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Towards Local and Protective Turkish Disaster Management System

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Abstract: The earthquakes have created destructive consequences in every aspect of community life in Turkey for thousands years. Centralized and bureaucratic institutional structure and policies ignoring mitigation phase and mainly focusing on the response and recovery phases of disaster management has been ineffective. The symmetry-shattering effect of the 1999 Marmara and Düzce earthquakes awakened the Turkish public administration. The reforms after the earthquakes significantly improved the response capacity of the system. However, the responsible managers still need to improve the mitigation capacity of the system to diminish the catastrophic effects of disasters to local communities before they occur.

Keywords: Disaster management, Turkish disaster administrative structure and policies, Disaster and Development laws, Local disaster administration, Disaster response, Disaster mitigation

Yerel ve Koruyucu Türk Afet Yönetim Sistemine Doğru

Özet: Depremler binlerce yıldır Türk insanının hayatının her alanında yıkıcı sonuçlar doğurmaktadır. Merkezi, bürokratik kurumsal yapı ve önleyici tedbirleri ihmal edip, kurtarma ve rehabilite aşamalarına ağırlık veren politikalar bugüne kadar etkisiz kalmıştır. Standard kalıpları yıkan 1999 Marmara ve Düzce depremleri Türkiye'nin Kamu Yönetimi sistemi ve anlayışı üzerinde uyandırıcı etki yapmıştır. Depremlerden sonra yapılan reformlar afet yönetiminin kurtarma kapasitesini kayda değer biçimde artırmıştır. Ancak, afet yönetiminden sorumlu karar vericilerin, zarar önleyici çalışmalara ağırlık verip, afet sistemi içerisindeki kurumların kapasitesini artırarak, depremlerin yerel halk üzerindeki felakete varan etkilerini azaltmaları gerekmektedir.

Anahtar kelimeler: Afet Yönetimi, Türk afet yönetim yapısı ve politikaları, Afet ve İmar kanunları, Yerel afet yönetimi, Afet müdahale, Afet zarar azaltıcı tedbirler

Introduction

Turkey is located in one of the most highly seismic regions of the world and has suffered remarkable losses of life and property due to earthquakes. Ninety-two percent of the population and 95% of the geographic area are exposed to seismic risk (Sağlık Bakanlığı, 2004). Earthquakes are the most damaging and problematic type of natural disaster to significantly affect the social and economic life of Turkish communities. On average, the annual cost of earthquakes has been two percent of Gross Domestic Product of Turkey (Sağlık Bakanlığı, 2004).

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At the end of the last century, two destructive earthquakes struck Turkey and created significant damages. The Marmara, and the Düzce earthquake, reportedly killed 17,489 and 763 people, respectively in 1999. The impact of the Marmara Earthquake was estimated at 7% of the GDP on the Turkish economy in that year (Erdik, 2000). Particularly, the Marmara Earthquake hit the heartland of Turkey, impacting the economic, social and cultural life of the rest of the country. The loss of highly trained individuals also indirectly affects the communities' capacity building in the long run.

Even though Turkey has a high level of seismic risk, the Turkish disaster policies and management system did not demonstrate sufficient capacity to reduce the damage to the communities affected by these two earthquakes. The mismatch between the level of extreme, dynamic seismic risk and the organizational structure of the Turkish disaster management system resulted in poor performance.

The characteristics of disaster policies and structure identify a nation's perception of the problem and determine the ultimate capability of the system to anticipate and overcome the consequences of the problem. Coordination of organizations before and after earthquakes, and clearly determining the authority and responsibilities of disaster organizations are very important factors that facilitate or inhibit the performance of a disaster management system. In this respect, disaster policies become very important tools that expand the capacity of a disaster management system to reach a point in which the system performs at its maximum. Turkey should discover new approaches to establish a management system that captures the complex, dynamic characteristics of the problem and creates a flexible organizational structure to allow individual organizations in the disaster system to act upon changing environments.

This paper analyzes the Turkish disaster policies and organizational structure. The paper also evaluates the changes in disaster policies and disaster management structure after the 1999 earthquakes, and offers new perspectives for better coordinated disaster affairs. The study uses the data collected from on-site observations previously conducted, Turkish disaster laws and regulations, post-disaster critiques, news analyses, and review of professional reports. The study also utilizes the data collected from 58 semi-structured interviews with 39 key decision makers from public, private, and nonprofit institutions that involved in the Marmara and Düzce response operations between June 1 and July 27, 2004.

Disaster Management in Transition

As in many areas of public management, conventional planning models in disaster management are based upon linear assumptions. According to linear

assumptions, policy actions in public management not only produce desired outcomes, but also these actions and outcomes are proportionate. In this model, an analytical approach to address the problem is: "study the problem, develop alternatives, choose one, and move on to the next problem" (Mileti, 1999:146). Organizations work like machines, contain standard operating procedures and formal rules that identify responsibilities and ensure that all these procedures are reliably performed (Scott, 1992; Morgan, 1997). These organizations can be very effective where the environment is stable, problems are well-defined, and organizations can be closed to outside interference. However, in uncertain and complex environments, those machine-like organizations are likely to fail to achieve desired goals (Osborne and Gabler, 1992; Marion, 1996; Barzelay, 1992; Comfort, 1999; Axelrod and Cohen, 1999).

In a traditional centralized disaster management system, managers are more concerned with the intention to reduce risk and assume that execution of this intention and application of existing knowledge will result in proportional advances in hazard reduction (Turner and Pidgeon, 1997:4; Mileti, 1999: 146). However, disasters create different norms, "emerging norms," from regular norms (Schneider, 1995). The discrepancy between "emerging norms of disasters" and "bureaucratic norms of disaster administration" represents failures of intention (Schneider, 1995). The goal of a disaster management system is to find ways of diminishing this discrepancy to deal with the fatal consequences of disasters. A process-oriented, decentralized, flexible disaster management system with long-term mitigation plans is more likely to meet the emerging characteristics of disasters.

