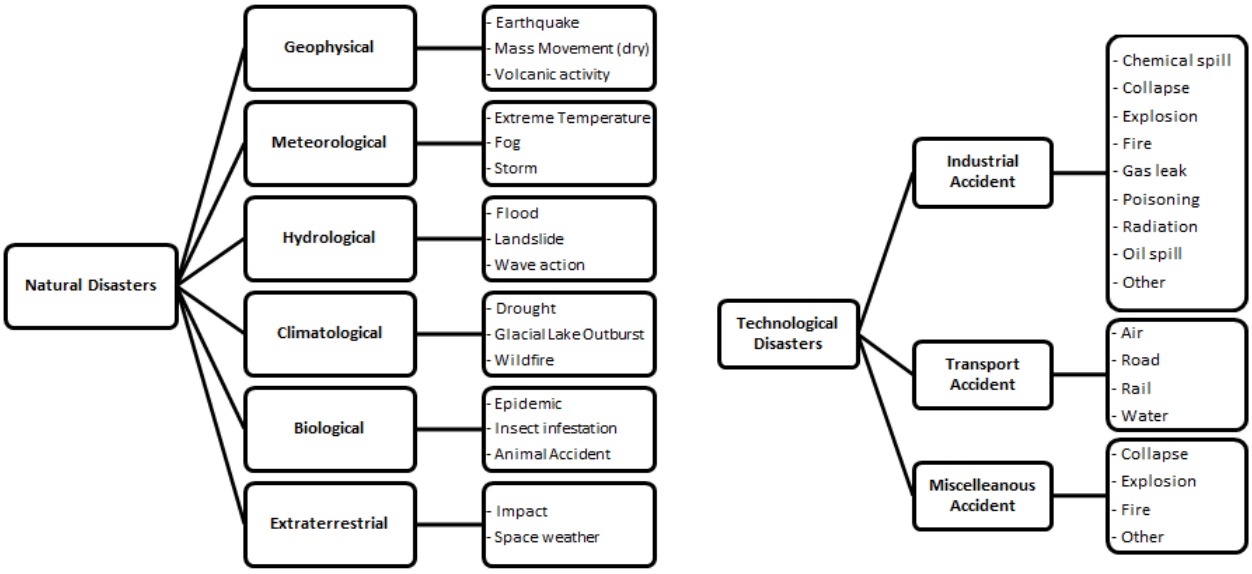
Having examined the history of firefighting in Turkey, the transformation of firefighting organizations consists of four periods: the Janissary Fire Brigade Period (1714-1826), the Neighborhood Firebrigade Period (1826-1874), the Military Fire Brigade Period (1874-1923) and the Municipal Fire Brigade Period, which started with the proclamation of the Republic and continues today (Kaya, 2018). In the pre-Republican period, firefighting services which were offered as a military service were determined as municipal services after being removed from the military nature and transferred to local administrations within the scope of the modernization of local administrations and firefighting services after the proclamation of the Republic (Erdoğan, 2014). The Municipal Law No. 1580 of 1930 gave the municipalities the task of taking precautions against fires and establishing a fire brigade, which formed the basis of the organization of fire brigades (URL 10). Municipal fire brigades served as directors for 74 years between 1923-1997. In the provinces that have metropolitan status today, all fire brigade organizations in the province serve as fire brigade departments affiliated to the metropolitan municipality. In provinces that do not have metropolitan status, it serves as independent fire brigades affiliated to the central province administrations, district and town municipalities (URL 11). Since Tokat province does not have a metropolitan status, the Niksar fire brigade serves as a directorate affiliated to Niksar Municipality. In Turkey, there are forest fire departments, airport fire departments, organized industrial zones fire departments and special fire departments along with municipal fire departments. In the National Fire Symposium held in 2018, it was stated that there were a total of 33,578 firefighters in municipalities across the country. Today, although information about the whole number is not available, it is estimated that there are around 40,000 firefighters in Turkey, including municipalities and other fire brigades (Tüzer, 2022).

In Turkey, there is no structure that directly represents fire brigades under the organization of central administration (ministry, presidency, etc.) (Yentürk et al., 2002). This situation prevents the formation of standard regulations in fire brigades and fire brigades are formed by subjective evaluations within the scope of the "Municipal Fire Brigade Regulation". In Turkey, many laws, regulations, plans and duties have identified various tasks for fire brigades at every stage of disasters/emergencies (Uygun & İnal, 2019). Turkey is under the influence of many disasters/emergencies due to its geopolitical and geostrategic location, geological features, topographic structure, meteorological conditions, and socio-economic vulnerability (Özmen & Özden, 2014). In order to minimize loss of life and property in disaster/emergency situations, fire brigades must be capable of performing the tasks assigned as the main solution partner or support solution partner as soon as possible and in the most effective way. In this study, disaster/emergency preparations of fire brigades were examined in terms of compliance with legal legislation, subjective evaluations, tools and equipment, personnel characteristics in particular of the Niksar fire brigade. 453 fire brigades participated in the study which was conducted to evaluate the disaster preparations of fire brigade units affiliated to provincial, district and municipal administrations and fire brigade directorates affiliated to metropolitan municipalities in Turkey, and comparisons were performed with studies conducted with municipal fire brigades of Ankara, Balıkesir, Sivas, and Istanbul Metropolitan Municipality Fire Brigade.

