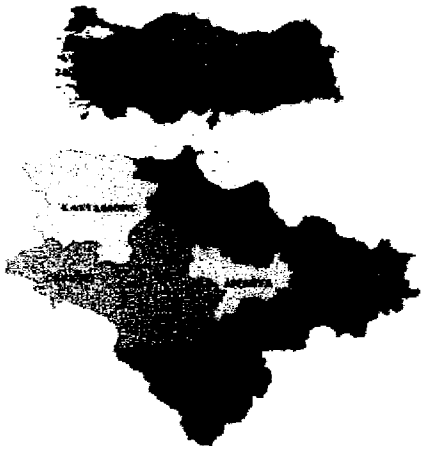
EARTHQUAKE DISASTER PREVENTION RESEARCH CENTER
TURKISH-JAPANESE JOINT PROJECT

Türkiye may be one of the countries having the shortest return period of damaging earthquakes. There are many measures which must be taken into account for mitigation of earthquake effects. One of the most experienced countries on this subject is Japan. An agreement aiming to open a center for earthquake disaster prevention research was signed between Türkiye and Japan on March 18, 1993. A number of researchers, belonging to various disciplines of earthquake-related sciences, have been assigned to the project, which is supported by JICA. These professionals are from different universities and private companies of Japan and researchers from ERD and ITU of Türkiye. There are three subcenters within the project. The Earthquake Data Collection and Vulnerability Evaluation (EDCVE) Subcenter in Ankara is responsible for collecting seismological data in the project area, estimating the damage caused by earthquakes by using databases and giving the estimated results to the administrative organizations in a very short time. The Earthquake Engineering Research (EER) Subcenter in Istanbul is responsible for developing and investigating earthquake resistant structures and soil conditions in the laboratory ground specially set up in the content of this project. The Education and Training (E&T) Subcenter is responsible for presenting the results obtained from project studies to the related organizations and the public.

The project targets of EDCVE Subcenter are the following:

a) To determine the earthquakes parameters and making a pre-estimation about the human loss and damage just after the earthquake,
b) To provide a reliable data transmission between local stations, the regional and main centers by using a computer network,
c) To evaluate the results and transmit them to administrative organizations in approximately within 20 minutes.



The project service area is located in the central part of the North Anatolian Fault Zone and covers Samsun, Sinop, Kastamonu, Çankırı, Çorum Yozgat, Amasya, Tokat and Ordu provinces. The Earthquake observation system consists of a main center in Ankara, a regional center in Samsun and local stations in Amasya, Çankırı, Çorum, Kastamonu, Samsun, Vezirköprü, Tokat, Niksar and Yozgat.

EARTHQUAKE DATA COLLETCION AND

The main center is located in the Earthquake Research Department in Ankara, the regional center to the Ministry of Public Works and Settlement Branch Office in Samsun. The local stations were constructed on land provided by local authorities.

