

International Conference on Science and Technology for Sustainability 2023:  
Transforming Society to Become Resilient and Sustainable beyond Catastrophic Disasters

## **TÜBA's Findings on East Anatolian Fault Line Earthquakes**

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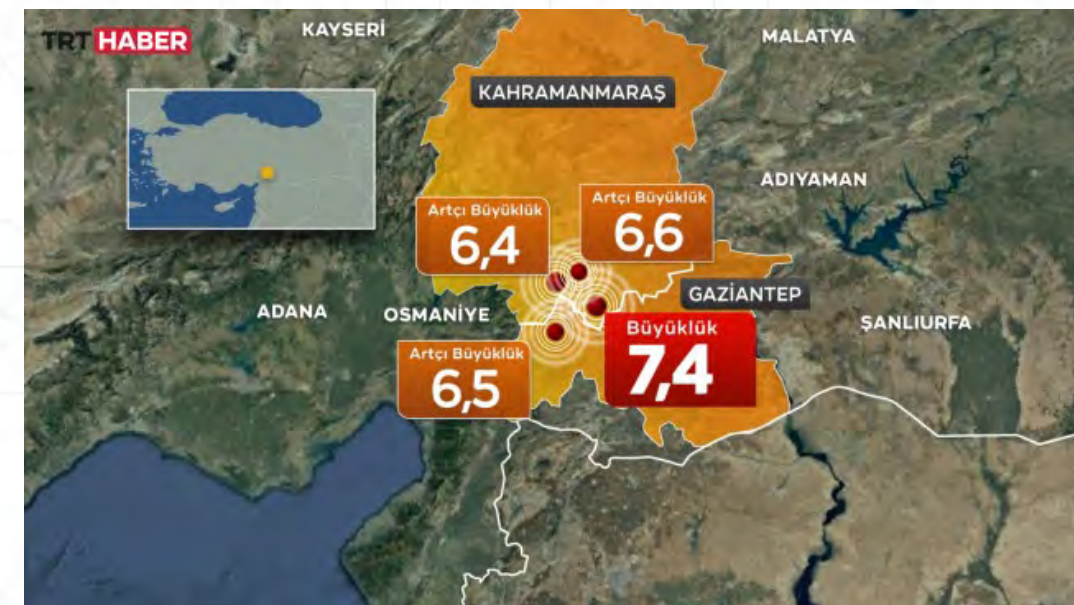
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On February 6, 2023, over 50,000 people lost their lives in the Kahramanmaraş earthquakes that struck 11 cities in Türkiye.

The total cost of the earthquakes to the Turkish economy was estimated at 104 billion dollars.