Shift from Disaster Response to Disaster Mitigation

Scholars generally agree that there are four different cycles in disaster management activities: mitigation, preparedness, response and recovery (Mileti, 1999; Comfort, 1999; Schneider, 1995). A traditional disaster management approach is more concerned with response actions. Managers take action after a disaster happens. Balamir (1999) calls this type of administration "State as Healer." According to Balamir (2001a), the main goal of the "healer state" is to save lives rather than to protect them. Balamir calls it a "fatalistic society" with the attributes of "saving strategy," "organizational frustrations," "healing discourse," and "crisis planning".

On the opposite side of this model is the concept of a risk society (Balamir, 2001a). Balamir's risk society is a "disaster resilient community" that is aware of future disasters and has a sustainable network of physical systems and communities to withstand an extreme event without experiencing devastating losses (Mileti, 1999). A risk society pays more attention to the mitigation process that aims to reduce the vulnerability of a community to damage from future

disasters (Schneider, 1995). “Protecting strategy,” “self-relying organizations,” “preparedness discourse,” and “contingency planning” are the main characteristics of this model (Balamir, 2001a). Moving from a fatalistic society model to a risk society model would not only reduce the vulnerability of communities and save more lives, but also would be more cost effective.

Local Disaster Management

Although local communities are more vulnerable to disasters, traditional disaster management systems put relatively less emphasis on improving the local capacity of the system. Human and material resources and the authority to mobilize these resources are often gathered at the national level. In many administrations, this appears to be a fundamental power issue between central and local organizations of the system. As Pfeffer (1992) states, every organization involves politics. The main sources of power in organizations, according to Pfeffer, are having resources, being in the center of a communication network, implementing important tasks, and having the capacity to seek and hold information. Thus, managers at the central level are more likely to have power and are not willing to share it with local managers. This creates serious difficulties with respect to disaster management.

The centralized system performs slowly and nonflexibly to overcome damage from disasters during sudden disruptions. The key resolution to these problems is to foster local sustainability (Mileti, 1999). “Sustainability refers to the capability of complex system to cope with changing conditions, to permanently adapt and, nevertheless, satisfy present needs” (Possekel, 1999:56). From this point of view, local sustainability represents a system where “a locality can tolerate and overcome damage, diminished productivity, and reduced quality of life from an extreme event without significant outside assistance” (Mileti, 1999:4). Therefore, to accomplish local sustainability, local governments and local residents should have more power and should take more responsibility for evaluating and allocating the resources, and designing the policies to reduce the impacts of disasters (Platt, 1999; Mileti, 1999).

The performance of a disaster management system depends on the system's capacity at the local level. Local conditions represent the initial conditions of the system, govern the whole disaster system, and eventually generate and characterize the choices for policies at different stages of disaster management. This requires an effective link between central actors and local actors. It is crucial to include local perspectives into the policymaking process to diminish disaster risk. Increasing the capacity of local components of the system improves the performance of the system. In a successful disaster management system, local governments and communities are more involved in systems dealing with future disasters.

TURKISH DISASTER MANAGEMENT POLICIES

In the disaster management literature, three historical periods are considered milestones in Turkish disaster policy administration (TBMM, 1997; TBMM, 1999; DPT, 2000; Akdağ, 2002): prior to 1944, 1944 to 1958, and 1958 to 1999. In addition to these periods, the year 1999 is a starting point for important organizational, technical, and regulational changes. The historical root of the Turkish disaster policies illuminates the successes and failures of present disaster policies and organizational structure.

Today, there are several important rules that regulate the Turkish disaster policies. Disaster Law (No. 7269), Civil Defense Law (No. 7126), and Disaster Regulation 12777 are the primary ones. In addition to these laws and regulations, many consider the development laws as important as disaster laws (Keleş, 2004; Balamir, 2001b). Although the development laws are not considered to be disaster laws, they, indirectly but significantly, affect the success of disaster policies. In addition to reviewing the historical roots of disaster laws, this section of the paper primarily examines the Disaster Law 7269 and the Development Law 3194 in detail as they are two of the most important regulations regarding disaster policies.

The Roots of Turkish Disaster Laws

The first written document regarding Turkish disaster affairs was about the earthquake that occurred in 1509. Following that disaster which killed 13 thousand people in İstanbul, II Beyazit, the Sultan of the Ottoman State gave orders to assist the earthquake victims. The Ottoman administration gave 20 gold pieces to each family, and assigned construction experts to rebuild their homes. Similar post-disaster efforts were made during the Ottoman Era.

In 1848, the Ottoman administration established Ebniyye Nizannamesi, a regulation, to control construction facilities in İstanbul. In 1877, this regulation was expanded to encompass all municipalities within the Ottoman State. The law of Ebniyye was extended in 1882 to regulate infrastructure and roads. Although these regulations were established to manage urbanization, they can be considered the first attempt to reduce the vulnerabilities of Turkish communities to disaster.

After the foundation of the modern Republic of Turkey, the approach to disaster management did not differ considerably from that of the Ottoman State. In 1933, the Act of 2290, The Municipality Building and Roads Law, significantly altered the Ebniyye Nizannamesi. This law decided all regulations regarding land development, infrastructure, roads, buildings and construction activities. Subsequent to The Erzincan earthquake on December 26, 1939, the deadliest earthquake in Turkish history, Turkish public administration established some temporary regulations and policies to assist the victims of the earthquakes. From

1939 to 1944, five destructive earthquakes struck Turkey: Erzincan, Niksar-Erbaa, Adapazarı-Hendek, Tosya-Ladik, and Bolu-Gerede. These earthquakes killed more than 43 thousand people, injured over 75 thousand and damaged in excess of 200 thousand buildings (Akdağ, 2002). These incidents showed that it is not possible to diminish the negative consequences of a disaster by simply rebuilding homes after an earthquake. In 1944, the Turkish disaster administration took the first steps toward mitigation.

