

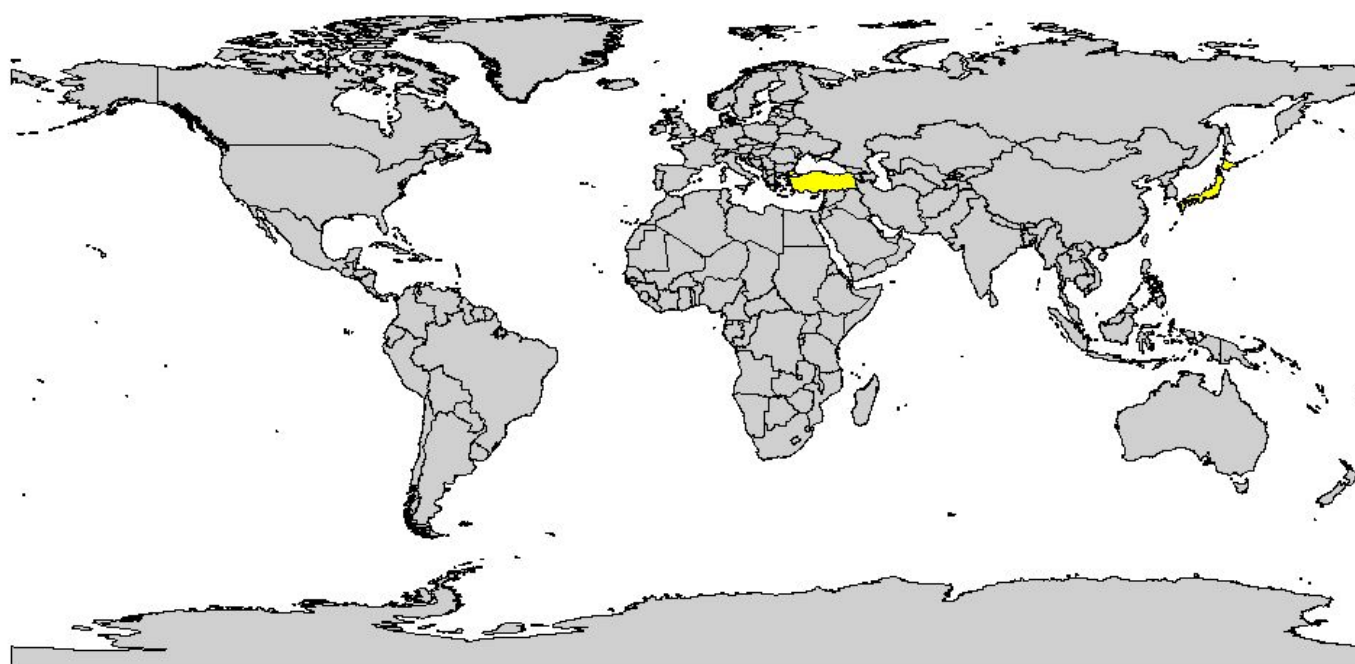
# **DISASTER MANAGEMENT SYSTEM IN TURKEY**

**Bülent ÖZMEN**

**General Directorate of Disaster Affairs**

**TURKEY**

Making Japanese Experience Replicable Anti-disaster  
World Conference on Disaster Reduction Public Forum  
International Symposium  
Organized by Japan Bank for International Cooperation (JBIC)





**Full Name: Republic of Turkey (Türkiye Cumhuriyeti)**

**Short Name: Turkey**

**Capital: Ankara**

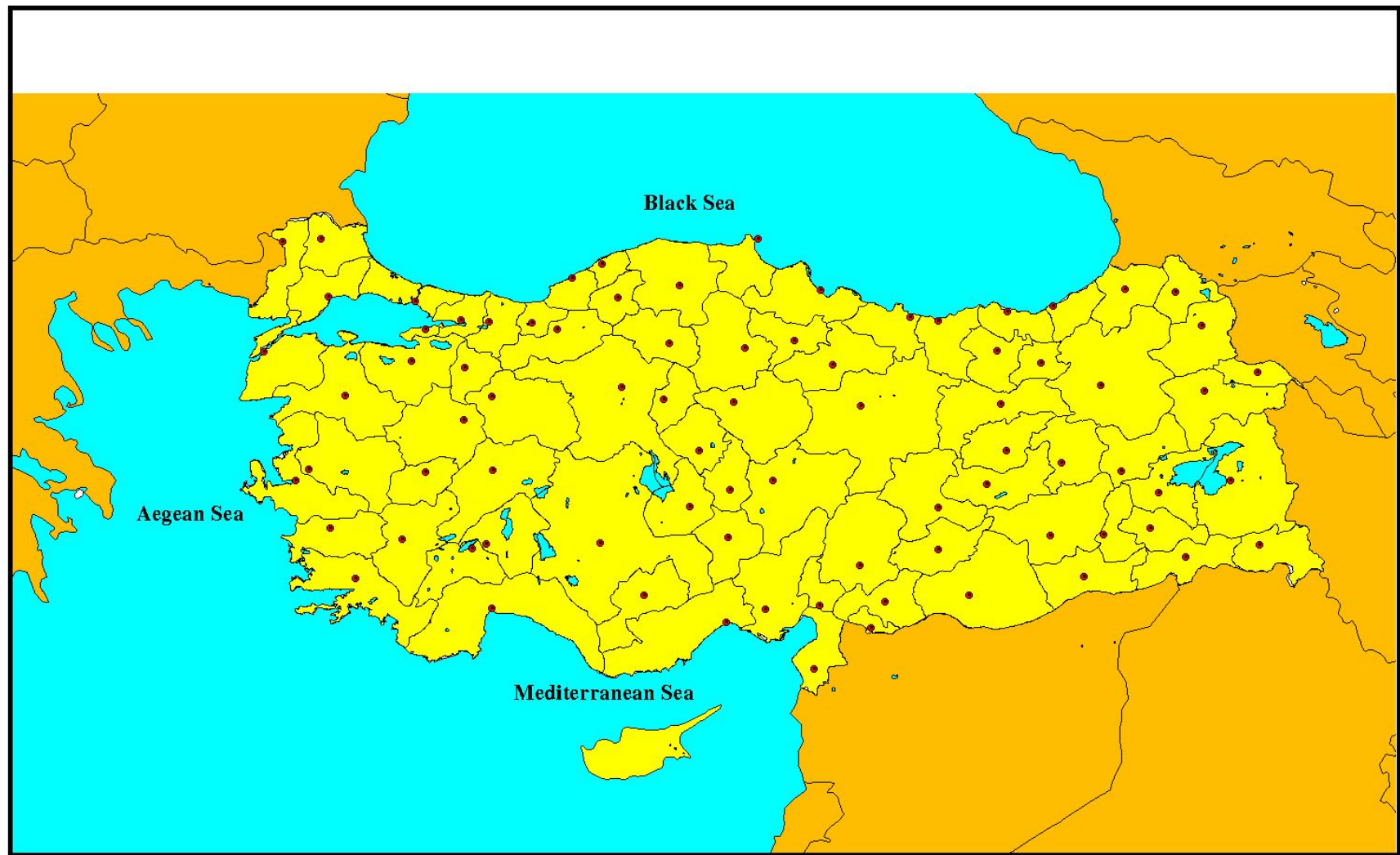
**Chief of State: President Ahmet Necdet Sezer**

**Head of Government: Prime Minister Recep Tayyip Erdoğan**

**Population: 68,109,469 (July 2003 est.)**

Turkey is a unitary state governed by the parliamentary democratic system. Turkish Republic was founded on October 29, 1923 by 'Mustafa Kemal Atatürk'.