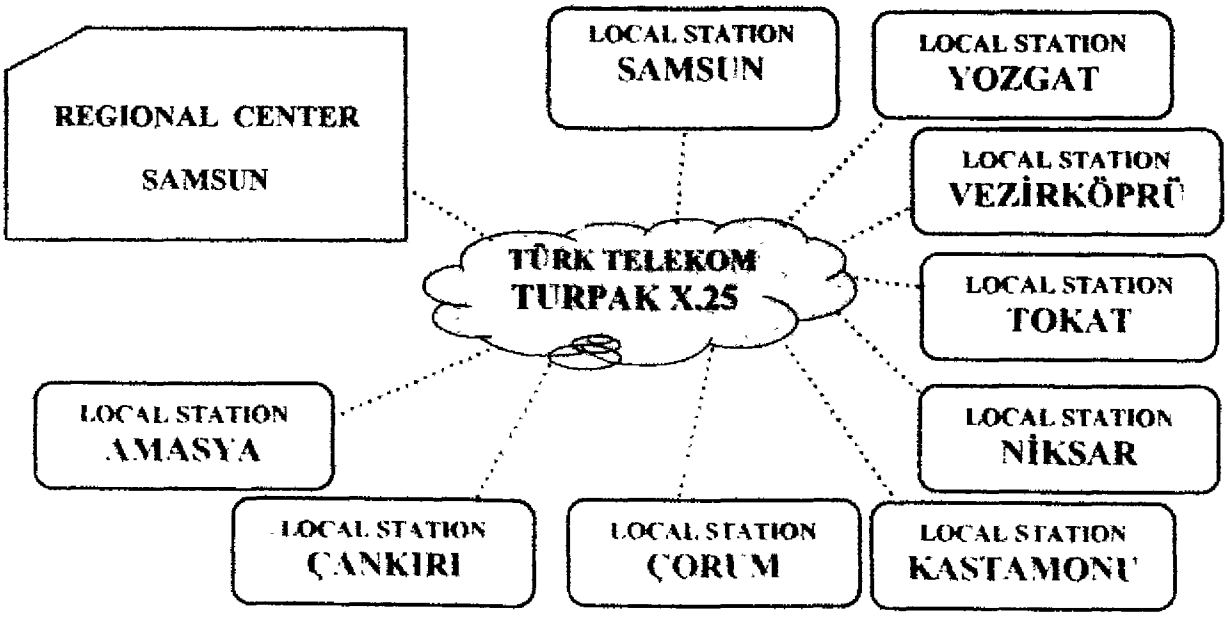
The system properties are;

a) Intelligent: aiming at automatic determination of earthquake parameters and estimation of damages,

b) Experimental: for practical utilization of this kind of new approach,

c) Upgradable: open to developments by using new data and findings.

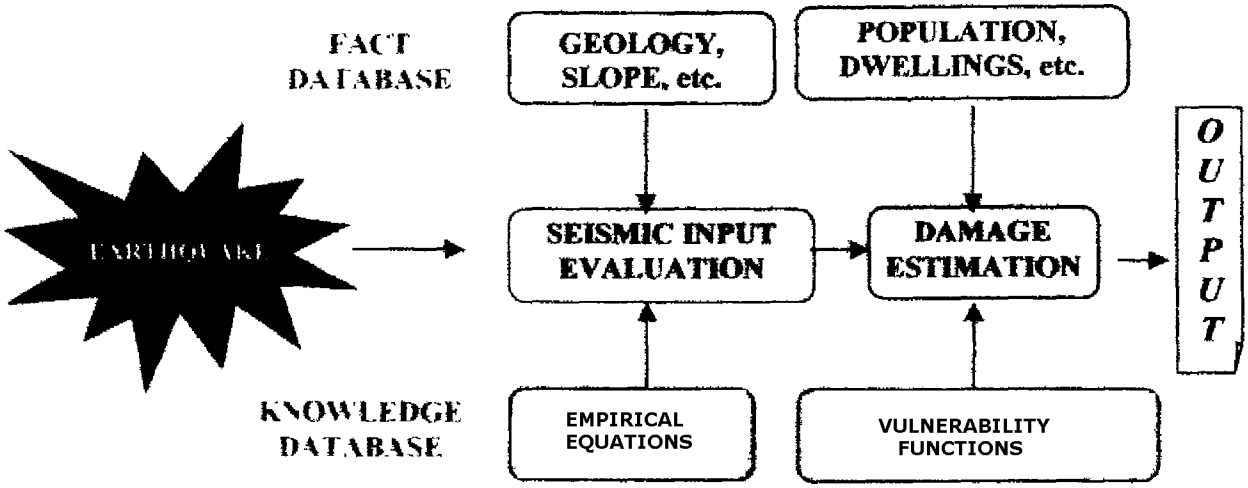
Data transmission between centers and local stations utilize the TURPAK X.25 network service which is provided by Turkish Telekom.