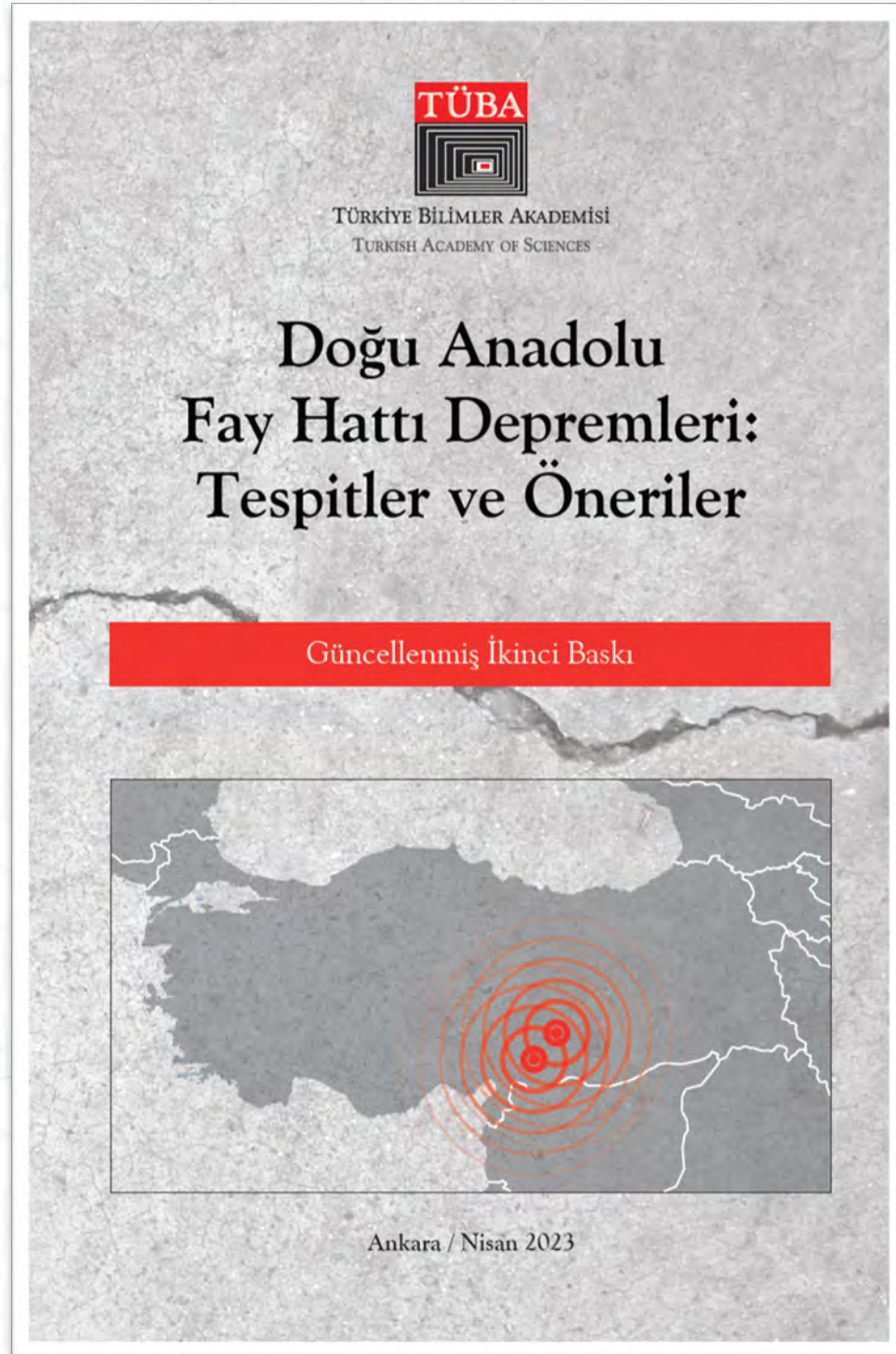


“The Eastern Anatolian Fault Line Earthquakes Assessment Meeting” was organized by the Turkish Academy of Sciences (TÜBA) in Ankara on 22 February 2023. A report, edited by Prof. Dr. Muzaffer Şeker and Assoc. Prof. Dr. Cem Korkut with the contributions of participating scientists and experts, has been updated and published twice.

# TÜBA Report: *Findings on East Anatolian Fault Line Earthquakes*

- **Chapter 1:** Analysis of Past Earthquakes in Türkiye and Assessment of Current Earthquakes
- **Chapter 2:** Problems and Interaction of the 2023 East Anatolian Fault Line Earthquakes
- **Chapter 3:** Possible Earthquakes Awaiting Türkiye and Recommendations of Different Scientific Disciplines
- **Chapter 4:** Conclusion

The report provides detailed information on the number of affected earthquake victims by province as of April 2023, aid collected, number of shelters and tent cities established, and disaster management information.



## International Rescue Support

Since the onset of the earthquakes, Disaster Management has promptly initiated rescue operations and coordinated closely with the Disaster Management Center (Türkiye Disaster and Management Authority-AFAD), as outlined in the subsequent slides. Notably, both public and private organizations have tirelessly contributed to these efforts.

An impressive total of over 6,000 international rescue teams were deployed to the affected areas, including 150 individuals from Japan who actively participated in the rescue endeavors.

We extend our sincere gratitude to all nations, with special mention given to Japan, for their invaluable support.

**WE ARE GRATEFUL**

Deprem bölgesindeki yabancı personel  
**6.636**

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10.02.2023



# Disaster Management

1

## Preparation

Developing emergency management plans and assessing hazards in high-risk areas can curb the damage caused by earthquakes.