Legislative power vested in the Turkish Grand National Assembly. The Assembly is composed of 550 members of parliament elected directly by citizens every five years.



Tablo: Jurisdictional Authority in Turkey

Political Jurisdiction	Authority	Status
Country	Prime Minister ('başbakan')	elected
	Minister ('bakan')	elected/appointed
Province ('il')	Governor ('vali')	appointed
	Mayor ('belediye başkanı')	elected
District ('ilçe')	District-Governor ( 'kaymakam')	appointed
	Mayor ('belediye başkanı')	elected
Village ('köy')	'muhtar'	elected
Small settlement ('mezra')	'muhtar'	elected
Neighborhood ('mahalle')	'muhtar'	elected

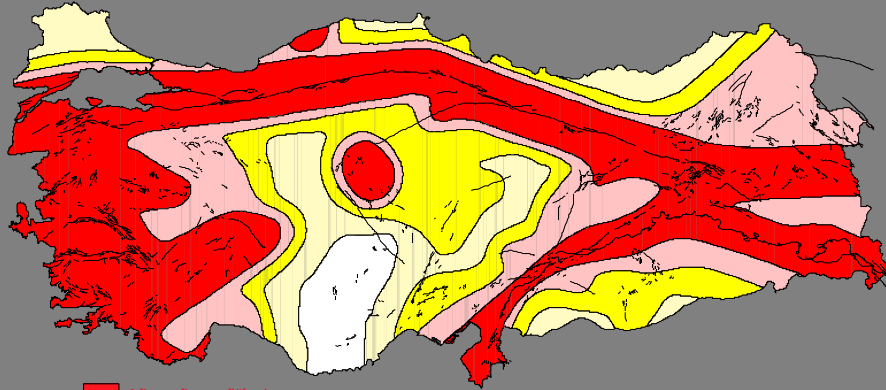
# NATURAL DISASTER

Turkey is one of the countries that is exposed to natural disasters because of geological conditions, topographic structure and climate.

Besides the casualties that they cause, natural disasters in Turkey are also the causes of great economic losses. Statistics in the area say that direct economic loss due to natural disasters is 1% of the GDP every year. However, if indirect economic losses like market loss, production loss and unemployment are taken into account besides direct economic losses, the total loss is greater than that.



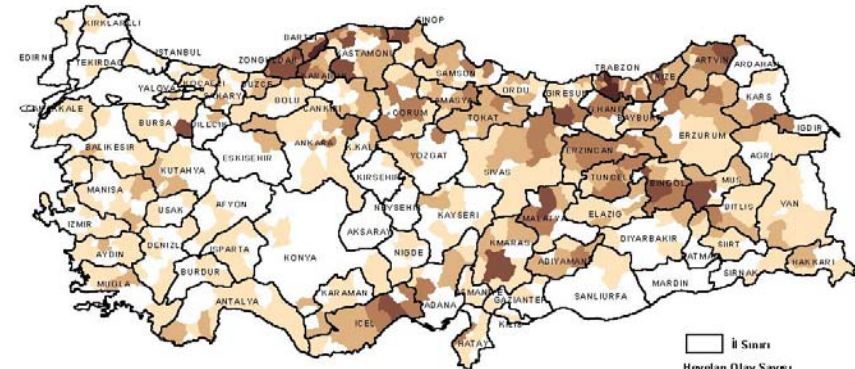
## EARTHQUAKE ZONING MAP OF TURKEY



- 1.Derece Deprem Bölgesi
- 2.Derece Deprem Bölgesi
- 3.Derece Deprem Bölgesi
- 4.Derece Deprem Bölgesi
- 5.Derece Deprem Bölgesi
- Ana Fay Hatları

T.C.  
BAYINDIRLIK VE İSKAN BAKANLIĞI  
AFET İŞLERİ GENEL MÜDÜRLÜĞÜ

## DISTRIBUTION OF NUMBER OF LANDSLIDE INCIDENCES BETWEEN 1950-2001



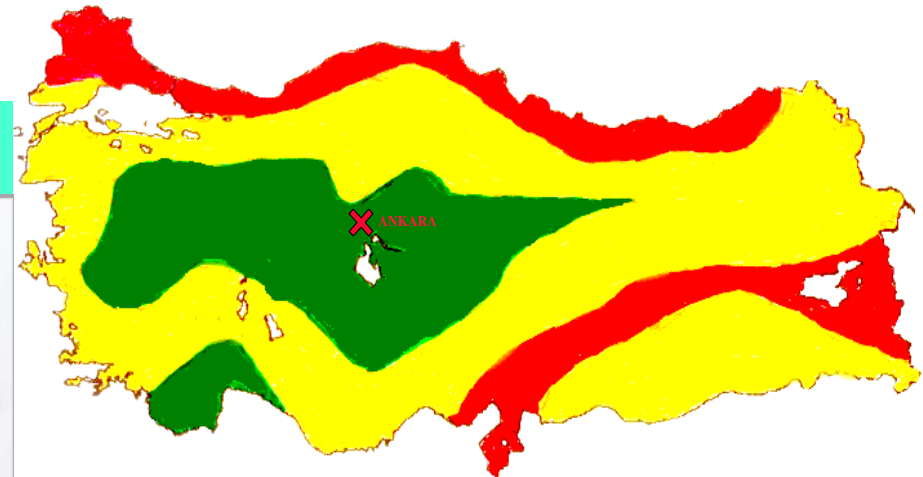
- il Sınırı
- Heyelan Olay Sayısı
- 1 - 6
- 7 - 14
- 15 - 25
- 26 - 50
- 51 - 109

## SNOW AVALANCHE MAP OF TURKEY



**Avalanche Prone Areas**

T.C.  
BAYINDIRLIK VE İSKAN BAKANLIĞI  
AFET İŞLERİ GENEL MÜDÜRLÜĞÜ



## MAP SHOWING THE LANDSLIDE SUSCEPTIBILITY OF TURKEY

<b>Type of Hazard</b>	<b># Of Collapsed Buildings</b>	<b>Percentage (%)</b>
Earthquake	612,000	79
Landslide	65,551	8
Flood	61,000	7
Rock fall	30,000	4
Avalanche	5,500	1
<b>Total</b>	<b>774,051</b>	<b>100</b>