1.1. Concepts of Emergency and Disaster

Concepts of emergency and disaster are sometimes used interchangeably as the same concept in public opinion, however, in terms of effects, they have different meanings (Çınarlık, 2016). A state of crisis resulting from incidents that create interruptions in daily life activities for the entire society or some of its parts, require an urgent response, and can be adequately handled by facilities of local response teams can be denoted as an emergency (Kadıoğlu, 2011). The concept of disaster can be described as the results of incidents that cannot be adequately handled by local facilities of the community affected by the incident, inflict direct and indirect losses on society, and have broader impacts that stop or interrupt human activities (Tekin, 2018). Hazards paving the way for a disaster can be examined, as per their sources, under two categories, that is, natural and human-induced. Figure 1 displayed the classification of natural and human-induced disasters developed by the Emergency Events Database (EM-DAT) (URL 1).

Figure 1. The Classification of Disasters By The EM-DAT [4]

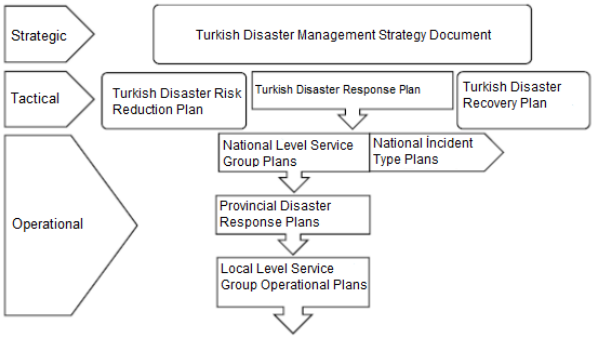


1.2. Disaster and Emergency Plans

It is thought that large-scale disasters likely to take place in developing countries such as Turkey can lead to impoverishment and enormous economic turmoil. Devising risk-mitigation and response plans for disasters and implementing these plans considering the degree of the effect of disasters on society at the country level and the capacity of the country to cope with disasters is of importance to the reduction of losses (Akar, 2013:21). Types of disasters occurring in the country, the frequency of having disasters, and the extent to which the society is affected by disasters all have effects on the development of each country's disaster and emergency response strategies. Accordingly, national policies on disasters and emergencies vary across countries (Mavi, 2020:2).

Following the Marmara earthquake of 17 August 1999 and the Düzce earthquake of 12 November 1999 that led to huge losses in Turkey, the need for the development of a modern disaster plan arose. The Van earthquake that occurred in 2011 in Turkey became a turning point in the preparation of plans (Şahin, 2019:2). To create a successful disaster management system, the periods before, during, and after the disaster should be considered, and plans should be prepared by taking these periods into account (Şahin, 2020:1). In Turkey, in the context of the disaster strategy paper, Turkey Disaster Risk Mitigation Plan is implemented for the pre-disaster period; next, for the period during the disaster, Turkey Disaster Response Plan is in effect as well as nationwide service group plans, province-level disaster response plans, and local-level service group plans that are all integrated into Turkey Disaster Response Plan in descending vertical hierarchical order; and lastly, for the post-disaster period, Turkey Disaster Recovery Plan is in place. Figure 2 shows the types of Turkey's disaster plans and their sub-categories (URL 2).