In 1944, Turkey passed The Law for Measures to be Taken Before and After Earthquakes. This law (No. 4623) was the first regulation that Turkish public administration established for mitigation purposes. It required Turkish public administration to identify seismic risk prone areas, create special rules for construction facilities in these areas, develop aid and rescue plans before earthquakes, and prevent settlement before geological examination of the land (Akdağ, 2002; TBMM 1997). In 1945, the Public Works Ministry created the first seismic risk map of Turkey and established the first regulation of mandatory construction codes for disaster prone areas.

The primary laws, regulations and institutional establishments were established during 1958-1999, including Disaster Law 7269, the new Development Law 3194, and Civil Defense Law 7126. During this period, the key institutions, Public Works and Settlement Ministry, General Directorate of Disaster Affairs, and General Directorate of Civil Defense were founded.

The primary legal and organizational progress in the Turkish Disaster Management System from 1958 to 1999 shaped the fundamental patterns of the Turkish disaster system. Although these developments indicate an advanced understanding of disaster affairs from earlier periods, the system has not shown a significant capacity to build disaster resilient communities. The focus on response and recovery phases, policies and organizational structure based on traditional linear assumptions, and the lack of sufficient organizational and technical capacity constrained the ability of the system to cope with the problems of destructive earthquakes during that period. Another important factor affecting the adequacy of the disaster system was that the decision makers did not use land development policy as a tool to establish disaster resilient communities in risk prone areas (Balamir, 2001b; Keleş, 2004).

The Disaster Law of 7269

The main law that regulates the Turkish Disaster Management is Disaster Law (No. 7269), which was passed by Turkish Grand National Assembly in 1959 (Afet İşleri Genel Müdürlüğü, 1998). This law covers all regulations regarding disaster affairs and mainly identifies the tasks of disaster organizations before and after disasters. It remains the primary law governing disaster affairs. Under the light of new circumstances, the Law has been partly changed and various

amendments (1968/1051, 1981/2479, 1985/3177, 1995/4133) were enacted into the law (TBMM 1997; Akdağ 2002).

The law did not specify detailed emergency planning and organizational schema until 1988. In that year, Disaster Regulation of 1277 was created to clarify emergency planning issues. The regulation provided an outline for the national emergency plan and required institutions, ministries, province, and district governments to create their own specific emergency plans. Disaster Law 7269 awards extraordinary authorities to provincial and district governments to undertake necessary actions and to use public, private and even military properties for response operations.

The Disaster Law is considered highly advanced and comprehensive for the era in which it was created, however, it has not adapted over time to changing conditions. Although the Disaster Law clarifies the tasks to be carried out before and after disasters, it focuses fundamentally on the response and recovery stages of disasters (National Earthquake Council, 2002). The major goal of Disaster Law 7269 is to recover and rehabilitate after a disaster happens, rather than to reduce seismic risk and create a disaster resilient community (National Earthquake Council, 2002).
It has been a challenge for Turkish public administration to revise the traditional linear disaster policies in order to capture the complexities of risk. The organizational tradition of Turkish public administration has characterized the Turkish disaster policies and management structure that can be traced back to the Ottoman Era.

The Development Laws and Disaster Affairs

One of the main critic issue of Turkish disaster policies is that "disaster policies and development policies are not well connected" (Keleş, 2004; National Earthquake Council, 2002). From Ebniyye Nizannamesi in 1848 to the new Development Law 3194 in 1988, the changes in development regulations did not consider the seismic risk, especially in metropolitan areas, as an important aspect of development policies.

According to the Municipality Law 1580 and the Municipality Building and Roads Law 2290, established in 1930 and 1933 respectively, municipalities have the authority and the responsibility for land development and construction activities in cities. However, in the 1950s, domestic migration toward bigger cities, urbanization, and increasing industrial facilities in metropolitan areas created huge problems and construction activities became very difficult to control. Therefore, the Turkish Grand National Assembly passed a development law (No. 6785) in 1956 to regulate development affairs in cities. However, the Development Law 6785 could not solve the problems of land development.
Populist policies to win elections and the willingness of public officials to excuse

illegal construction activities made this problem nearly unsolvable. In 1988, the Turkey Grand National Assembly passed a new Development Law, 3194, to replace the old 6785 in order to deal with the increasing level of urbanization problems. Today, the Development Law 3194 is the major law that regulates the matters of land development, construction, and construction monitoring.

As with the previous law, the final Development Law proved insufficient to address the problems of illegal construction activities in cities. According to current Turkish officials, today, approximately one half of the buildings in İstanbul are illegally constructed.

"There are approximately 1.2-1.3 million buildings, inside the metropolitan city of İstanbul. But only 600-700 thousand of them are legally constructed."[1] Keleş (2004) claims that Development Law 3194 is inadequate and outdated. Municipalities with populations over 10 thousand and provincial governments are responsible for the preparation of development plans. However, they are not required to incorporate seismic data into the plans. Further, many municipalities lack the technical and financial capacity to design and implement development plans. Therefore, from planning phases to control phases, construction activities pose a huge dilemma for the disaster system. Keleş (2004) asserts that construction control is almost non-existent in Turkey.

In conclusion, several issues must be considered in Turkish development and disaster policies (National Earthquake Council, 2002; İstanbul Emergency Master Plan, 2003). First, populist policies continue to extend illegal settlements into metropolitan areas. Second, the Development Law and the Disaster Law are not considered to be two sides of a single coin. The Development Law should consider seismic risk as a basis for land-use and settlement in cities. To achieve a successful disaster policy, "the practice of land-use planning and zoning, transportation and infrastructure planning, procedures for density assignment, planning the open spaces, participation processes, strengthening and devising new methods monitoring building- use control, etc., all of these are distinct aspects of disaster concerns that naturally need to be covered in the Development Law" (Balamir, 2001b: 210).

A third criticism is that there is an uncertainty about the authority and responsibility of organizations over land development issues. Many organizations have partial responsibilities for land development and physical planning making it difficult to track and enforce the illegal construction activities in metropolitan cities.