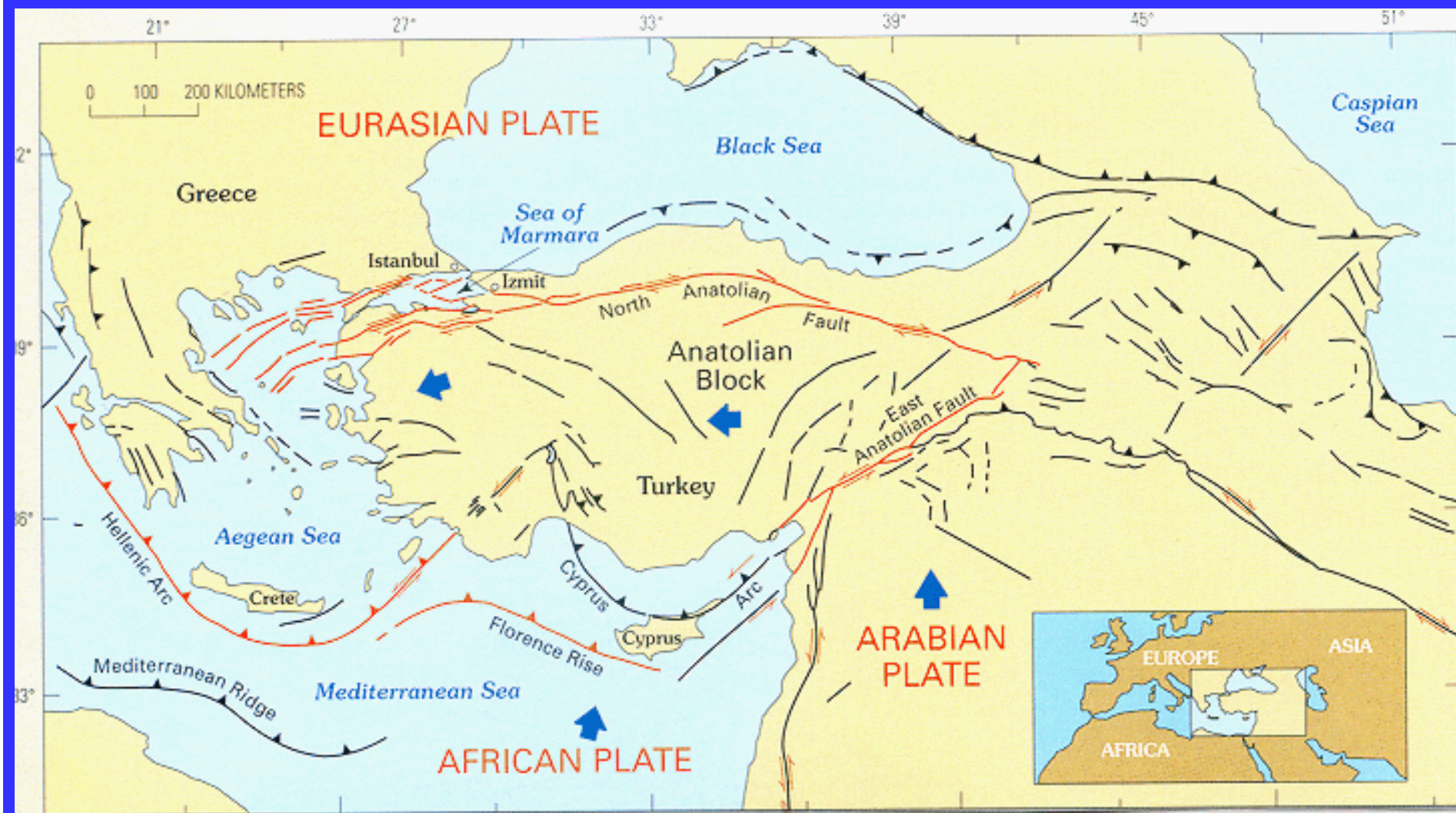
**Table 1:** Collapsed Buildings in natural disasters 1900-2003

**Table 1- Natural Disaster in Turkey since 1990**

<b>Event</b>	<b>Date</b>	<b>Killed</b>	<b>Injured</b>	<b>Homeless</b>	<b>Affected</b>	<b>Loss US\$ million</b>
Earthquake (‘Erzincan’)	13 March 1992	653	3,850	95,000	250,000	750
Avalanches (S. Anatolia)	1992 14 events	328	53	11,600	30,000	25
Avalanches (E.& S. Anatolia)	1993 31 events	135	95	1,100	300	10
Mud Flood (‘Senirkent-Isparta’)	13 July 1995	74	46	2,000	10,000	65
Earthquake (‘Dinar’)	01 October 1995	94	240	40,000	120,000	100
Flood (‘İzmir’)	04 November 1995	63	117	6,500	300,000	1,000
Earthquake (‘Çorum-Amasya’)	14 August 1996	0	6	9,000	17,000	30
Flood (W. Black Sea)	21 May 1998	10	47	40,000	1,200,000	1,000
Earthquake (‘Ceyhan-Adana’)	27 June 1998	145	1,600	88,000	1,500,000	500
Earthquake (‘Marmara’ Region)	17 August 1999	17,480	43,953	675,000	15,000,000	13,000
Earthquake (‘Düzce’)	12 November 1999	763	4,948	35,000	600,000	750
Earthquake (‘Sultandağ-Afyon ’)	3 Feb 2002	42	327	30,000	222,000	95
Earthquake (‘Bingöl’)	1 May 2003	177	520	45,000	245,000	135
<b>TOTAL</b>		<b>19,964</b>	<b>55,802</b>	<b>1,078,200</b>	<b>19,494,300</b>	<b>17,460</b>