Figure 2. Types of Turkey's Disaster Plans and Their Sub-Categories



1.3. Disaster Proneness of Tokat Province of Turkey

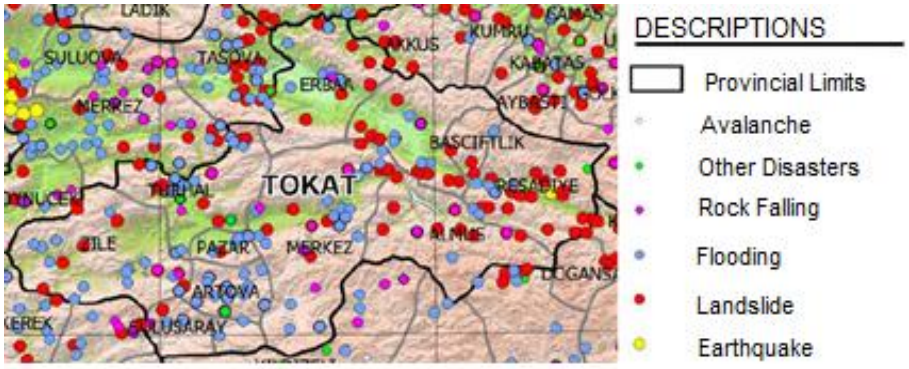
The majority of large-scale earthquakes that occurred in Turkey took place across the North Anatolian Fault. The North Anatolian Fault which is an active fault zone with a length of 1500 km passes also through certain districts of Tokat province of Turkey (Korkamaz et al., 2013:8). The Erzincan earthquake of 27 December 1939 affected Tokat and its districts and inflicted heavy material and immaterial damages on Tokat. According to 1940 data, a total of 3,378 buildings were demolished, 2,274 people lost their lives, and 668 people were injured (Üzen, 2010:27). The earthquake that occurred on 20 December 1942 in Tokat with a magnitude of 7.0 and an epicenter at the Niksar-Erbaa line inflicted larger losses on Tokat province than the Erzincan earthquake did. In the earthquake, Erbaa was almost totally wiped out from the face of the earth, and a large majority of the buildings were burned down in the ensuing fires (URL 3). The Ladik earthquake that occurred on 27 November

1943 on the North Anatolian Fault also affected Tokat province and led to the almost total demolition of downtown Erbaa (Arslan, 2020:10).

Yeşilırmak river and its tributaries occasionally overflew along with the melting of snow or heavy rains, and the ensuing floods produced dangers for Tokat province. In this respect, arable land was damaged, lives and properties were lost, and transportation disruptions occurred in Tokat (Üzen, 2010:11).

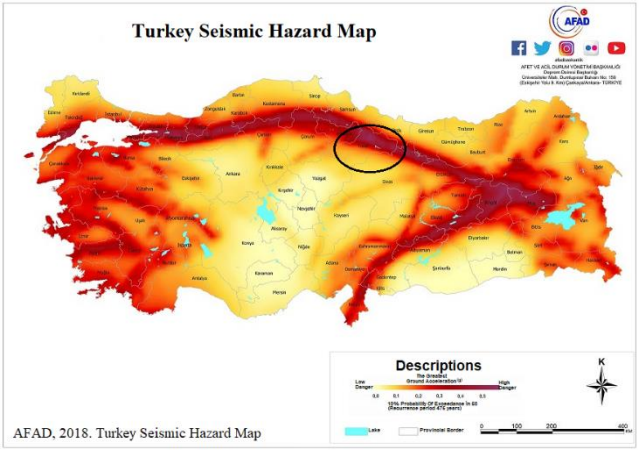
Upon the review of "the map of settlements that had disasters from 1950 to 2008" prepared in 2008 by the Directorate General of Disaster Affairs of the abolished Ministry of Public Works and Settlement of Turkey, it is viewed that rock falls, floods, landslides, earthquakes, and other kinds of disasters occurred in Tokat province (Figure 3) (URL 4).

Figure 3. Tokat Section of The Map of Settlements That Had Disasters From 1950 To 2008 (URL 4)



As per the examination of the Turkey Seismic Hazard Map prepared in 2018 by the Disaster and Emergency Management Presidency of Turkey (AFAD), it is discerned that a large part of Tokat province is in high danger (Figure 4) (URL5).

Figure 4. Turkey Seismic Hazard Map [16]



2. Fire Department

Services performed by response teams of institutions that have special duties to ensure the protection of lives and properties of members of society in disasters and emergencies, such as search & rescue, emergency aid, and fire-fighting efforts, can be listed as examples of emergency services (URL 6). Fire departments are among the most common institutionalized emergency teams around the world. The Turkish word for the fire-fighting service, itfaiye, which was derived from a word of Arabic origin, "itfa", meaning to extinguish was used as a name for both the vehicles used in fire-fighting processes and the department fulfilling fire-fighting duties (Yavuz & Bozatay, 2015:2). Every incident to which the fire department responds within the boundaries of its job description is defined as a case of fire-fighting whilst a person who deals with cases of fire-fighting, has the ability to use fire-fighting vehicles and equipment, and has physical and mental qualifications required by the fire-fighting profession is called the firefighter (URL 7). Fire-fighting is a profession that requires specialized field knowledge on fire-fighting, experience, courage, and self-sacrifice and causes high-level risk and stress (İnce, 2017:188).

2.1. Duties of Municipality Fire Departments As Per Each Phase of the Disaster Management

The disaster management process is comprised of four main phases (risk-loss minimization, preparation, response, and recovery/rebuilding) that follow each other in a cyclic sequence and sometimes overlap with each other. Phases of risk-loss minimization and preparation cover the risk management process in the pre-disaster period whilst phases of response and recovery cover the crisis management process that starts with the occurrence of the disaster and continues in the post-disaster period (Şahin, 2009). Figure 5 exhibited the disaster management cycle that included disaster management phases (Çoban, 2019:2).