[1] Interview with Emergency Coordination Center, İstanbul Greater Municipality, June 22, 2004, İstanbul

Turkish Disaster ADMINISTRATIVE Structure

Turkish local and central disaster government is structured according to Disaster Law 7269. According to this Law, the General Directorate of Disaster Affairs under the Ministry of Public Works and Settlement is responsible for preparedness, response, and recovery operations and coordination of these activities. In addition, several ministries have responsibilities and authority at different stages of the disaster management process (Keleş, 2004), creating a significant confusion for coordinating the disaster activities. To avoid this problem at the provincial level, the law allocates power to provincial governors to administer provincial branches of ministries.

The confusion of power and responsibility is a significant problem at the central level of disaster administration as well. At the central level, along with the General Directorate of Disaster Affairs (GDDA), the General Directorate of Civil Defense (GDCD) was established under the Interior Ministry to carry out the tasks that Civil Defense Law 7126 defines. The GDCD also carries out the tasks mandated by Disaster Law 7269, and Disaster Regulation 12777 (Çorbacıoğlu and Kapucu, 2005). Other organizations such as the Prime Ministry's Emergency Coordination Council and the Disasters Center Coordination Council have responsibilities and authority for coordination of disaster operations after a disaster happens.

In order to expose the coordination problems of the Turkish disaster system, we should examine the formal Turkish disaster management structure. The Turkish disaster management structure is organized at central and local levels. At the local level, the provincial rescue and aid committee is responsible for disaster operations. If a disaster exceeds the capacity of disaster agencies at the local level, the responsibility and authority go from the local level to the central level disaster agencies. The Central Disaster Coordinating Committee is the main body at the central level. If a disaster threatens the life and security of the nation, the prime minister declares a crisis management situation and the Prime Ministry's Crisis Management Center takes charge.

Turkish Disaster Management at the Local Government Level

Local level organizations are the first response actors in the Turkish disaster system. Disaster Law 7269 and the Regulation 12777 require district and provincial disaster organizations to prepare emergency plans before a disaster, and respond to the disaster accordingly. If a disaster is relatively small, public-district disaster organizations respond under the district managers, Kaymakam. If the resources and agencies of districts are insufficient to handle the disaster, provincial public disaster organizations take over the authority under the command of the provincial governor. Figure 1 shows the local disaster management structure.

Provincial Response Committee

Chairman : Governor of the Province
Mayor
Commander of Gendarmerie
Directors of:
Police
Civil Defense
National Education
Public Works and Settlements
Health Department
Agricultural and Rural Affairs
Energy and Natural Resources
Local Representative of the Turkish Red Crescent Society (TRCS)
Local Military Commander

Emergency Aid Services Groups
Communication Services
Preliminary Damage Assessment and Temporary Shelter Services
Transportation Services
Public Security Services
Approbation Renting Confiscation & Distribution Services
Rescue and Debris Removal Services
First Aid & Medical Services
Agricultural Services
Lifeline Services

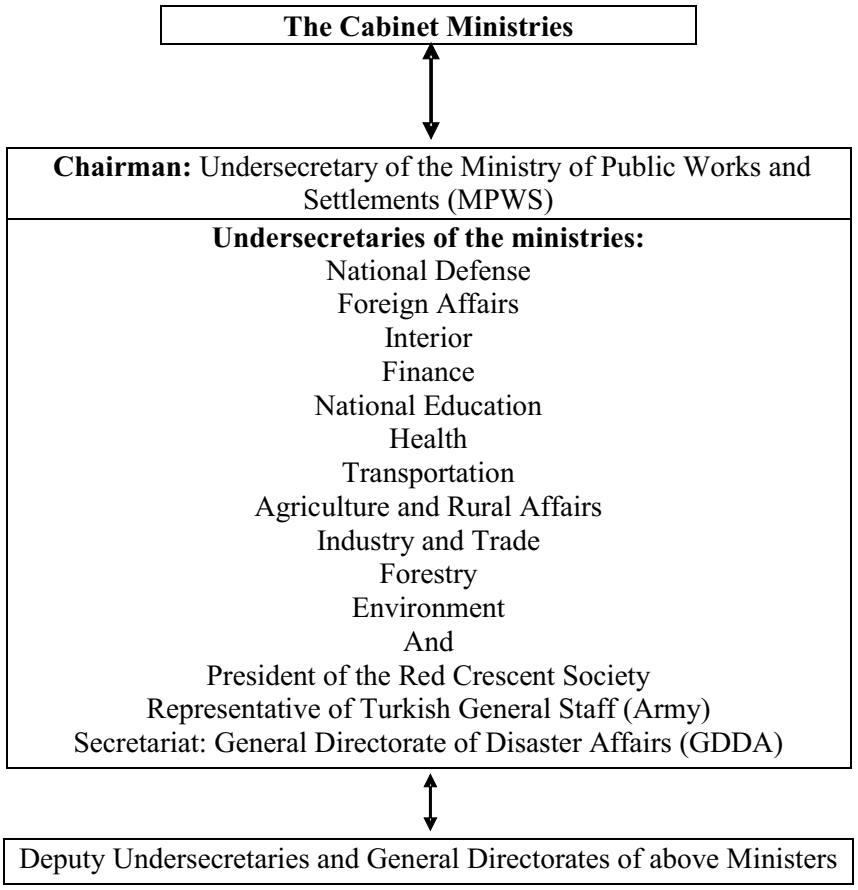
Sources: JICA (2004), Ergünay (1999)
Figure 1; Provincial Rescue and Aid Committee

This structure appears ideal since it provides the responsibilities and power to local organizations for immediate response to disasters. However, it is not practically functional because the local disaster organizations do not posses sufficient technical and organizational capacity to cope with a major disaster. In many cases, such as the Marmara and Düzce earthquakes, the local communities are overwhelmed by the disasters and do not have the ability to perform their responsibilities.