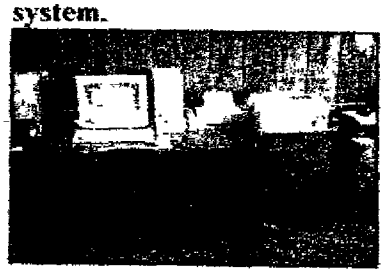
VULNERABILITY EVALUATION SUBCENTER

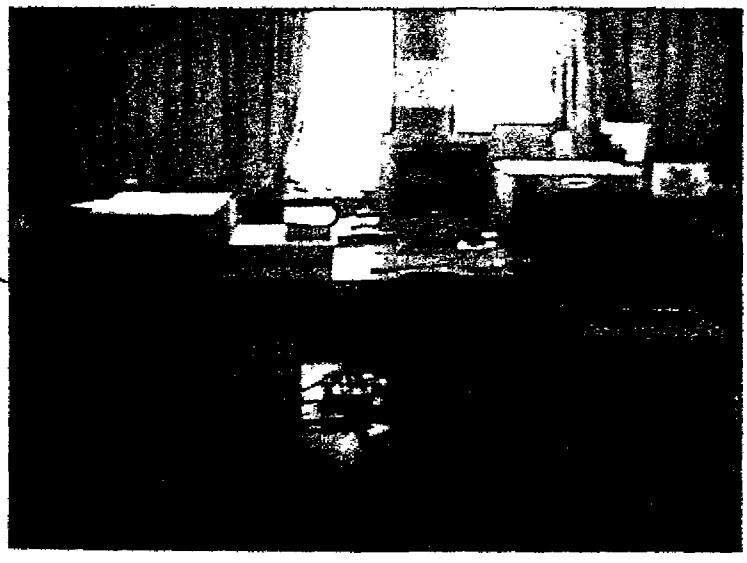
The main center is now active on the first floor of the Earthquake Research Department, General Directorate of Disaster Affairs in Ankara. It depends on the activities of the subgroups for data collection and evaluation, seismological studies and analysis, data transmission and system control.

FRAMEWORK OF THE SYSTEM



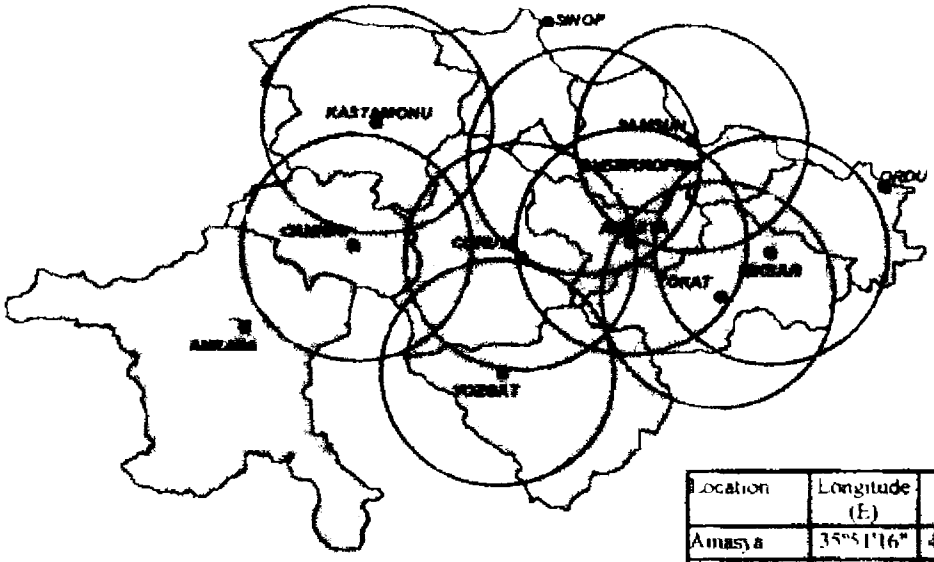
Hardware in the main center consists of one workstation for determining the earthquake parameters and estimating the damage distribution, and two PCs and accessories for controlling the system.