Figure 5. The Disaster Management Cycle (Çoban, 2019:2)

The duties of fire departments in Turkey were stipulated in the Municipality Fire-Fighting Regulation. The evaluation of duties prescribed in the regulation was presented in Table 1 as per each phase of the disaster management cycle (Uygun & İnal, 2019:1) (URL 8).

Table 1. The Duties Of Fire Departments In Turkey As Per Each Phase Of The Disaster Management Cycle (Uygun & İnal, 2019:1) (URL 8).

The Phase Of The Disaster Management Cycle	The Duties Of Fire Departments
Risk-Loss Minimization	Performing duties that are given as per the Regulation on the Protection of Buildings from the Fire
	Providing assistance for the training of public and private fire-fighting units and volunteer firefighters, inspecting whether they meet fire-fighting standards, issuing fire-fighting proficiency certificates if standards are met by them, and having cooperation with them if necessary
	Inspecting workplaces in terms of precautions taken by businesses for fire-fighting purposes as per the relevant regulation, issuing reports prescribed by the relevant regulation, and presenting opinions about topics referred to in regulations
	Fulfilling other duties assigned by the mayor of the municipality
Preparation	Performing duties that are given as per the Regulation on the Protection of Buildings from the Fire
	Informing the public about fire-fighting services, providing training programs, and conducting fire drills
	Providing assistance for the training of public and private fire-fighting units and volunteer firefighters, inspecting whether they meet fire-fighting standards, issuing fire-fighting proficiency certificates if standards are met by them, and having cooperation with them if necessary
	Cleaning chimneys in the area of responsibility for a price to be specified or ensuring that these chimneys are cleaned, and inspecting chimneys in case of a fire
	Identifying storage locations of explosive, flammable, and ignitable materials as per the zoning plans
	Fulfilling other duties assigned by the mayor of the municipality
Response	Responding to fires and extinguishing them
	Responding to every type of technical incident requiring rescue efforts, providing first aid services, and performing search & rescue works under any condition
	Responding to floods
	Participating in search & rescue efforts in disasters and emergencies
	Responding to incidents located outside the area of responsibility
	Taking part in efforts to extinguish wildfires if requested to do so
	Giving the first response immediately in the case of a fire in the context of a chemical, biological, radioactive, nuclear threat, supporting the relevant workgroup in reconnaissance & detection and search & rescue activities in the framework of the Turkey Disaster Response Plan, and performing decontamination duties in cooperation with the province governorship
	Fulfilling other duties assigned by the mayor of the municipality
Recovery	Fulfilling other duties assigned by the mayor of the municipality

2.2. Vehicles, Materials, and Personal Protective Equipment of Municipality Fire Departments

The minimum number of vehicles to be owned by the fire department was specified in the Municipality Fire-Fighting Regulation of Turkey. In the specification of the minimum number of fire vehicles for metropolitan municipalities, the total population of the province and the entire province as a geographical unit are taken into consideration. In the regulation, the types and technical properties of the fire vehicles were not specified in detail, rather, it is required that they will be improved over time in parallel to technological developments. Likewise, in the regulation, types, amounts, and technical properties of equipment and materials were not specified, rather, it was stipulated that they should be acquired depending on the service needs and in line with

technological developments. Table 2 showed the minimum number of fire vehicles supposed to be owned by municipalities according to the Municipality Fire-Fighting Regulation of Turkey (URL 8).

Along with an amendment in the Municipality Fire-Fighting Regulation on 18 December 2021, the fire gear and protective equipment to be provided to members of the fire-fighting staff in line with today's technology and standards (TS, EN) were specified as follows (URL 8):

- Heat-resistant firefighter suits, gloves, boots, helmets, protective headgears, and self-contained breathing apparatuses for the fire-fighting staff,
- Rescue suits, t-shirts, boots, gloves, and helmets for the staff appointed by the fire department to the search & rescue team
- Sufficient amounts of type A, B, C, and D suits, diving suits, and suits for the search & rescue teams with dogs

Table 2. The Minimum Number of Fire Vehicles by Municipality Population According to the Municipality Fire-Fighting Regulation of Turkey (URL 8).

Population	Minimum Number Of Fire Vehicles					
	Fire engine	**Emergency rescue vehicle**	**Multi-purpose rescue vehicle**	**Hydraulic ladder fire truck**	**Double cabin pickup**	**Service vehicle**
Below 5,000	1	-	-	1		
5,000-10,000	1	-	-	1	-	-
10,000-25,000	2		-	1	-	-
25,000-50,000	3		-	1	1	1
50,000-100,000	4	1	-	1	1	1
100,000-200,000	6	1	1	2	2	1
200,000-300,000	8	1	2	2	3	1
300,000-400,000	10	1	2	3	3	2
400,000-600,000	14	2	2	4	4	2
600,000 or above	14	2	2	4	4	2
	+1 for each additional 150,000 people	+1 for each additional 500,000 people	+1 for each additional 400,000 people	+1 for each additional 400,000 people	+1 for each additional 500,000 people	+1 for each additional 500,000 people

Note: Depending on needs, fire departments can have a sufficient number of water tank trucks, sprinklers, foam tower fire trucks, and other special fire vehicles as well as ambulances and service vehicles.