Turkish Disaster Management at the Central Government Level

The Central Disaster Coordinating Committee (CDCC) is the main body in the

Turkish disaster management structure at the central level. The committee is responsible for responding to a disaster if provincial rescue and aid groups are not able to overcome the problems of the disaster. The schema of this committee is shown at Figure 2.



Sources: JICA (2004), Ergünay (1999)

Figure 2; Central Disaster Coordination Committee

There are two main organizations at the central level that are responsible for coordinating disaster affairs: The General Directorate of Disaster Affairs (GDDA) and the recently founded General Directorate of Turkey Emergency Management (GDTEM). However, when a disaster occurs, two other organizations at the central level join these two organizations in coordinating disaster operations: The General Directorate of Civil Defense (GDCD) and the Prime Ministry Crisis Management Center (PMCMC). Figure 3 shows the structure of the Prime Ministry's Crisis Management center.

Prime Ministry Crisis Management Center

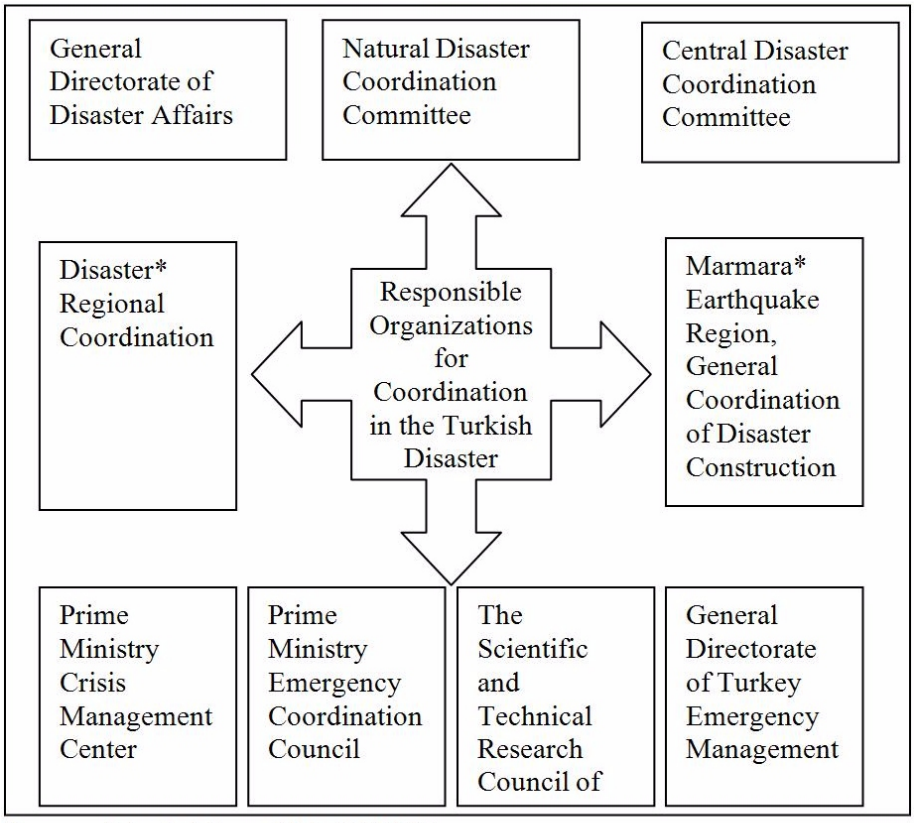
Crisis Coordination Council	Crisis Assessment and Monitoring Council	Secretariat
Chairman: Prime Minister or Related Central Minister	**Chairman:** Undersecretary of Prime Minister	**Chairman:** Deputy Undersecretary of Prime Minister
Chief of the General Staff (or Representative Central Minister on Economy Minister of Justice Minister of National Defense Minister of Interior Minister of Foreign Affairs Minister of Finance Minister of National Education Minister of Public Works and Settlements Minister of Health Minister of Transportation Minister of Agriculture and Rural Affairs Minister of Labor and Social Security Minister of Industry and Trade Minister of Energy and Natural Resources Minister of Forestry Minister of Environment Secretary General of National Defense Council Other Ministers as Required	Representative of the General Staff Undersecretary of Justice Undersecretary of National Defense Undersecretary of Interior Undersecretary of Foreign Affairs Undersecretary of Finance Undersecretary of National Education Undersecretary of Public Works and Settlements Undersecretary of Health Undersecretary of Transportation Undersecretary of Agriculture and Rural Affairs Undersecretary of Labor and Social Security Undersecretary of Industry and Trade Undersecretary of Energy and Natural Resources Undersecretary of Forestry Undersecretary of Environment Representative of the General Secretariat of National Defense Council President of Council for Higher Education Undersecretary of the National Intelligence Organization Undersecretary of SPO Undersecretary of Treasury Undersecretary of Foreign Trade President of the Central Bank President of the Turkish Atomic Energy Authority President of the Turkish Red Crescent Society Representatives of Other Ministries and Institutions as Required	General Directors and Experts from Ministries and Institutions

Source: JICA (2004), Ergünay (1999)

Figure 3; Prime Minister Crisis Management Center

GDCD operates under the Interior Ministry and is the major organization responsible for coordinating rescue operations. In addition to GDCD, PMCMC is another coordinating establishment after a disaster threatens the well-being of people. According to the regulation of 8716 (1996), if the prime minister declares an emergency situation, the PMCMC steps in command and becomes the main body of the disaster management system.

After the declaration of an emergency situation, four units at the same hierarchical level become the coordination agency. The General Directorate of Disaster Affairs (GDDA), the Prime Ministry Crisis Management Center (PMCMC), the General Directorate of Civil Defense (GDCD) and the GDTEM are the major organizations at the same organizational level that are responsible for similar tasks in the system. The similar organizational and legal bases of these organizations create a conflict of authority.



Source: Adapted from Akdağ (2002)

*Organizations for only the Marmara and Düzce Earthquakes

Figure 4; Organizations Responsible for Coordination

In addition to these organizations, there are others that are fully or partially responsible for coordination of disaster operations during a major disaster. As Akdağ (2002) ironically observes, there are almost more coordination agencies than response agencies in the system (Figure 4).