Source: Compiled from GDDA data

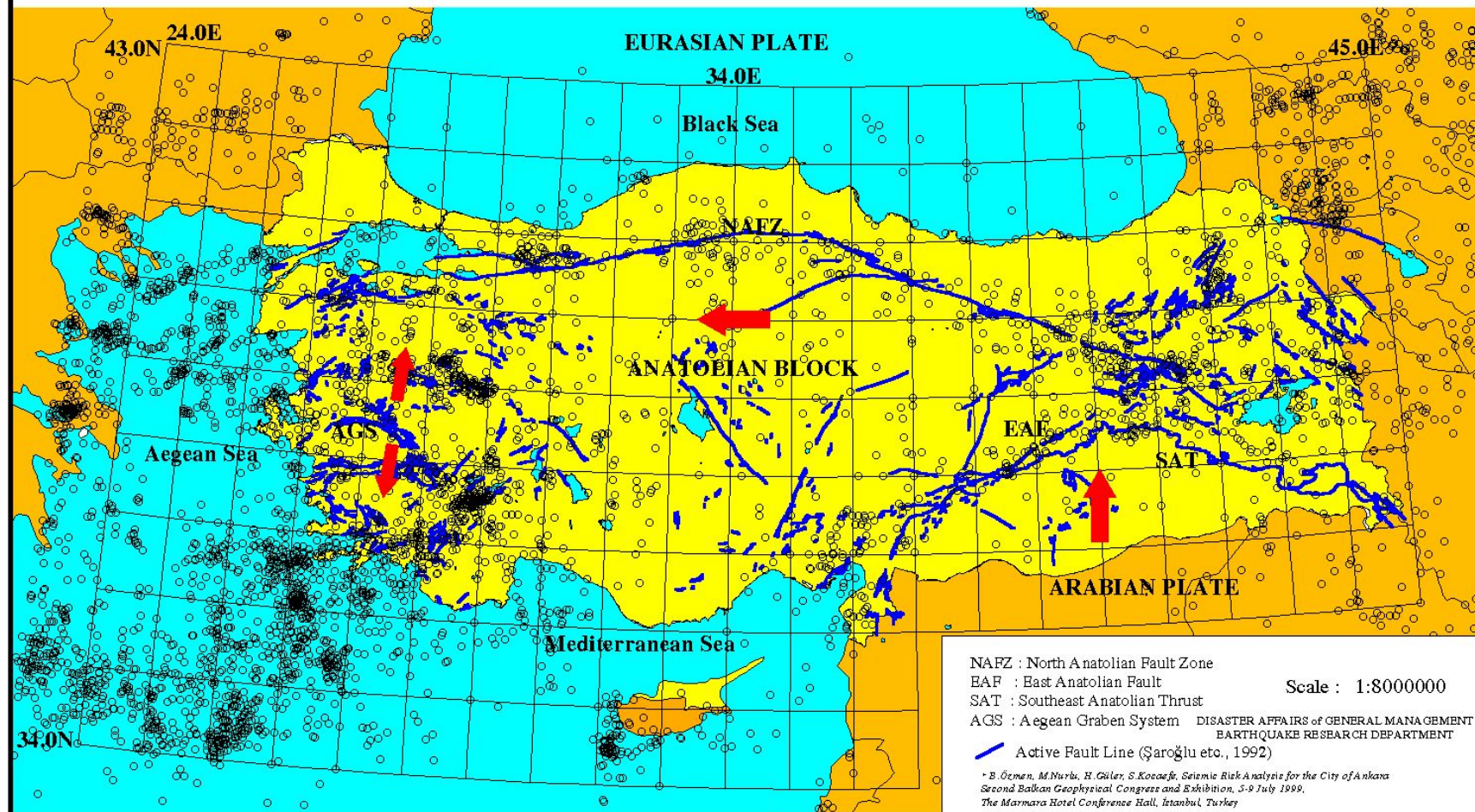
# EARTHQUAKE HAZARD IN TURKEY





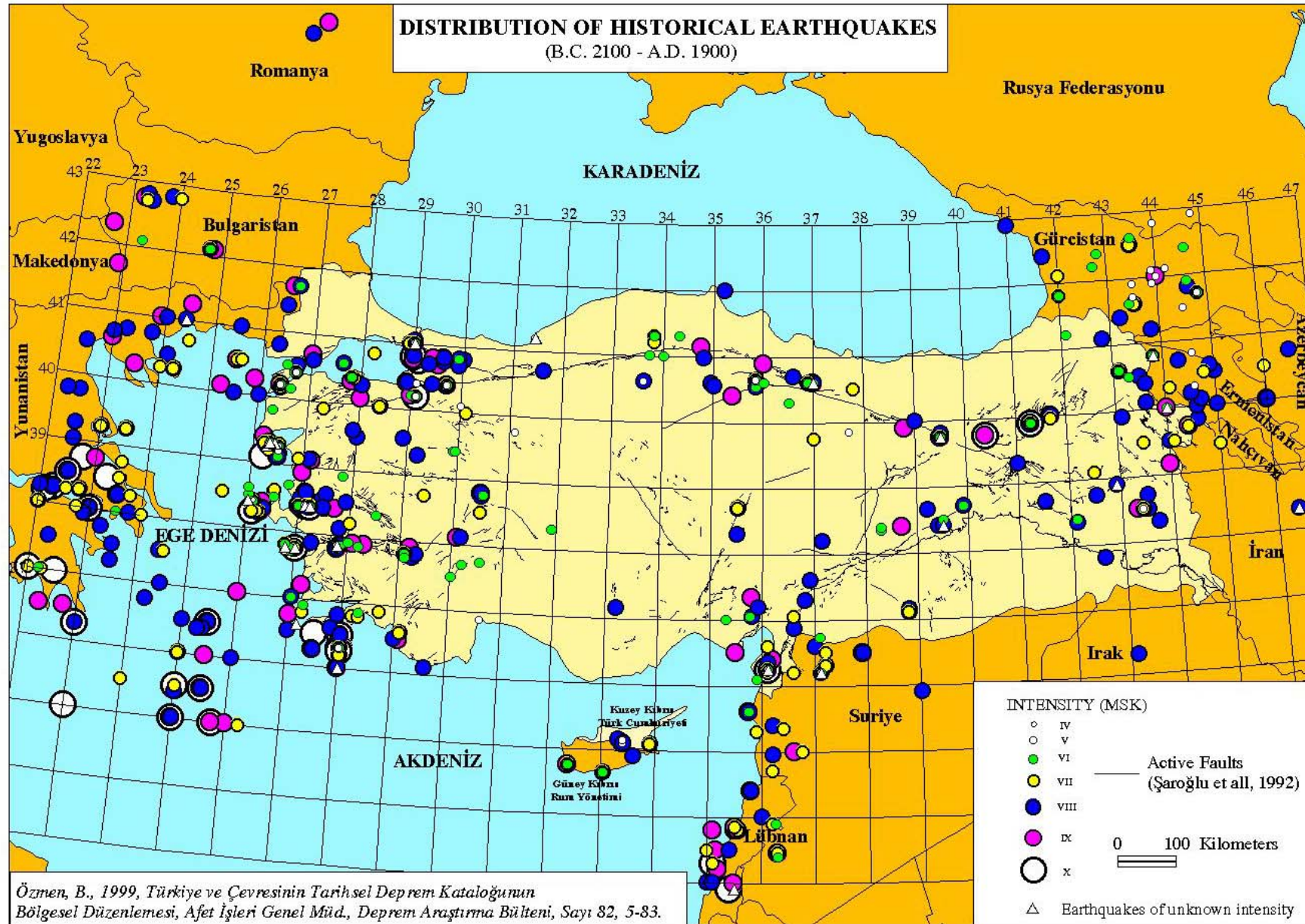
## DISTRIBUTION of EPICENTERS

(  $M \geq 4$  earthquakes for 1881 - 2003 )













