The Aftermath of 23.10.2011 & 09.11.2011
VAN-TURKEY EARTHQUAKES

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Geographically, Turkey has 7 regions. This is due to climate, topography and neighborhood; however not to official governmental administration.

We have 81 provinces, each having independent governorships and municipalities. Each province has various numbers of districts, each having smaller municipalities and governorship offices.

Please NOTE THAT: Mayors are elected by central voting of the public, while governors are appointed by the republic!

North shores suffers serious floods and landslides; south suffer NAFs!
HIGHLANDS: EQs, landslides, due to floods.

EQs, hurricanes and floods
EQs, drought

EQs, floods, hurricane

Epicentre Distribution of Turkish Earthquakes: 1900-2002

M ≥ 5.0
EMERGENCY MANAGEMENT SYSTEM IN TURKEY

Prior to May 5, 2009

- Republic of Turkey
  - Prime Ministry
- Ministry of Interior
- Ministry of Publicworks & Settlement
  - General Directorate of Civil Defense
- General Directorate of Disaster Affairs

On & after May 5, 2009

- Republic of Turkey
  - Prime Ministry
- Disaster & Emergency Management Presidency, AFAD

The 2 major earthquakes of M7.4 August 17, 1999 Kocaeli and M7.2 November 11, 1999 Düzce became the ‘turning point’ in disaster management system of Turkey.

In order to take necessary measures for an effective emergency management and civil protection issues nationwide, AFAD conducts:
- Pre-incident works (preparedness; mitigation; risk management)
- On-incident works (response)
- Post-incident works (recovery; reconstruction)
- Collaboration and cooperation between governmental-NGO-private institutions as well as public universities
- Handles and operates the official strong motion network

EMERGENCY MANAGEMENT SYSTEM IN TURKEY

Directly dependent to General Director, there is the EARTHQUAKE ADVISORY COMMITTEE with members from government, academy and Turkish Red-Crescent. They were the leading committee to propose the Earthquake Strategy Plan-2023.

Istanbul Metropolitan Municipality realized the research project called 'Istanbul Earthquake Master Plan' by the collaboration of 4 major universities of Turkey.

Microzonation for seismically prone zones of big cities are almost completed within the recent 13 years after 1999 EQs.
EMERGENCY MANAGEMENT SYSTEM IN TURKEY

In the academic point of view:

→ Kandilli Observatory and Earthquake Engineering Research Institute (KOERI) of Bosporus University is also providing: EQ strong motions; weather forecast; geotechnical problems due to natural hazards.

→ Istanbul Technical University (ITU) & Federal Emergency Management Agency (FEMA) initiated the collaborative project ACHIEVE in 2000.
  ▪ We established our “Center of Excellence for Disaster Management” in ITU in early 2001.
  ▪ We trained many ‘trainers’ from public institutions: Governor’s departments, municipal departments; fire fighters; search & rescue teams; etc.
  ▪ We initiated the first “Emergency Management Master’s Program” in Turkey.

→ Collaboration with JICA for many years led us to establish our own EQ Eng. research labs; training; furthermore we were the key institution for the ‘THIRD COUNTRY TRAINING’.

→ JICA also collaborated with Governmental Agencies and Municipalities.

→ Today many universities have EQ Eng. Research Institutes offering MSc and PhD programs.

2011 VAN EARTHQUAKES of TURKEY

22 Stations nearby recorded the shakes, however the closest station in downtown Van City Center lost its power... This station was settled in a governmental building and the battery was dead !!!

2011 VAN EARTHQUAKES of TURKEY

Recorded PGA= 178.5 gal
Epicentral distance R=43 km
Estimated PGA= 250.0 gal

Recorded PGA= 245.9 gal
Epicentral distance R=17 km
2011 VAN EARTHQUAKES of TURKEY

23.10.2012 Tabanlı-VAN EQ
- Severe damage in Ercis district: 52 of 18,424 buildings totally collapsed
- 6 totally collapsed in central Van
- 5 villages almost wiped-off the map
- 604 casualties
- 222 rescued under the ruins
- More than 2000 injured
- Thousands of farm animals and hundreds of barns are lost

09.11.2012 Edremit-VAN EQ
- Severe damage in Van City: 25 buildings totally collapsed including 2 Hotels in service.
- 40 casualties
- 30 rescued under the ruins
- UNFORTUNATELY, the 2 hotels were hosting search & rescue teams, journalists, volunteers from national and international NGOs.