DEVELOPMENTS AFTER THE 1999 EARTHQUAKES

After the 1999 Marmara and Düzce earthquakes, several significant legal and institutional reforms were introduced into the Turkish disaster management system. The General Directorate of Turkey Emergency Management and the National Earthquake Council were added to the system to improve coordination among disaster organizations before and after disasters. The General Directorate of Civil Defense established 11 professional rescue groups in different parts of the country to increase the response capacity of the system.

Some important legal changes were also made after the earthquakes. A mandatory earthquake insurance system and cabinet decisions for a new Building Construction Control System were the most important legal initiatives for reducing the hazardous effects of earthquakes.

General Directorate of Turkey Emergency Management

After the 1999 earthquakes, Turkish public administration attempted to address the problems of intergovernmental coordination. In order to coordinate efforts before and after a disaster, a new organization was established. Based on the Cabinet decision number 583/1999 and 600/2000, and with financial support from the World Bank, the General Directorate of Turkey Emergency Management (GDTEM) was founded under the Prime Ministry. In 1999, the institution was established as a chairmanship and later in 2000 it was promoted to the level of general directorate. The GDTEM became responsible for coordinating public disaster agencies for natural or man-made disasters that threaten the security of the nation. The primary tasks of the GDTEM are as follows:

- Coordinating the operations of public organizations,
- Enabling public organizations to establish emergency management centers,
- Establishing a disaster database, creating short and long term plans and assessing the attempts of disaster organizations to diminish the risk of emergency,
- Encouraging volunteer activities,

The GDTEM was established to solve coordination problems among public disaster organizations in the disaster system. However, the legal basis of the

GDTEM does not allow the organization to effectively perform this main goal. In the hierarchical Turkish public administration, the GDTEM lacks authority over the primary disaster organizations. The current legal and institutional formation of the GDTEM made the coordination issue more complex in the Turkish disaster system.

Some argue that a new organization was not necessary to perform these tasks.[2] They claim that one of the organizations among the General Directorate of Disaster Affairs (GDDA), Prime Ministry Crisis Management Center (PMCMC), General Directorate of Civil Defense (GDCD) could be reorganized to perform these duties. On the other hand, some argue that a new coordinating agency was required in the organizational structure of the disaster system.[3] However, they assert that the GDTEM should be formed at a higher level, such as undersecretary of a ministry, to eliminate any power conflict among the agencies.

According to one expert, the reason for this conflict was that the GDTEM was established in a hurry without much consideration or preparedness.[4] The World Bank promised millions of dollars in financial assistance after the 1999 earthquakes. The condition for obtaining this assistance was the establishment of a new coordination agency in the Turkish disaster system. The GDTEM was established before the last day of deadline to obtain this financial assistance. In June 2004, the GDTEM lacked the personnel, organizational, and technical resources to perform any of its duties.[5]

National Earthquake Council

The Prime Ministry's Office established a scientific, independent National Earthquake Council in March 2000. The National Earthquake Council was created to evaluate and unite discussions among experts about future earthquakes. According to the decision 2000/9, the Council consists of 20 experts selected from universities, public disaster organizations, and professional institutions. The Scientific and Technical Research Council of Turkey (TÜBİTAK) became the responsible organization for the foundation of the Council. TÜBİTAK also performs as the secretary of the Council. The major missions of this Council are (Balamir, 2001b):

- To evaluate the assertions and predictions for future seismic risk, and to share the findings with the authorities and public,
- To identify priorities for research activities for reducing seismic risk,
- To provide consultation for public disaster agencies,

[2] Interview with Earthquake Research Center, GDDA, June 10, 2004, Ankara
[3] Interview with The Turkish Red Crescent Society, June 9, 2004, Ankara
[4] Interview with METU Disaster Management Center, June 8, 2004, Ankara
[5] Interview with General Directorate of Turkey Emergency Management, June 7, 2004, Ankara

- To prepare strategic disaster policies,

The Council met on June 16, 2000. In 2002, the Council prepared its first report, National Strategic Report for Reducing the Harmful Effects of Earthquakes. The Council offered the report to all public institutions, including the Turkish Grand National Assembly. The report identified the legal, institutional, land development, informational, and educational aspects of disaster administration, and recommended the actions that are to be taken for mitigation. Unfortunately, because of changes in the administration of TÜBİTAK, the Council has not been very effective in gathering the responsible organizations in order to discuss and implement the policies that the strategic report recommended (JICA, 2004). The Council was abolished in 2007.

Increasing Search and Rescue Capacity of the System

After the Marmara and Düzce disasters, the General Directorate of Civil Defense increased the number and competence of professional search and rescue groups to improve the system's response capacity. By Cabinet Decisions 586/1999 and 596/2000, the General Directorate of Civil Defense (GDCD) established well-trained rescue groups equipped with advanced technical vehicles in 11 cities: Adana, Afyon, Bursa, Diyarbakır, Erzurum, İstanbul, İzmir, Sakarya, Samsun and Van. GDCD assigned these rescue teams to some groups of provinces and determined the primary responsibilities of teams based on the location of a disaster. Each rescue team includes 100-120 personnel, and operates as a regional rescue team.

In addition, the Turkish Armed Forces have founded natural disaster rescue troops consisting of members from the Army, Navy, Air Forces, and Gendarmerie (Çorbacıoğlu and Kapucu, 2005). Further, many volunteer search and rescue groups have been established in provinces in the Marmara region. All of these developments significantly increased the response capacity of the disaster system. Many agree that the search and rescue function of the Turkish disaster system is the most developed element of the system since the 1999 earthquakes.[6]

Mandatory Earthquake Insurance System

According to Disaster Law 7269, the central government was responsible for rebuilding the damaged properties of citizens after a disaster occurs. Experiences have proved this policy to be an obstacle in implementing earthquake resistant building codes. The residents in the risk-prone areas do not

[6] Interview with General Directorate of Civil Defense, June 8, 2004, Ankara
Interview with Office of İstanbul Province Government, June 21, 2004, İstanbul
Interview with Sakarya Civil Defense Rescue Group, June 15, 2004, Sakarya
Interview with Avcılar Crisis Management Center, June 22, 2004, İstanbul

comply with earthquake resistant building codes since the state is the free insurer of the damaged properties. This policy creates a huge financial burden for the state. After the 1999 earthquakes, public managers decided to alter this policy and share the financial burden with citizens and encourage citizen compliance with regulations.