LOCAL STATIONS

Local stations were built in the cities of Amasya, Cankiri, Corum, Kastamonu, Samsun, Tokat and Yozgat, and in the towns of Niksar and Vezirkopru. The service area of the system also covers Sinop and Ordu cities. Ankara station works as a spare local station for temporary purposes.

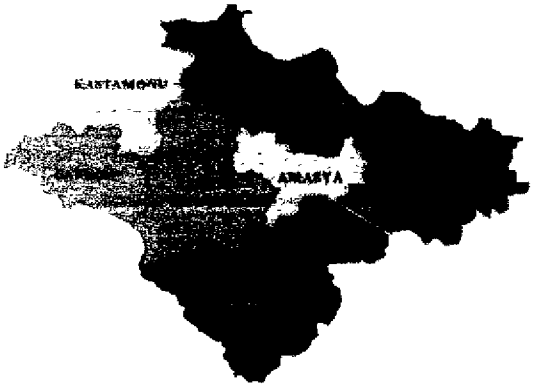


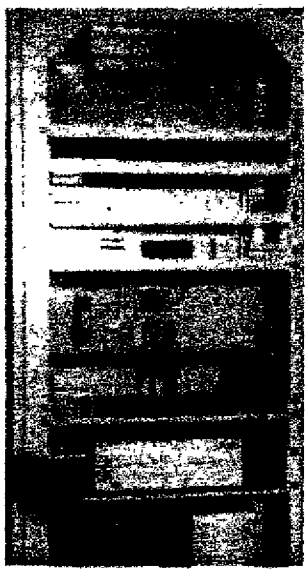
Location	Longitude (E)	Latitude (N)	Elevation (meter)
Amasya	35°51'16"	40°40'09"	520
Çankiri	33°36'12"	40°36'02"	805
Çorum	34°58'82"	40°34'71"	894
Kastamonu	33°47'32"	41°24'48"	694
Niksar	36°57'35"	40°34'83"	460
Samsun	36°22'10"	41°15'53"	130
Tokat	36°32'75"	40°19'31"	680
Vezirköpru	35°26'13"	41°08'60"	720
Yozgat	34°48'37"	39°48'69"	1358
Ankara	32°45'16"	39°54'51"	850

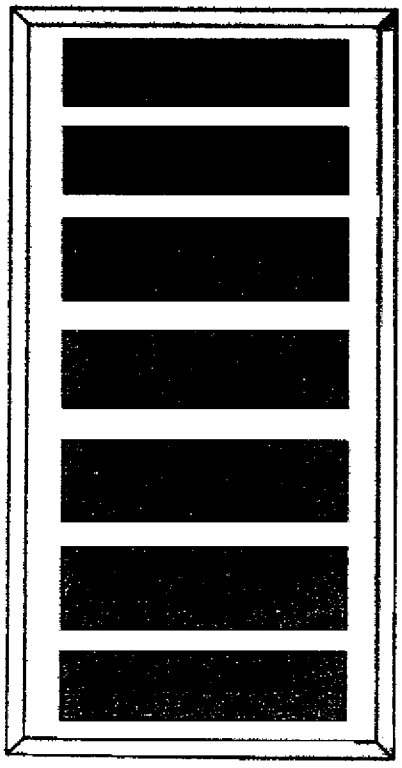
The figure shows theoretical detection capability for small earthquakes, a circle with a radius of 80 km is drawn, with its center located at each local station. An earthquake with a magnitude M ≥ 3.0 occuring within the circle is detectable at the station, according to previous research.

Signal to noise ratio measurements were made several times for the selection of suitable place for each local station. Following our statistical studies on earthquake occurrence during the past 15 years, we can anticipate 2 earthquakes with M> 4.0, which may cause damage, to occur in the project service area within a year.

vulneranilization and determinade the coordinates of the station a computer for recordine the data and one transmission unit for sending the data to the main and regional centers through TURPAK lines. All the equipment are safe against a power failure by using a UPS unit.