RESPONSE STAGE
Led by the Governorship of Van Province and local AFAD:
- Initiated right after the first EQ within half an hour.
- First rescue operations were carried out by people...
- Official Search & Rescue Teams started their operations immediately, both in Ercis District and central Van.
- Arrival of official S&R Teams from other provinces and S&R Teams of NGOs started at the end of the day.
- TOTALLY 222 people from the first EQ and 30 people from the second are rescued under the ruins of collapsed buildings all ALIVE...

Donations from all over the country started to be gathered all around the nation next day. However, Van Airport was slightly damaged which delayed the landing of planes for half of the day. The damage was quickly repaired...

...however, the donations arrived to Van by air traffic were too much to stock, henceforth the landing area were full of containers.
RESPONSE STAGE

Initial Damage Assessment started 2 days after the main shock, while there were hundreds of aftershocks and still ongoing S&R operations...

Istanbul Technical University was the first to arrive on the site on the 26th of October for giving a hand and scientific research as well.

In collaboration with Governor of Van and AFAD officials, our team assessed structural damages in public buildings, governmental buildings and some schools in Van city center; Ercis district; and 7 villages between 26-29 October 2011. Furthermore, research teams form other public and private universities arrived the region for similar purposes.

RESPONSE-to-RECOVERY STAGE

- Since the region was populated almost one million with more than 400,000 buildings; AFAD was not able to realize damage assessment alone in a short while. Universities and civil engineers and architects were invited for help via Chamber of Civil Engineers and Chamber of Architects. Japanese Research Groups arrived the region twice.
- Many people left the city especially after the second earthquake. People were terrorized with horror...
- School children are transferred to other provinces all around the country. Ministry of Education cooperated with Governorship of Van immediately.
- Many homeless were hosted by 5 star hotels, holiday villages, governmental facilities in the Aegean and Mediterranean Regions of Turkey, where the weather was warm enough. Ministry of Tourism and Culture cooperated with Governorship of Van.
- Public universities were invited by Ministry of Education for damage assessment of school buildings. ITU alone surveyed 135 buildings.
- Still detailed investigation of moderately damaged buildings and strengthening work is going on.

RECOVERY STAGE

During the response stage of emergency management, S&R; first-aid and health teams from 48 provinces and 39 private organizations arrived the region.

In 14 different sheltering locations temporary housing was provided by 71,500 tents. Turkish Red Crescent was holding around 60,000 tents. Foreign countries donated tents and other needful things immediately:

- **European-Union Countries:** 4,575 tents
  - UK: 1144
  - Ireland: 624
  - Germany: 500
  - France: 490
  - Belgium: 400
  - Luxembourg: 360
  - Spain: 320
  - Estonia: 320
  - Sweden: 115
  - Denmark: 100
  - Romania: 100
  - Austria: 32
  - Slovakia: 50
  - Slovenia: 2

- **Other Countries’ Donations:**
  - Japan (via JICA): 30 million JPY; tents; first-aid kits; LETTERS
  - Austria: 480 tents; 40 generators; 40 kitchens; 2000 blankets
  - Iran: 700 tents
  - Israel: 100 prefabricated housing
  - Saudi Arabia: 5,000,000 USD
  - Macedonia: 100,000 USD
  - Northern Iraq: 1,000,000 USD
  - Greece; Bosnia-Herzegovina; Russia;... We are very grateful...
At the end of February, tents are replaced with container-cities. Within 34 temporary housing location, 28,500 containers and prefabricated houses are settled housing 180,000 people.

Meanwhile, Turkish Prime Minstry, Housing Development Administration of Turkey (TOKI) initiated 136 different projects having 202,750 independent units for those homeless people. Currently 10,100 people are working in the construction sites and concrete capacity is 15,000m³ per day in 5088 hectares of new settlement area. Tunnel formwork system is preferred for its speed.

It is announced by Turkish Government that the cost of Van EQs to Republic of Turkey will be

$5,500,000,000$ TRL $\equiv 3,030,700,000$ USD $\equiv 238,222,500,000$ JPY

$\downarrow$

more and even more TAXes...

The best action taken by the government was enforcing the New Law on 31.05.2012 called: ‘The Law on the Renewal of Urban Settlement Areas Subjected to Disaster Risk’

We believe that with this law, mitigation and risk-reduction before a future disaster event will be realized, so that we will have less loss of human lives, buildings and money...

THANK YOU VERY MUCH FOR LISTENING