A mandatory earthquake insurance system was established on December 27, 1999 by Cabinet Decision 587. After this decision, the state was no longer the free insurer of the damaged buildings following a disaster. Earthquake insurance was required for buildings constructed inside the borders of municipalities. A Natural Disaster Insurance Agency was founded to collect insurance money and administer the system. Although this regulation was an important step for disaster mitigation, the implementation of this system has not been very effective[7] The residents in earthquake risk-prone areas still ignore mandatory insurance and are very reluctant to pay for it.[8]

Building Construction Inspection

The most important requirement for reducing seismic risk is to have a building stock that is rigorously constructed according to earthquake resistant codes. The inadequate policies in implementing building codes and controlling building construction have been the biggest problem of the Turkish disaster management system. The municipalities that have responsibilities for development plans and construction activities have proven reluctant to enforce the implementation of earthquake resistant building codes. To solve this problem, an important policy change was made by the Cabinet Decision 595 in April, 2000. According to this Cabinet Decision, the municipalities still had the authority for land development and construction permission. However, excluding public constructions, the new policy gave the responsibilities of monitoring constructing activities to certified private construction monitoring companies. These companies had the power to monitor construction activities from project phases to the end of construction. According to the policy, for ten years, these monitoring companies would be legally responsible for the buildings that they inspected.

The rule initially applied to the 27 provinces including the provinces that were affected by the Marmara Earthquake. Although experts praised this new policy, it did not remain in effect very long.[9] A political party requested the Supreme Court to abandon this policy, and consequently the Supreme Court abolished the Cabinet Decision 595/2000 in 2001. In June 29 2001, the Turkey Grand National Assembly passed a new Construction Monitoring Law 4708. The new law significantly altered many aspects of the Cabinet Decision 595. According to many professionals, the new law made the system more centralized and

[7] Interview with Boğaziçi University Earthquake Engineering, June 24, 2004, İstanbul
[8] Interview with Emergency Coordination Center, İstanbul Greater Municipality, June 22, 2004, İstanbula
[9] Interview with METU Disaster Management Center, June 8, 2004, Ankara

inadequate in implementing earthquake resistant building codes than it was before the 1999 Earthquakes (Gülkan, 2001).

Challenges from Management and Polıcy Perspectives

The changes in the disaster policies and institutional structure after the 1999 earthquakes, to some degree, have improved the capacity of the Turkish system. In particular, new civil defense rescue teams and numerous volunteer rescue groups in disaster stricken cities significantly increased the response capacity of the system. However, the modifications in disaster policies are not sufficient to alter the linear, centralized, and bureaucratic characteristics of the Turkish disaster administrative system. Since authority and resources are accumulated by central organizations, local organizations are unable to take independent action to transform their performance based on the changing parameters in disaster environments.

According to disaster laws and regulations, province and district disaster organizations are initially responsible for response to an earthquake. However, in practice, local organizations do not possess the operational and technical capacity to manage the consequences of a moderate or destructive earthquake. Central level organizations usually command and control disaster operations. This system creates confusion and constrains on the ability of local disaster agencies to respond quickly when timely action is crucial. Therefore, establishing a sustainable local disaster system should be the first priority of the Turkish disaster management. Local organizations should be supported by financial resources, trained personnel and advanced information and communication means to establish a sustainable local disaster system.

Multi-jurisdictional disaster organizations have caused coordination difficulties before, during and after disasters. The Turkish public administration observed this problem and established an agency, the General Directorate of Turkey for Emergency Management (GDTEM). The GDTEM that is responsible for coordination of disaster affairs during both emergency and non-emergency periods. However, organizations such as the General Directorate of Civil Defense or the General Directorate of Disaster Affairs have similar responsibilities. When a disaster occurs, other organizations such as the Prime Ministry Crisis Management Center and the Natural Disaster Coordination Committee are fully or partially responsible for coordination of disaster operations as well. The confusion brought about by conflicting authorities among the coordination agency makes coordination of disaster operations more problematic. The establishment of GDTEM is not able to address this issue since the organizations are at the same hierarchical level, and GDTEM does not have any authority over other coordination agencies. Many of the Turkish disaster experts interviewed suggested that the establishment of GDTEM eliminated the

need for PMCMC. Instead, they claimed that the administration should reform GDTEM as the Prime Ministry Emergency Management Undersecretariat, with authority over other coordination agencies.

The two primary disaster policies, Disaster Law 7269 and Regulation 12777 should be amended to reflect the new conditions of seismic risk in Turkey. Disaster policies were prepared decades ago and based on linear and bureaucratic assumptions of public administration. However, changes in the demographic, social, and economic characteristics of the nation made seismic risk more hazardous for Turkish people.

In this respect, development laws and regulations should be connected to disaster laws. Development Law 3194 does not consider seismic risk as a factor in the settlement of risk-prone areas. The law should be updated and used as a tool for diminishing the vulnerabilities of communities to seismic risk especially in metropolitan regions. Earthquake building codes should be implemented and strictly enforced to prevent illegal construction activities in cities, especially in İstanbul.

ConclusıOn

The Turkish public administration has implemented many policies and institutions to address the problems of earthquakes. However, the policies have primarily focused on the later stage of disaster management. The 1999 earthquakes proved that policies focused on the later stages of disaster mitigation, and an inflexible management structure is destined to fail in situations of complex, dynamic, and uncertain risk. The bureaucratic, centralized and hierarchical Turkish public administration formed by linear policies constrained the ability of disaster agencies to address the problems of seismic risk.