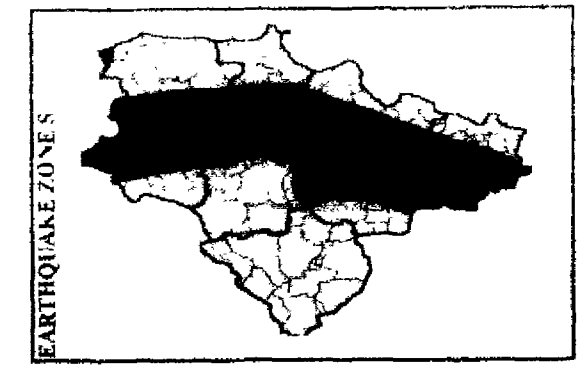
SEISMOMETER

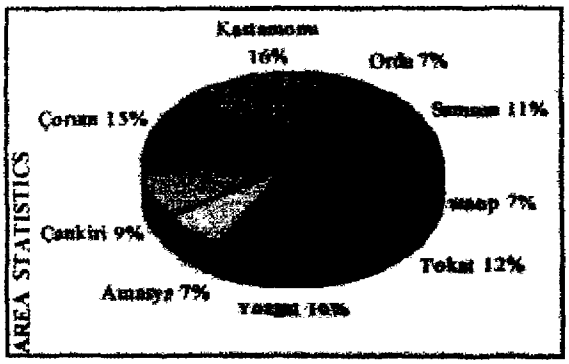
Type: VSE-355JE 3 Components
(Tokyo Sokushin Co. , Ltd.)

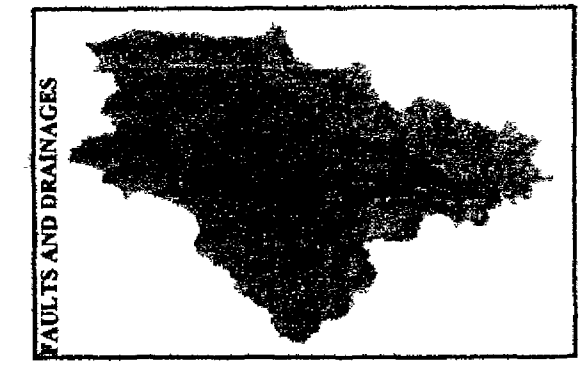
Maximum Range:
Velocity (±200 kine)
Acceleration (±2000 gal)

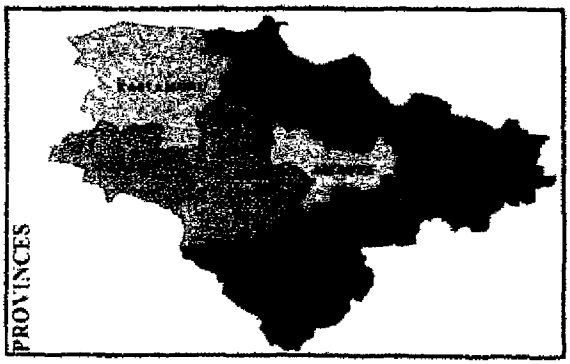
Frequency Range:
0.018-100Hz (-3dB)