2.3. Health Status, Physical Fitness, and Sports Activities of the Fire-Fighting Staff

In the Municipality Fire-Fighting Regulation, it was stipulated that, before being recruited as a member of the fire-fighting staff, a candidate should meet height standards (a minimum height of 167 cm for male candidates and a minimum height of 160 cm for female candidates) and weight standards (having a weight in kg within a range corresponding to 10 above and 10 below the value obtained after 100 is subtracted from the body height in cm), not have phobias such as the claustrophobia and acrophobia, and be fit for work conditions of fire departments. Also, each member of the fire-fighting staff should undergo a medical screening once a year (URL 8).

Besides, in the regulation, it was stated that the physical qualifications of the fire-fighting staff should be supported with physical fitness programs, the productivity should be enhanced with a variety of vocational physical fitness sports activities to be performed by the staff, the places where the staff would perform vocational sports activities should be allocated by the municipality, sports gear to be used by the staff in vocational sports activities should be given biannually by the municipality (URL 8).

2.4. Schools Offering Fire-Fighting Education in Turkey

In Turkey, fire-fighting education is offered at the "Program of Fire-Fighting and Fire Security" of Vocational and Technical Anatolian High Schools and the "Associate-Degree Program of Civil Defense and Fire-Fighting" and "Bachelor-Degree Program of Emergency Aid and Disaster Management" of universities. Upon successful graduation from these schools, students possess vocational knowledge, skills, and competencies that are required to meet the personnel needs of fire departments (Gökkaya & Kaya, 2021:1).

2.5. Service Building of the Fire Department of Niksar Municipality

The service building of the Fire Department of Niksar Municipality was created by linking the ground floors of attached buildings. It has garages for fire vehicles, an administrative office, a dormitory, a sports hall, a telephone central room, and a communal area (Figure 6).

In Turkey, as legal arrangements regarding the location and architectural structure of fire departments were inadequate and the interpretation of these legal arrangements was based on subjective assessments, no common standard developed about service buildings of fire departments (Kuku & Türk, 2021:7). In a cross-sectional study conducted with the municipal fire brigades of Ankara, Balıkesir and Sivas, 47.2% of the participants stated that they found the fire brigade building not durable against an earthquake, 31.9% found it durable, and 20.9% found it partially durable (Ergün, 2012). In a similar cross-sectional study conducted with 453 fire brigade units across Turkey, the rate of stations with a danger that threatens the physical environment of fire brigade personnel and can put them in a state of disaster victim was stated as 18.5% (Karatutlu, 2021).

Figure 6. The Service Building of The Fire Department of Niksar Municipality

2.6. Organization of the Fire Department of Niksar Municipality

The Municipality of Niksar District is in the group D-11 as per the group D district and town municipalities classification table of the Turkish Regulation on Norm Cadre Principles and Standards for Municipalities & Their Affiliates and Local Administrative Unions. The classification table indicates that the population of Niksar Municipality was 38.040. As per the norm cadre, the fire department is supposed to include one director, one fire captain, four fire sergeants, and 24 firefighters (URL 9).
The Fire Department of Niksar Municipality has the status of the directorate. Connected to the mayor of the municipality, the fire department has a total of 30 employees in various positions. A fire sergeant is present on each shift. The fire department operates in three shifts during which members of the fire department work for 24 hours and rest for 48 hours in rotation.

2.7. Vehicles and Equipment of the Fire Department of Niksar Municipality

The fire department has a total of nine vehicles, that is, three fire engines (2, 3, and 4), one multi-purpose rescue vehicle (5), two hydraulic ladder fire trucks (6 and 7), one double cabin pickup (1), one water tender (8), and one service vehicle (9) in its inventory. The fire department numbered its vehicles to promote ease of use and avoid any confusion. Figure 7 displayed the vehicles of the Fire Department of Niksar Municipality.

Figure 7. Vehicles of The Fire Department of Niksar Municipality

3. Materials and Method

In the study, upon preparing a survey form comprised of a total of 31 questions, researchers applied the survey to members of the fire department on 11-22 January 2021 by using the face-to-face interview technique.

The survey form contained eight questions about participants' socio-demographic characteristics, four questions about their medical exams and physical fitness status, five questions about disaster regulations and plans, two questions about their status of knowing the dangers in the region where they resided, four questions about disasters/emergencies to which they responded, three questions for the evaluation of the fire station, five questions about fire-fighting training courses, one question about their status of holding a first aid certificate, and one question about fire drills. A total of 30 personnel work in Niksar Municipality Fire Department. All of the firefighter personnel (30) were taken as the sample set. However, due to the face-to-face survey application, 5 personnel who were on leave due to the pandemic could not be reached. All of the other personnel participated in the survey application

voluntarily. As the research was carried out during the COVID-19 pandemic that affected Turkey and the world, 83.33% of the members of the fire department (a total of 25 individuals) could be contacted for the survey study (El, 2021).