2

## Response

Coordinating response teams, providing medical aid and shelter, and controlling the spread of disinformative news are crucial during disasters.

3

## Recovery

Reconstruction, rehabilitation, assessments, and monitoring should be strategically planned and executed in the long run, with a focus on prevention and mitigation.

# Mitigation and Policy Strategies

1

## Integration of New Technologies

The use of new technologies such as IoT, AI, and Big Data can significantly enhance prediction, alerting, and early warning systems.

2

## Crisis Management

Crisis communication, early alerting, and evacuation protocols should be updated and disseminated.

3

## Policies and Incentive Structures

Incentives for preparing and mitigating disasters like tax waivers for disaster-friendly initiatives can help catalyze community participation.

# Urban Planning

## Building Codes

- Strict building codes should be enforced
- Many of the worst-affected structures were illegally built and do not comply with building codes.
- Laws should be imposed to regulate illegal land occupation and construction activities

## Reinforcing Buildings

- Structures should be reinforced with steel frames and shock absorbers
- Seismic imaging can help detect faults and plan accordingly
- Infrastructure such as highways should be designed to withstand earthquakes.

## Alternative Housing

- Temporary housing can be provided to displaced citizens.
- Reconstruction of homes and urban infrastructure should be planned with resilience in mind
- Urban layout and zoning should be revisited to pivot towards sustainable construction and development



# Law and Judicial Systems

## Judicial System Reform

Reform policies should be carried out in the legal system to hold corrupt practices accountable and prioritize victim relief.

## Compensation and Relief Funds

Efforts to provide relief need to be sustainable and focus on long-term solutions beyond cash grants.

## Public Engagement

Public forums, town hall meetings, and stakeholders' meetings can include people in disaster management and policy-making, ensuring that action is based on local need and context.

# Farming and Agriculture

## Livestock Losses

Earthquakes can cause significant damage and mortality to farm animals, particularly large animals.

## Landslides

The worst-affected areas are rugged mountain terrains, and landslides can damage the farmland permanently.

## Farmer Support

Financial support, crop insurance, and provision of seeds and other agricultural aids are necessary to support farmers affected by the earthquake.

# Public Health

## 1 Infectious Diseases

Earthquakes can trigger outbreaks of infectious diseases, particularly in overcrowded, temporary shelters.

## 2 Mental Health

Psychological support and counseling are crucial for those affected by the earthquake.

## 3 Water and Sanitation

Water sources and sanitation structures can be damaged during earthquakes, and access to clean water and sanitation facilities should be ensured to reduce infection risks.

# Psychology and Trauma

## 1 First Responders and the Public

Focus on providing first responders with psychological support while also prioritizing public support and psychotherapy post-disaster.

## 2 Family Support

Community and family support is essential, and community centers should be set up for emotional and practical support.

## 3 Survivor Healing and Rehabilitation

Offer programs and services such as storytelling, memory sharing, and peer support to help survivors heal and recover from trauma.



# TÜBA Recommendations on Earthquake Preparedness

## Emergency Planning

Develop a comprehensive emergency plan that includes communication, evacuation, and coordination protocols with government agencies and NGOs.

## Infrastructure Reinforcement

Enforce strict building codes and reinforce existing infrastructure with earthquake-resistant designs and materials.

## Policy Changes

Introduce policy changes and structures that prioritize disaster mitigation, response, and rehabilitation.

## Public Awareness

Increase public awareness and engagement in disaster preparedness and response initiative by educating citizens and incentivizing participation.

# Conclusion

- Disasters such as earthquakes cause significant damage, and it is imperative to address their threats on a scientific basis.
- The recommendations in this report stress the importance of taking immediate action in the aftermath of an earthquake and implementing long-term solutions with a proactive approach.
- We hope that by understanding the impact of earthquakes, citizens, policymakers, and communities can work together to mitigate disasters well before they occur.

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100<sup>th</sup> ANNIVERSARY OF THE REPUBLIC OF TÜRKİYE



*Thank You*