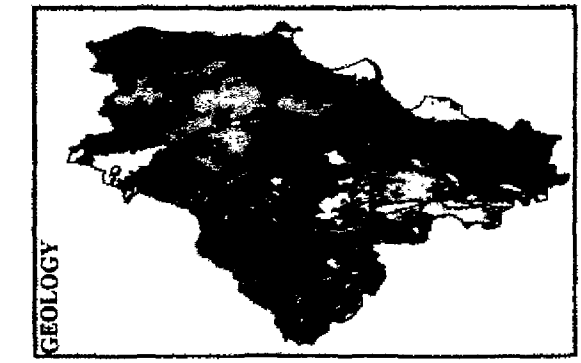
SAMPLES OF THE SYSTEM DATABASE



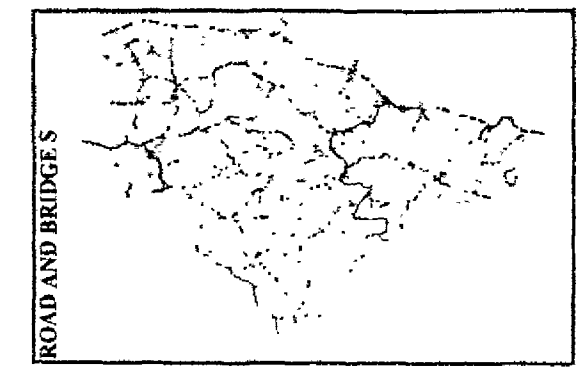








Province Name	Area (km^2)	Population (1997)	Density (Person/km^2)
AMASYA	5703	343299	60
CANKIRI	7488	247807	33
CORUM	12795	576207	45
KASTAMONU	13136	363022	28
ORDU	5949	827523	139
SAMSUN	9351	1156267	123
SİNOP	5802	219333	38
TOKAT	10076	687069	68
YOZGAT	14095	569038	40
Total	84395	4989565	



GEOGRAPHICAL INFORMATION SYSTEM RESOURCES

[illegible] outside during the earthquakes keep yourself far away from buildings and electricity poles because of falling objects.

✓ If you are driving a car, drive away from the normal traffic. Do not use bridges and tunnels. Find a safe place and stay inside the car.

✓ **If you are inside a building, find a place under a strong table, furniture, or doorframe and protect your head. Keep yourself far from windows, fireplaces, heavy furniture and furniture that can easily be overturned.**

✓ **If you are inside a crowded place like theatre, school, cinema, office etc., do not run to the stairs or elevators. Follow the instructions of authorized personnel.**

✓ **After the shaking of the earthquake, turn off the electricity, gas, and water. Do not switch anything against a probable gas leakage.**

✓ **After the earthquake, help the injured and old people. Do not move heavily injured people in panic, find a safe place and wait for the authorized personnel.**

✓ **After a big earthquake, there will be aftershocks. Be ready for these aftershocks. Especially during the first three days following the earthquake if the authorized organization does not give the permission, do not stay in your house even if it is safe. Do not believe the gossips, ask anything you want to learn only from the authorized organizations.**

✓ **The most important thing during the earthquake is to keep calm, not to panic and to be courageous.**

Always remember that panic gives dangerous reaction during the earthquake.

EMERGENCY NUMBERS

Ambulance	Police	Gendarmery	Fire	Water	Natural Gas
112	155	156	110	185	187

FOR MORE INFORMATION:

General Directorate of Disaster Affairs
Earthquake Research Department
"Earthquake Disaster Prevention Research Center"
Eskişehir Yolu 11. km
06530 Lodumlu-Ankara

Telephone: (312) 287 36 45
Fax : (312) 285 53 04
E_mail : bilgi@deprem.gov.tr

TURKISH JAPANESE PROJECT

FUNCTION

EARTHQUAKE DATA COLLECTION AND VULNERABILITY EVALUATION SUBCENTER (ANKARA)

EARTHQUAKE ENGINEERING RESEARCH SUBCENTER (İSTANBUL)

ACCUMULATION OF EARTHQUAKE STRONG MOTION RECORDS. ACCUMULATION OF DATA AND KNOWLEDGE ON EARTHQUAKE DAMAGE EVALUATION FOR THE IMPROVED INITIATION OF EMERGENCY RESPONSES

ACCUMULATION OF EXPERIMENTAL TECHNIQUES AND KNOWLEDGE FOR UPGRADING OF STRUCTURAL PERFORMANCE AGAINST EARTHQUAKE EFFECTS.