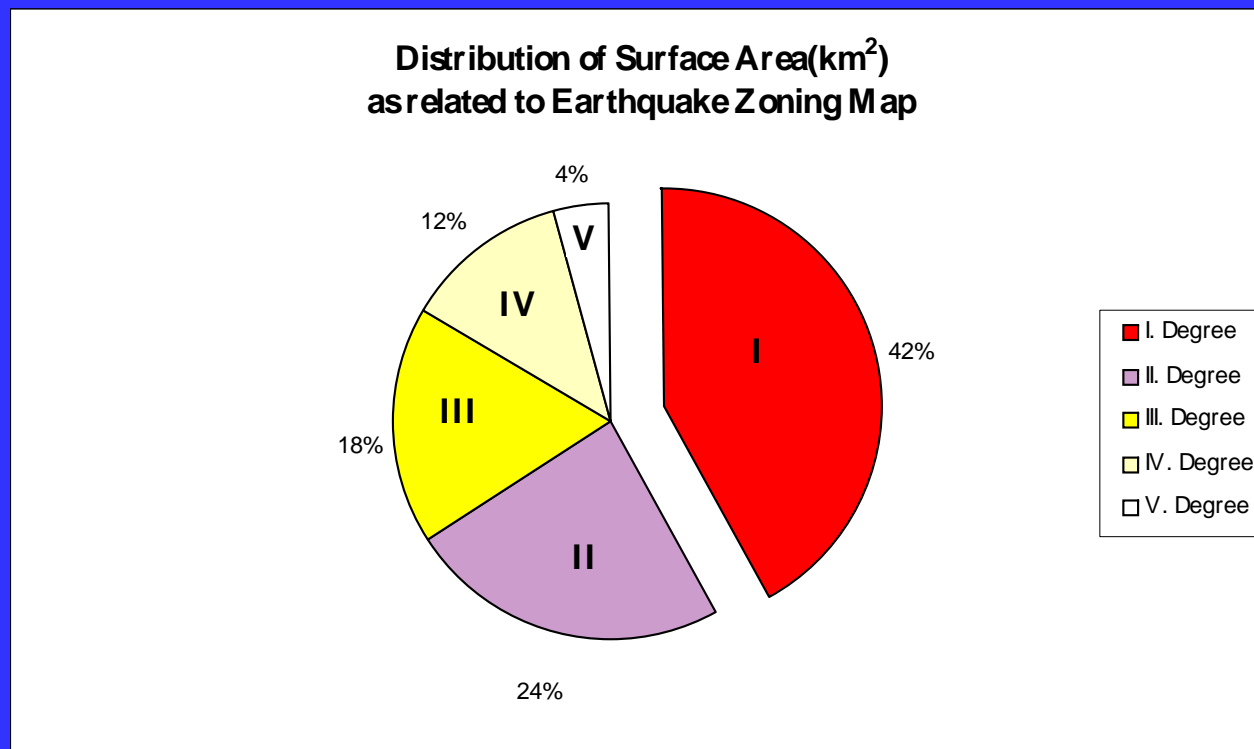
Province Center ●

GENERAL DIRECTORATE of DISASTER AFFAIRS  
EARTHQUAKE RESEARCH DEPARTMENT  
ANKARA-TÜRKİYE

**\*T.C. Ministry of Public Works and Settlement, 1996**

Earthquake Zone	Surface Area (%)	Population (%)	Industry (%)	Dams (%)
Zone 1 (pga $\geq$ 0.40 g)	42	45	51	46
Zone 2 (pga = 0.30 - 0.39 g)	24	26	25	23
Zone 3 (pga = 0.20 - 0.29 g)	18	14	11	14
Zone 4 (pga = 0.10 - 0.19 g)	12	13	11	11
Zone 5 (pga < 0.10 g)	4	2	2	6
<b>TOTAL</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

The *pga* is the expected peak ground acceleration with 90 percent probability of non-exceedance during 50 years. g: gravity (981 cm/s).



# **DISASTER MANAGEMENT SYSTEM IN TURKEY**

The Disaster Management system of Turkey is highly centralized and hierarchical. Responsibility for disaster management goes bottom-to-top, from district to province and to national level depending on the scale of the event. Small-scale disasters can be handled first at the district level.

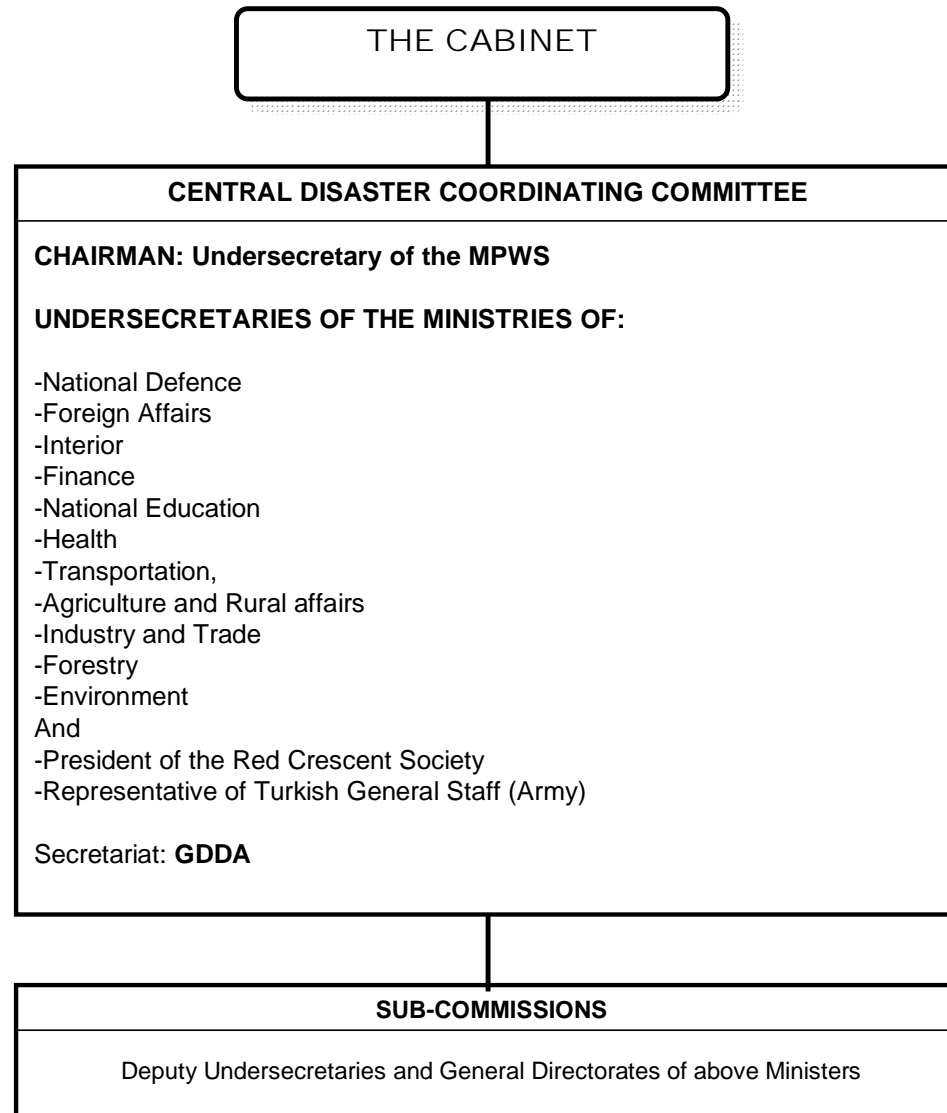
If the disaster surpasses the capacity of this level, the provincial governor, who heads the “Provincial Rescue and Relief Assistance Committee” known as “Crisis Committee”, is involved in the response and recovery activities.