In the study that was performed by utilizing the descriptive research method, researchers evaluated the research data with Microsoft Office Excel 2013. The analysis contains only identifying information. To conduct the research, the administrative permit was received from the Department of Human Resources and Education of Niksar Municipality while the ethical endorsement was obtained from the Social Sciences and Humanities Research Ethics Committee of Tokat Gaziosmanpaşa University.

4. Findings and Discussion

4.1. Survey Findings

First, Table 3 exhibited the data about participants' socio-demographic characteristics.

Table 3. The Data About Participants' Socio-Demographic Characteristics

Characteristics (n=25)	Frequency	%
Gender		
Female	-	-
Male	25	100
Education level		
Primary school diploma	8	32
High school diploma or its equivalent	15	60
Associate degree	1	4
Bachelor's degree	1	4
Master's degree/Ph.D.	-	-
Position in the fire department		
Driver	6	24
Firefighter	15	60
Fire sergeant	3	12
Fire captain	-	-
Director	1	4
Other	-	-
Knowing a foreign language		
Yes	5	20
No	20	80
Having a driving license		
Yes	21	84
No	4	16

Upon the review of Table 3, it is discerned that all participants were male, a low number of participants (%8) had a university-level education, the number and breakdown of employees differed from those prescribed in the relevant regulation for norm cadre, a low number of participants (%20) knew a foreign language, and a large majority of the participants (%84) held a driving license. In a similar study conducted with 453 fire brigades across Turkey, 99.1% of the participants were males. In the same study, it was stated that 23.2% of the fire departments preferred university civil defense and firefighting program graduates and 20.8% preferred firefighting high school graduates (Karatutlu, 2021). In a similar study conducted with the fire brigade personnel of Istanbul Metropolitan Municipality, it was stated that only 2.1% of the participants were graduates of schools related to firefighting. In the same study, 78.4% of the participants stated that they did not speak a foreign language (Kanat, 2019). It was concluded that almost all the firefighters were male and the number of personnel graduated from firefighting schools was low.

Second, Table 4 exhibited data about participants' medical exams.

Table 4. The Data About Participants' Health Exams

Health Exams (n=20)	Frequency	%
Having a medical exam upon being	14	56
Having a health check at certain	6	24

Upon the examination of Table 4, it was identified that approximately half of the participants had no medical exam upon being recruited to the fire department. Also, the low percentage of participants (%24 , n:6) having a periodic health check led to the conviction that the fire department did not develop a certain specific practice for health exams. In the study conducted with the fire brigade personnel of Istanbul Metropolitan Municipality, it was stated that 97.4% of the participants had a health checkup prior to starting the profession, and 97.9% had periodic health chekups (Kanat, 2019). In the cross-sectional study conducted with Ankara, Balıkesir, Sivas municipal firefighters, the rate of periodic health checkups was stated as 97.4% (Ergün, 2012). In a similar cross-sectional study conducted with 453 fire brigade units across Turkey, 64.7% of the participants stated that they had a recruitment examination and 49.1% stated that they had a periodic health checkups (Karatutlu, 2021).

Third, Table 5 showed the data on whether participants examined disaster and emergency plans.

Table 5. The Data on Whether Participants Examined Disaster And Emergency Plans

Plan	Frequency	%
Turkey Disaster Response Plan	7	28
Disaster Response Plan of Tokat Province	8	32
Emergency Plan of the Fire Station	16	64

Upon the review of Table 5, it was found that a low percentage of the participants examined the disaster plans. This situation gave the impression that the necessary training on the adaptation to disaster plans was not provided to participants. It is considered that, if members of the fire-fighting staff have information about disaster/emergency plans, the state of uncertainty and chaos will be de-escalated during response efforts in prospective disasters/emergencies. In the study conducted with the fire brigade personnel of Istanbul Metropolitan Municipality, it

was stated that 50.1% of the participants did not examine the Turkey Disaster Intervention Plan and 57.4% did not examine the Istanbul Disaster Interven-tion Plan (Kanat, 2019). In a similar cross-sectional study conducted with 453 fire brigades throughout Turkey, 41.3% of the participants stated that their fire brigades had an internal disaster plan and 23% stated that their fire brigades had an external disaster plan (Karatutlu, 2021).

Fourth, Table 6 indicated the levels of interest shown by participants in disaster-related acts and activities.