EDUCATION & TRAINING SUBCENTER (İSTANBUL)

CONTRIBUTION TO THE REDUCTION OF PROBABLE EARTHQUAKE DISASTER IN TÜRKİYE

ORGANIZATION

GENERAL DIRECTORATE OF DISASTER AFFAIRS
THE MINISTRY OF PUBLIC WORKS AND SETTLEMENT
(ANKARA)

EARTHQUAKE DISASTER PREVENTION RESEARCH CENTER
(ANKARA)

EARTHQUAKE DATA COLLECTION AND VULNERABILITY EVALUATION SUBCENTER (ANKARA)

EDUCATION & TRAINING SUBCENTER (İSTANBUL)

EARTHQUAKE ENGINEERING RESEARCH SUBCENTER (İSTANBUL)

GENERAL DIRECTORATE OF DISASTER AFFAIRS ANKARA

I.T.U. FACULTY OF CIVIL ENGINEERING İSTANBUL

JAPAN INTERNATIONAL COOPERATION AGENCY

ENCLOSURE FOR QUESTION NO: 3.4

TRAINING PROGRAMMES OF THE TURKISH RED CRESCENT SOCIETY

Projects Implemented During 2000-2003

NAME	# OF PARTICIPANTS	# OF TRAINING
Disaster Preparedness and Intervention	323	11
Disaster Preparedness and Intervention (Syrian RC)	46	3
Logistics Expertise	39	2
Disaster Planning and Needs Determination	23	1
Disaster Preparedness	3	1
Disaster Preparedness and Basic Life Support	43	1
Disaster Preparedness Workshop	30	1
ABCD Basic Disaster Consciousness	26	1
Non-Structural Risk Reducement (YOTA)	27	1

DISASTER PREPAREDNESS AND INTERVENTION TRAINING

A. AIM OF THE TRAINING:

Standardization of the disaster intervention management of the Red Crescent by sharing the information and national/international experiences of the relevant institutions/organizations. Increasing the basic knowledge of the Red Crescent staff who will work in the disaster intervention field.

B. CONTENT OF THE TRAINING:

- RED CROSS-RED CRESCENT MOVEMENT AND PRINCIPLES AND RULES IN DISASTER MANAGEMENT
- DISASTER MANAGEMENT SYSTEM IN TURKEY
- THE ROLE, RESPONSIBILITIES AND LIMITS OF THE RED CRESCENT IN TURKISH DISASTER MANAGEMENT
- DISASTER PREPAREDNESS AND REDUCING THE NEGATIVE IMPACTS OF DISASTERS
- APIT (EMERGENCY PLANNING AND NEED CALCULATION IN DISASTERS)
- RELATIONS WITH THE MEDIA
- PSYCHO-SOCIAL
- COMMUNICATION
- LOGISTICS IN DISASTERS
- TRACING UN + NGO'S
- EMERGENCY HOUSING AND NUTRITION DURING DISASTERS
- MONITORING AND EVALUATION
- EXERCISE
- EVALUATION

DISASTER PLANNING AND NEEDs DETERMINATION TRAINING

A. AIM OF THE TRAINING:

REGULATION OF THE DISASTER PLANNING AND NEEDS CALCULATION SYSTEM OF THE RED CRESCENT IN ORDER TO GIVE THE BEST SERVICE POSSIBLE AND FOR MINIMIZING THE NEGATIVE CONSEQUENCES.

B. CONTENT OF THE TRAINING:

- GENERAL NOTIONS AND DEFINITIONS REGARDING THE EMERGENY SITUATION AND NEEDS DETERMINATION DURING DISASTERS
- DEFINITION OF THE DISASTER
- DISASTER MANAGEMENT
- EMERGENCY SITUATION

- EMERGENCY SITUATION PLANNING AND NEEDS DETERMINATION DURING DISASTERS
- EMERGENCY SITUATION PLANNING DURING THE PREPARATION PHASE
- EMERGENCY SITUATION PLANNING DURING INTERVENTION
- MONITORING AND EVALUATION

LOGISTICS EXPERTISE TRAINING

A. AIM OF THE TRAINING:

Establishing a standard logistics system for the preparation and intervention periods and teaching this system to the logistics staff of the Red Crescent.