The review showed that the new institutional and legal changes have not yet effectively increased the capacity of the Turkish disaster system. The disaster management system should place greater emphasis on mitigation efforts rather than simply improving the rescue and response capacity of the system. The Turkish public administration should reform disaster policies based on the new circumstances of risk prone areas, and should create a new management structure that diminishes the centralized effect of the disaster management system to deal with the destructive consequences of deadly earthquakes.

BIBLIOGRAPHY

Afet İsleri Genel Müdürlüğü (1998). *Kanunlar ve Yönetmelikler*. Ankara: Bayındırlık ve İskan Bakanlığı

Akdağ, S. Emre, (2002), "Mali Yapı ve Denetim Boyutlarıyla Afet Yönetimi". http://www.sayistay.gov.tr/yayin/yayinicerik/aras20afetyonetimi.pdf (06.09.2005).

Axelroad, R. and D. M. Cohen (1999). *Harnessing Complexity*. New York: Free Press.

Balamir, M. (1999). "Reproducing the Fatalist Society: An Evaluation of the Disasters and Development Laws and Regulations in Turkey." In Emine M. Komut, ed. *Urban Settlements and Natural Disasters: Proceedings of UIA Region II Workshop*. Ankara, Turkey: Chamber of Architects of Turkey. pp. 96-107.

Balamir, M. (2001a). "Disaster Policies and Social Organization". Paper presented at the 5th Conference of ESA. "Disaster and Social Crisis Research Network sessions: Deconstructing Disaster Management: Beyond the Command and Control Model", Chaired by Maureen Fordham, Helsinki, August 28-September 1.

Balamir, M. (2001b). "Recent Changes in Turkish Disaster Policy: A Strategic Reorientation". In P. R. Kleindorfer and M. R. Sertel (eds.), *Mitigation and Financing Seismic Risks*, Kluwer, pp. 207-234.

Barzelay, M. (1992). *Breaking Through Bureaucracy: A New Way for Managing in Government*. Berkeley, CA: University of California Press.

Comfort, L. K. (1999). *Shared Risk: Complex Systems in Seismic Response*. Amsterdam: Pergamon.

Çorbacıoğlu, S. and N. Kapucu (2005). "A Critical Evaluation of Turkish Disaster Management System". TODAİE, Turkish Public Administration Annual, Vol. 29-31

DPT (Devlet Planlama Teskilatı) (2000*). Doğal Afetler Özel İhtisas Komisyonu Raporu* (Yayımlanmadı).

Erdik, Mustafa (2000), "Report on 1999 Kocaeli and Düzce Earthquakes"www.koeri.bound.edu.tr/depremmuh/Kocaelireport.pdf.(05.06.2002).

Ergünay, Oktay (1999). "A Perspective of Disaster Management in Turkey: Issues and Prospects". In Emine M. Komut, ed. *Urban Settlements and Natural Disasters: Proceedings of UIA Region II Workshop*. Ankara, Turkey: Chamber of Architects of Turkey. pp. 1-10

Gülkan, Polat (2001). "595 sayılı Yapı Denetimi Hakkındaki Kanun Hükmündeki Kararnamenin İptali ve Ardından Gelen 4708 Sayılı Yapı Denetimi Kanunu Hakkında Bir Deneme" (Yayımlanmadı)

İstanbul Greater Municipality (2003). *Earthquake Master Plan for İstanbul*. Prepared by Boğaziçi University, İstanbul Technical University, Middle East Technical University, and Yildiz University. İstanbul: July 7th.

JICA (Japan International Cooperation Agency) (2004). *Türkiye'de Doğal Afetler Konulu Ülke Strateji Raporu*. Ankara.

Keleş, Ruşen (2004). "Turkish Government Structure from a Disaster Management Perspective". UNDP.

Mileti, D. S. 1999. *Disasters by Design: A Reassessment of Natural Hazards in the United Centrals*. Washington D.C: Joseph Henry Press.

Marion, R. (1999). *The Edge of Organization*. Thousand Oaks, California: Sage Publications.

Morgan, G. (1997). *Images of Organization*. Thousand Oaks, California: Sage Publications.

National Earthquake Council Report, (2002), "Deprem Zararlarını Azaltma Ulusal Stratejisi." http://www.bayindirlik.gov.tr/turkce/udkraporu.php. (03.05.2003)

Osborne, D. and T. Gabler (1992). *Reinventing Government*. Reading, MA: Addison Wesley.

Pfeffer, J. (1992). *Managing with Power: Politics and Influence in Organizations*. MA: Harvard Business School Press.

Platt, R. H. (1999). *Disaster and Democracy: The Politics of Extreme Natural Events*. Washington, D. C.: Island Press.

Possekel, Anja K. (1999). *Living with the Unexpected: Linking Disaster*

Recovery to Sustainable Development. Springer: New York, Heidelberg, Berlin.

Sağlık Bakanlığı (2004). *Afetlerde Sağlık Organizasyonu Projesi*. Ankara: Sağlık Bakanlığı.

Schenider. S. K. (1995). *Flirting with Disaster: Public Management in Crisis Situations.* Armonk, NY: M.E. Sharpe.

Scott, W. R. (1992). *Organizations: Rational, Natural, and Open Systems.* Englewood Cliffs, New Jersey: Prentice Hall.

TBMM (Türkiye Büyük Millet Meclisi) (1997). *Doğal Afetlerde Can Ve Mal Kaybının En Aza İndirilmesi İçin Alınması Gereken Tedbirleri Belirlenmesine İlişkin Meclis Araştırması.* Ankara.

TBMM (Türkiye Büyük Millet Meclisi) (1999). *Deprem Araştırma Raporu* (Report No: 10/66, 67, 68, 69, 70). Ankara.

Turner B. A. and N. F. Pidgeon (1997). *Man-made Disasters.* 2nd Edition, Oxford: Butterworth-Heinemann.