Table 6. Data on The Levels of Interest Shown By Participants In Disaster-Related Acts And Activities

Disaster-Related Acts And	Frequency	%
Reviewing legal regulations about fire-fighting	15	60
Knowing with which institutions to collaborate in the case of a disaster or an emergency	21	84
Knowing disaster/emergency risks/dangers in the region	18	72
Taking part in disaster drills (fires, floods, accidents, and so on)	20	80
Attending in-service training programs	23	92
Participating in scientific conferences about disasters and emergencies	12	48

Upon the examination of Table 6, it was inferred that percentages of the participants attending in-service training programs and disaster drills organized by the fire department were high whereas the interest shown by participants in activities performed individually in parallel to their areas of interest, such as participating in scientific conferences and reviewing legal regulations, was relatively low. In a similar study conducted with Istanbul Metropolitan Municipality Fire Brigade personnel, 94.7% of the participants stated that they participated in in-service trainings (Kanat, 2019). In a similar cross-sectional study conducted with 453 fire brigade units across Turkey, the rate of in-service training program was 38.9%, while the rate of training in accordance with the program was 30% (Karatutlu, 2021). This situation has led to the conclusion that there are differences between fire brigades in the organization of in-service trainings.

Fifth, Table 7 displayed the data on training courses offered by the fire department to participants.

Table 7. The Data on Training Courses Attended by Participants

Training Courses About Disasters And	Frequenc	%
Basic Firefighter Training, Basic Training on Fires	25	100
Training on Causes and Factors Leading to Fires, Training on Fire Prevention Measures, Training on Methods of Extinguishing Fires, Training on the Properties of Fire-Extinguishing Substances and Fire-Extinguishing Equipment, Training on Actions To Be Taken After a Fire	23	92
Training on Fire-Extinguishing Materials and Practices, Training on the Fire and the Categorization of Fires	22	88
Training on Rescue Activities, Training on First Aid, Basic Training on Disasters	21	84
General Fire Drill	20	80
Training on Health and Safety at Work	19	76
Training on the Telecommunication in Fire-Fighting	11	44

Upon the review of Table 7, it was discerned that a large majority of the participants received training courses required by the relevant regulation. The amount of training supposed to be received by the fire-fighting staff was consistent with the rates of their participation in in-service training. In this regard, it is deduced that in-service training courses supposed to be offered to the fire-fighting staff as per the regulation were organized adequately. In a similar cross-sectional study in which 223 fire departments participated throughout Turkey, it was stated that 90.9% of the metropolitan municipalities, 85% of the provincial municipalities, 54% of the district municipalities, 29.4% of the municipal municipalities participating in the study provided training on preparing for the profession and orientation for their fire brigades and newly recruited personnel (Karatutlu, 2021).

Sixth, Table 8 showed the data on whether participants participated in sports activities, whether they found the fire station adequate for sports, and whether they considered that they had adequate physical strength.

Table 8. The Data On Participants' Self-Evaluations Of Sports Activities And The State Of Their Physical Strength

Self-Evaluations Of Sports Activities And The State Of Physical Strength	Frequency	%
Regularly taking part in vocational sports activities in the fire department	14	56
Thinking that the setting and equipment provided for sports activities at the fire station are adequate	24	96
Considering having adequate physical strength/condition to respond to disasters/emergencies	16	64

Upon the examination of Table 8, it was concluded that the setting and equipment provided for sports activities at the fire station were adequate, and also, the percentage of participants regularly taking part in vocational sports activities was directly proportionate to the percentage of

participants considering that they had adequate physical strength for efforts to respond to disasters/emergencies. In the study conducted with the fire brigade personnel of Istanbul Metropolitan Municipality, it was stated that 95.3% of the participants participated in sports activities (Kanat, 2019). In a similar cross-sectional study conducted with 453 fire brigades across Turkey, the rate of professional sports activities according to the availability of sports facilities and the training program was stated as 14.8% (Karatutlu, 2021).

Seventh, Table 9 presented the data on whether participants used personal protective equipment during response efforts in disasters/emergencies, whether they found their personal protective equipment adequate, and whether they considered that they had adequate materials/equipment in the fire station.

Table 9. The Data on Participants' Self-Evaluations Of The Personal Protective Equipment And Materials

Self-Evaluation of The Personal Protective Equipment And Materials	Frequency	%
Using personal protective equipment in responding to disasters/emergencies	21	84
Thinking that the personal protective equipment provided by the fire department is adequate	13	52
Considering having adequate materials/equipment in the fire station to respond to disasters/emergencies	19	76

Upon the review of Table 9, it was surmised that participants had high-level consciousness about the use of personal protective equipment, and personal protective equipment and materials/kits used in responding to disasters/emergencies were inadequate. In the study conducted with the fire brigade personnel of Istanbul Metropolitan Municipality, it was stated that 98.9% of the participants used personal protective equipment (Kanat, 2019). In a similar cross-sectional study conducted with 453 fire de-partments across Turkey, the rate of using personal protective equipment was 100% in metropolitan cities, 100% in provincial municipalities, 83.1% in district municipalities, 46.6% in municipal municipalities, and 73.7% in total. In the same study, the rate of finding the number of tools and equipment sufficient in the fire brigade was 54.4% in metropolitan municipalities, 33.3% in provincial municipalities, 17.7% in district municipalities, 15.1% in town municipalities, and 20.5% in total (Karatutlu, 2021). This led to the opinion that metropolitan brigades are more developed in terms of tools, equipment and per-sonal protective equipment.