If a major event that requires central government intervention occurs, then the “Central Coordinating Committee for Disaster” comprised of undersecretaries or high-level representatives from various ministries coordinate the response efforts for the disaster. These structures were installed in 1959, through Law No.7269.

## Central Level

In the organizational structure of Turkey's disaster management system at central level according to the Disaster Law No.7269, which is still in force, "The Central Disaster Coordinating Committee" is the main body consisting of the undersecretaries of the related ministries including a representative from Turkish General Staff and the president of the Turkish Red Crescent Society.

# Central Disaster Coordinating Committee



**In this case, a Crisis Centre is established in the Office of the Prime Ministry. During the time of crisis, each organization also sets up its own crisis centre in its headquarters. A regional crisis centre may be established if deemed necessary.**

**Prime Ministry  
Crisis Management Centre**

**Crisis Coordination  
Council**

**CHAIRMAN: Prime Minister or Related State Minister**  
Chief of the General Staff (or representative)  
State 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

**Crisis Assessment  
and Monitoring  
Council**

**CHAIRMAN: Undersecretary of Prime Ministry**  
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 TRCS  
Representatives of Other Ministries and Institutions as Required

**Secretariat**

**CHAIRMAN: Deputy Undersecretary of Prime Ministry**  
General Directors and Experts from Ministries and Institutions



Currently,

The General Directorate of Emergency Manager (Prime Ministry)

General Directorate of Disaster Affairs (Ministry of Public and Works and Settlement)

General Directorate of Civil Defense (Ministry of The Interior Affairs)

have been the fundamental agencies, responsible for disaster management in Turkey

**GENERAL DIRECTORATE of  
DISASTER AFFAIRS**

**GDDA has departmans as follows:**

- EARTHQUAKE RESEARCH DEPARTMENTS**
- EMERGENCY and TRANSPORTATION DEPARTMENTS**
- DISASTER INVESTIGATION and DAMAGE ASSESSMENT DEPARTMENT**
- PLANNING and LOAN MANAGEMENT DEPARTMENT**
- TEMPORARY HOUSING DEPARTMENT**
- PREFABRICATED HOUSING PRODUCTION and CONSTRUCTION DEPARTMENT**
- DISASTER FUND and SUPPLIES DEPARTMENT**

**THE DUTIES and RESPONSIBILITIES of GENERAL DIRECTORATE of DISASTER AFFAIRS ARE SHORTLY AS FOLLOWS:**

- to make emergency relief organizations and coordination in the event of disaster
- to take necessary measures to establish temporary shelters for disaster victims
- to execute and organize disaster relief
- to coordinate and cooperate with related ministries
- to determine disaster prone areas and take necessary counter measures
- to prepare land use map, projects and various plans
- to research on reduction of earthquake risk; to study earthquakes and their results; to prepare earthquake related documents and maps; to determine the criteria and regulations for earthquake resistant structures
- to develop seismic recording and strong motion network; to maintain these network

# **Turkey Emergency Management General Directorate ('TAY')**

## **The main responsibilities of TAY as below:**

**Have emergency management centers established in governmental organizations and associations for effective realization of emergency management, identify their working principles and provide coordination among these centers.**

- Monitor and evaluate the organizations and institutions taking the necessary measures to prevent situations that require emergency management, preparation of short and long term plans, and developing information systems.**

- Carry out coordination services in utilizing all kinds of land, marine and aviation vehicles belonging to public and private sectors when emergency management is applied.**

- Make the incentive arrangements for volunteers, and organizations providing relief in emergency situation, coordinate national and international relief workers and materials, and distribution of the relief materials to affected provinces.**

- Carry out other tasks given by the Prime Minister.**

# **General Directorate of Civil Defense (GD CD)**

## **General Directorate of Civil Defense (GD CD)**

**The goal and purpose of the Civil Defense Organization is to minimize the life losses and other types of losses during warfare or a natural disaster. Civil Defense Law explains the main purposes of the organization as follows:**

- To secure the lives and belongings of the civil people during a war,**
- Saving lives and belongings of people during natural disasters,**
- To reduce the damage to the lives and the belongings of victims in a fire,**
- In case of damage, to renew, repair and protect private and government institutes that have vital importance,**
- To build up morale among the civilians.**