B. CONTENT OF THE TRAINING:

- BASIC LOGISTICS
- LOGISTICS IN RED CRESCENT'S CURRENT DISASTER MANAGEMENT SYSTEM
- AUTOMATION
- WHAT KIND OF A STRUCTURE DOES THE AUTOMATION FORESEE?
- LOGOSTICS IN REGIONAL DISASTER INTERVENTION SYSTEM

DISASTER PREPAREDNESS TRAINING:

A. AIM OF THE TRAINING:

Increasing the knowledge of the Red Crescent staff about the health services during disaster intervention and providing the practice of their past experience.

B. CONTENT OF THE TRAINING:

- EARTHQUAKE EPIDEMIOLOGY.
- DEFINITION OF THE INTERNATIONAL RED CROSS AND RED CRESCENT SOCIETIES FEDERATION.
- INFORMATION ON THE ACTIVITIES OF THE TURKISH RED CRESCENT SOCIETY.
- VISITING THE TENT-CITY IN IZMIT AS A SAMPLE OF DISASTER AREA.

- EVALUATION OF THE NEEDS.
- ORGANIZATION AFTER THE DISASTER.
- FIRST AID.
- CRISIS CENTER STUDIES IN TURKEY (REGARDING EARTHQUAKES)
- HEALTH SERVICES.
- PSYCHO-SOCIAL SUPPORT.
- REHABILITATION, WATER SANİTATION.
- PHYSICAL THERAPY.

DISASTER PREPAREDNESS AND BASIC LIFE SUPPORT:

A. AIM OF THE TRAINING:

The development of Red Crescent's health services by increasing the knowledge of the staff with regards to disaster intervention.

B. CONTENT OF THE TRAINING:

- DISASTERS IN GENERAL AND DISASTER PREPAREDNESS
- RED CRESCENT-RED CROSS MOVEMENT
- CONSTRUCTION
- WATER PURIFICATION
- PSYCHO-SOCIAL PROGRAMME AND IMPLEMENTATION
- ASSISTANCE SUPPORT DEPARTMENT
- DEPARTMENT OF HEALTH
- INTRODUCTION TO FIRST AID
- COMPETITION, AIM AND RESULT IN FIRST AID
- DEMONSTRATION IN FIRST AID PROGRAMME
- PUBLIC HEALTH AND PRACTICE
- SOCIAL AID
- BASIC LIFE SUPPORT
- FIRST AID AND VOLUNTEERS DURING DISASTERS
- TRIAGE AND HOSPITAL DISASTER PLAN DURING DISASTERS
- BASIC LIFE SUPPORT TRAINING
- FREQUENTLY ASKED QUESTIONS
- TRAINING AND PRESENTATION TECNNIQUES
- BASIC LIFE SUPPORT EXERCISES, WORKSHOPS AND SCENARIOS

ABCD BASIC DISASTER CONSCIOUSNESS TRAINING:

A. AIM OF THE TRAINING:

The aim of the ABCD training is; increasing disaster consciousness, informing our friends and relatives about the risk reducement methods, and facilitating the integration of the Red Crescent to our society.

B. CONTENT OF THE TRAINING:

- DISASTER CONSCIOUSNESS
- EARTHQUAKE HAZARDS AND RISKS
- BEFORE THE EARTHQUAKE
- DURING AND AFTER THE EARTHQUAKE

- FOLLOWING STEPS

NON-STRUCTURAL RISK REDUCEMENT (YOTA) TRAINING:

A. AIM OF THE TRAINING:

The aims of YOTA training are, increasing consciousness about these hazardous objects, giving informations about the determination of risks, couraging all individuals about risk reducements by taking small steps, and informing the society about the fixation methods.

B. CONTENT OF THE TRAINING:

- What's YOTA?
- AIMS OF THE YOTA TRAINING
- R&D STUDIES
- YOTA PRINCIPLES
- DETERMINATION OF RISKS
- BEFORE FIXATION
- BASIC YOTA IMPLEMENTATIONS