5. Conclusion and Recommendations

In this study, the readiness of the Fire Department of Niksar Municipality for disasters and emergencies was evaluated on the basis of participants' answers as well as observations made by researchers in the fire department within the framework of the Municipality Fire-Fighting Regulation, and accordingly, the study results were presented below along with recommendations to enhance levels of readiness of fire departments:

- All members of the staff serving at the fire department were male. There is no sex discrimination at schools offering fire-fighting education. In this respect, considering the need likely to arise in disasters/emergencies for female personnel, the fire department should recruit also female graduates of schools offering fire-fighting education.
- Among the participants, there was no personnel that was a graduate of a school offering fire-fighting education. In this sense, in the process of the recruitment of new personnel, graduates of schools offering fire-fighting education should be preferred, and hence, the education level of the fire department should be enhanced.
- It was discerned that the norm cadre stipulated in the relevant regulation was not used in line with the relevant regulation, there were appointments not prescribed by the relevant regulation, and also there were certain vacant positions. Standards about the use of the norm cadre should be developed by making certain arrangements in the existing regulations.
- It was identified that the percentage of the participants knowing a foreign language was low. In this regard, to facilitate communication during disasters requiring the use of international assistance and in efforts such as responding to foreign disaster victims, the number of fire-fighting staff knowing foreign languages should be increased.
- It was found that a large majority of the participants had a driving license. To minimize the effect of the shortage of personnel during disasters/emergencies and create a more efficient work setting, it should be ensured that all members of the fire-fighting staff had the competence to drive fire vehicles and held a driving license.
- It was discerned that the medical exams that participants were obliged to have before being recruited to the fire department and have periodically at certain intervals were not followed up on a regular basis. In this context, whether candidates satisfied health requirements before being recruited to the fire department and whether members of the fire-fighting staff periodically had medical exams once a year as prescribed in the relevant regulation should be followed up.
- It was identified that the percentage of participants examining disaster/emergency plans was low. In this framework, training courses about local and national disaster/emergency plans should be offered with a view to de-escalating the state of uncertainty and chaos during prospective disasters/emergencies.
- It was discerned that participants showed high levels of interest in activities about disasters/emergencies.

Members of the fire-fighting staff should be encouraged to conduct research on disasters/emergencies, examine legal regulations, and attend scientific conferences.

- It was found that nearly all participants received training courses required by the relevant regulation. The organization of in-service training courses on a regular basis should be continued and all members of the fire-fighting staff should participate in these courses.
- It was evaluated that the setting and equipment arranged for vocational sports activities in the fire station were adequate, however, approximately half of the members of the fire-fighting staff did not participate in sports activities, and consequently, they considered that they did not have enough physical strength to respond to disasters/emergencies. It should be assured that all members of the fire-fighting staff regularly participated in vocational sports activities and the fire department should give sports gear to the staff biannually as prescribed in the relevant regulation (URL 8).
- It was discerned that the percentage of the participants using the personal protective equipment was high, nevertheless, participants thought that the personal protective equipment provided to them was inadequate. In this regard, the fire department should regularly provide members of the fire-fighting staff with personal protective equipment as specified in the relevant regulation.
- The majority of the participants found materials/equipment in the fire station adequate for efforts to respond to disasters/emergencies. In the relevant regulation, types, technical properties, and amounts of equipment/materials supposed to be present in the fire station were not specified, rather, the fire department was allowed to make subjective assessments on this topic. In this respect, specifying the minimum required types, properties, and amounts in the relevant regulation by eliminating legal gaps that lead to subjective interpretations will facilitate the development of common standards for fire departments.
- It was evaluated that, in terms of quantity, vehicles of the Fire Department of Niksar Municipality conformed to the relevant regulation. However, the regulation did not refer to the equipment supposed to be available on vehicles and did not specify the technical properties of this equipment, and hence, the aforementioned evaluation was based solely on the number of fire vehicles. It is considered that the specification of the minimum required terms and conditions for fire vehicles in the relevant regulation will help to eliminate subjective assessments made by fire departments and facilitate the development of common standards for fire departments.
- The relevant regulation does not contain an adequate explanation for the location and architectural structure of service buildings of fire stations in Turkey. This situation leads to subjective assessments on the topic and slows down the development of common standards. It is considered that the development of common standards about the architectural structure of fire stations will be of use to the minimization of the damageability of fire stations.
- It was observed that the fire department operated in three shifts during which members of the fire department worked for 24 hours and rested for 48 hours in rotation.

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