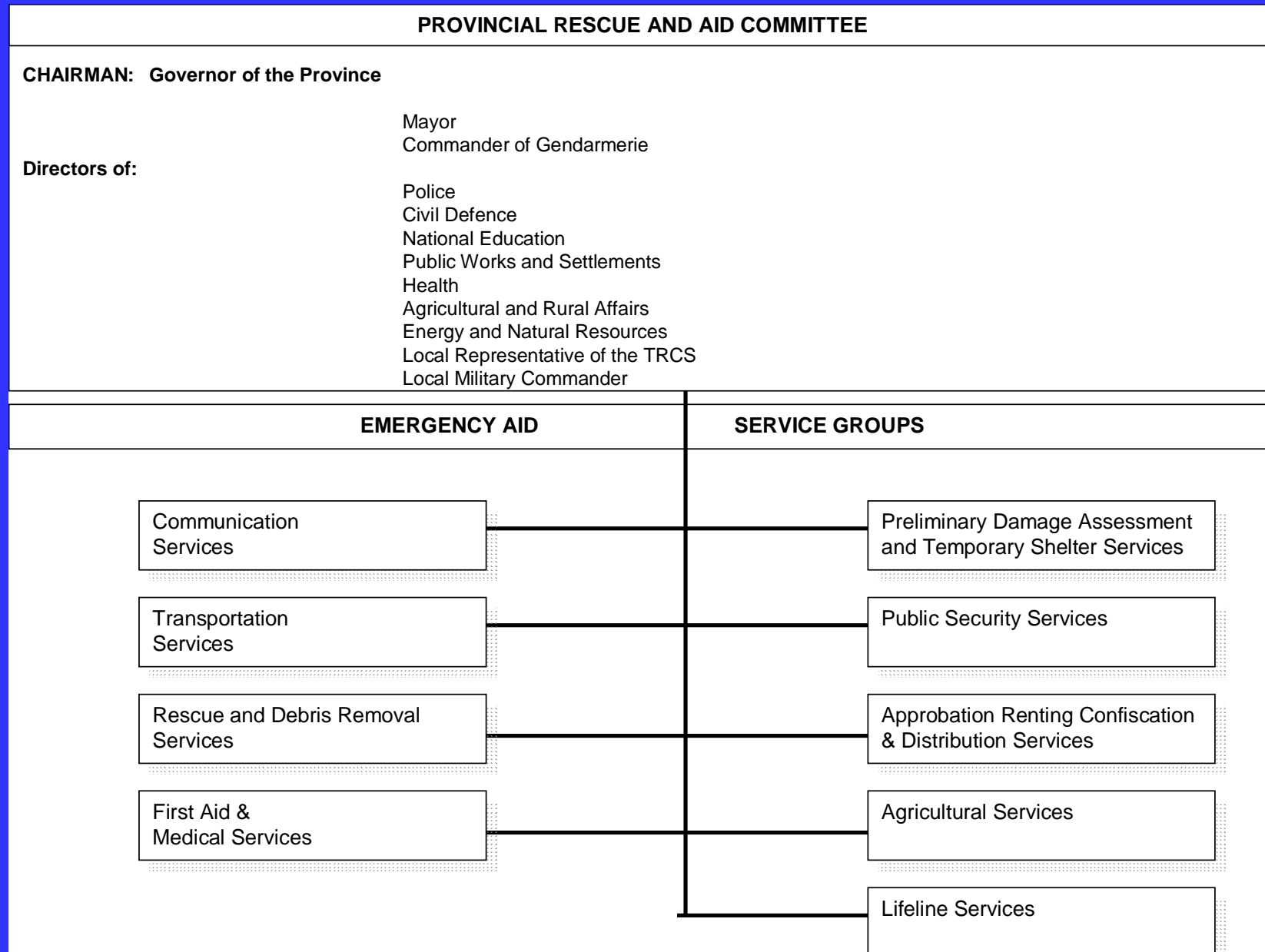


## Provincial Level

The governorships of provinces and districts are the first response mechanisms to disasters in Turkey and they have some other direct responsibilities for disaster management.

The organizational structure for disaster management at provincial level is under the authorization of the governor. Each of governorship establishes a “Provincial Rescue and Aid Committee”. There are also nine service groups within this body during disasters to implement effective response and recovery efforts. Districts also establish the same structure for their own disaster management activities.

# Provincial Rescue and Aid Committee



Some of these Municipalities and governorships are preparation and implementation of disaster response plans and implementation of training and exercising activities. They carry out the activities mentioned above with their own financial resources. They are also responsible for mitigation activities. Some of them are:

- Implementation of earthquake resistant design regulation and other standards and regulations related to urban development law,
- Land-use planning,
- Building control.

## **MILITARY COOPERATION**

**Turkish Armed Forces are a part of central and local disaster management in Turkey. There are representatives from the military in every related committee and council. In fact, since the beginning of the Turkish Republic, the state and its citizens have relied on human and material resources provided by the Military. They have well trained and equipped special groups for emergency response and relief activities in disaster prone areas to provide all kinds of support to the affected people.**

**After the August 1999 earthquake, Turkish Armed Forces decided to improve its capabilities on specialized search and rescue missions in order to better cope with large-scale natural disasters. As a result of this, a study was conducted at Turkish General Staff and it has been decided to form a battalion size search and rescue Unit subordinate to Special Forces Command.**

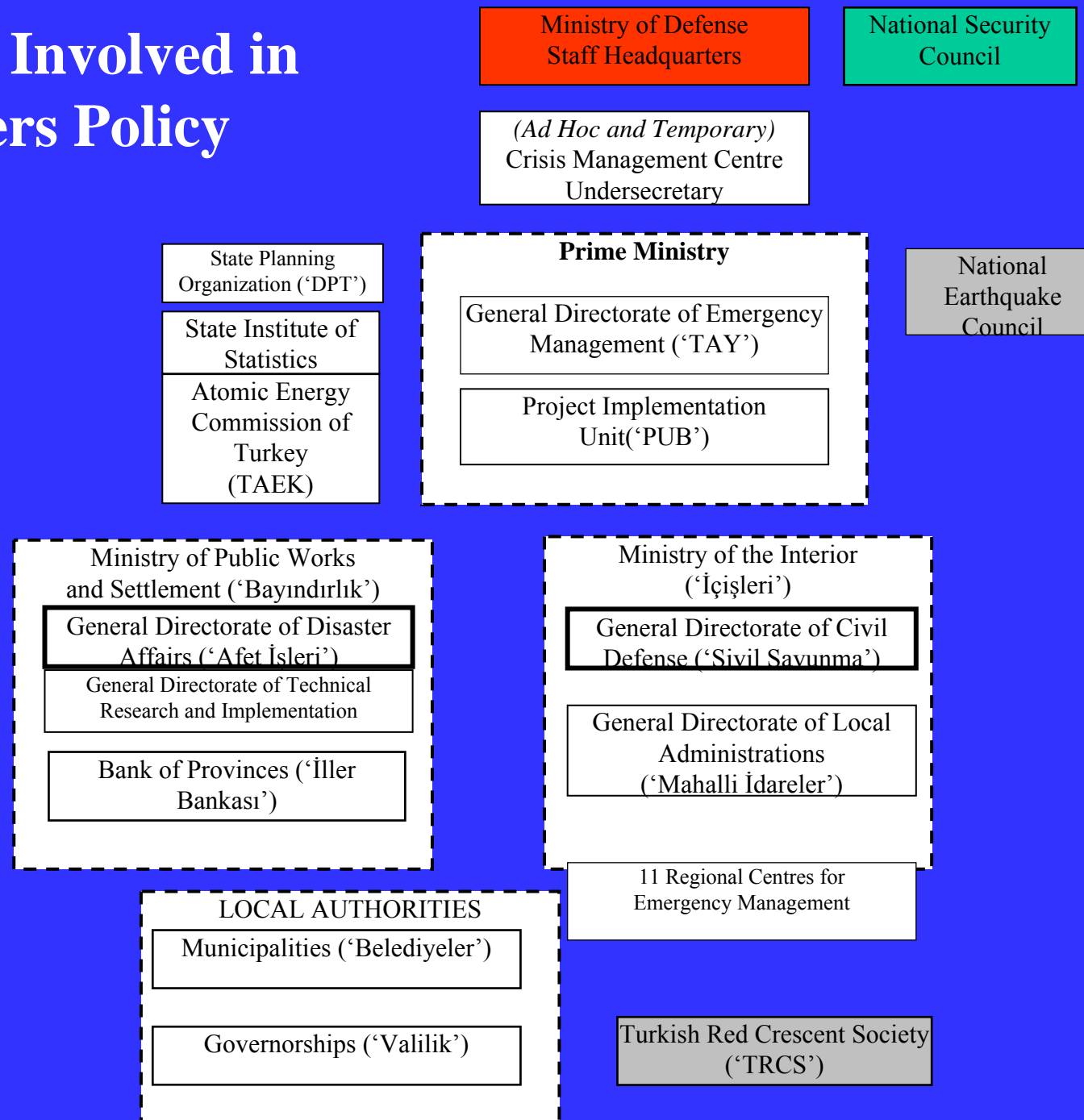
## **OTHER IMPORTANT ORGANIZATION:**

### **Turkish Red Crescent Society**

The Turkish Red Crescent Society (Kızılay) is an integral and important part of overall disaster management structure in Turkey.

It is represented at national, provincial and district level committees. It is mandated to perform relief works by laws and decrees since it established

# Bodies Involved in Disasters Policy



**IZMIT EARTHQUAKE,**  
**17 August 1999**

# **IZMIT EARTHQUAKE**

**Date and time : 3:02 a.m. local time on August 17, 1999**

**Magnitude : Mw:7.4**

**Dead : 17,479**

**Injured : 43,953**

**Heavy Damage : 66,441**

**Moderate Damage : 67,242**

**Slight Damage : 80,160**

**Direct Economic Losses : 10 billion \$**









<http://www.urfa.net>



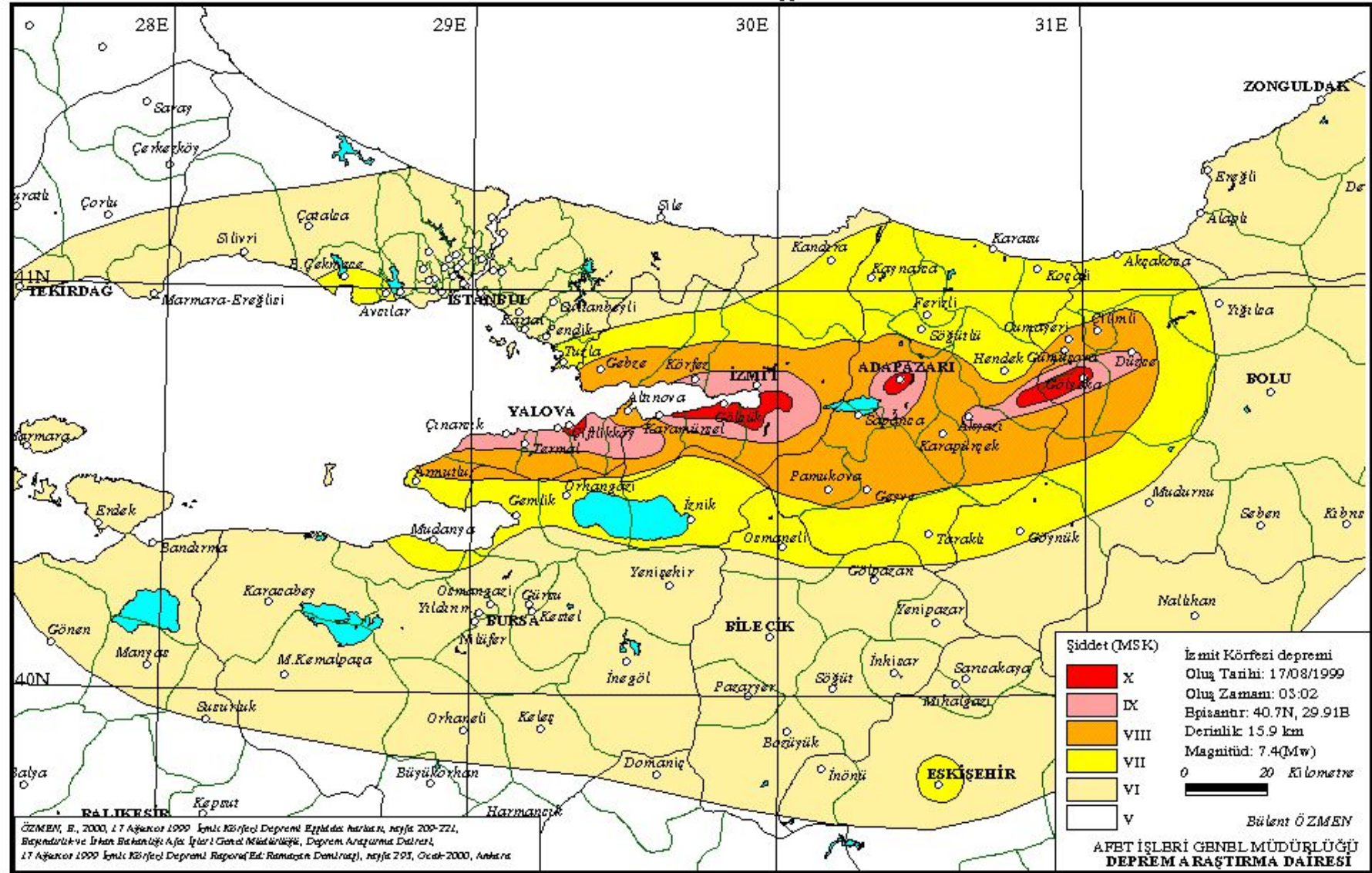


A mosque stood with a few other structures amid the rubble of collapsed buildings in the town of Golcuk, 60 miles east of Istanbul.

Associated Press Photo by Enric Marti  
Taken from New York Times, August 20, 1999



# İZMİT KÖRFEZİ DEPREMİNİN EŞİDDET HARİTASI



**Distribution surface area, poopulation and house number as related to isoseismal map**

<b>INTENSITY</b>	<b>Area (km<sup>2</sup>)</b>	<b>Population(1997)</b>	<b>House Number</b>
VI	35200	11807738	2762044
VII	7955	1521558	355920
VIII	4396	666936	156008
IX	1216	676122	158157
X	294	419699	98175
<b>TOTAL</b>	<b>49,061</b>	<b>15,090,056</b>	<b>3,530,304</b>

# LEARNED LESSONS THIS EARTHQUAKE



### **Communication**

#### **Communication Failed**

**Telephone lines were out of order in first 48 hours**

**Mobiles did not function**

### **First Aid & Rescue**

**Lack of organization and coordination in search & rescue activities**

**Chaotic situation**

**Bureaucracy inhibiting efficiency and effectiveness**

**Insufficient logistic supports**

**Voluntary efforts were not trained and organised**

### **Losses**

**Sub-standard buildings and infrastructure**

**Hazard ignorant development**

**Improper inspection**

**Corrupted permitting and licensing**

**National earthquake monitoring networks that produce standardized data and earthquake information have not been adequately established. Also there is not a country wide system for early damage estimation and warning the disaster management authorities after a big earthquake**