

## Summary Report

### The online webinar on “Disaster to Resilience: Learnings from Türkiye’s Recent Earthquakes”

**ONLINE WEBINAR**

**Disaster to Resilience: Learnings from Türkiye’s Recent Earthquakes**

**Tuesday**  
06/02/2024

15:00 Türkiye | 12:00 UK  
21:00 JAPAN | 07:00 USA

**Register**

**Opening & Concluding Remarks:**  
Professor Rajib Shaw, Keio University, Japan

**Moderator:**  
Dr Ayse Yildiz, University of Leicester, UK

**Speakers:**  
Ms Betül Kurada, AFAD  
Dr Sujit Kumar Mohanty, UNDRR  
Ms Yuko Tanaka, JICA  
Professor Richard Teeuw, University of Portsmouth, UK  
Professor Berna Burcak Basbug, METU, Türkiye  
Dr Ebru Gencer, Columbia University, USA

For further details please contact Dr Ayse Yildiz (ay111@leicester.ac.uk) and Prof Rajib Shaw (shaw@sf.keio.ac.jp)

Logos: UNDRR, AFAD, JICA, Keio University, UNIVERSITY OF LEICESTER, Institute for Environmental Futures, LSB, ODTU METU, UNIVERSITY OF PORTSMOUTH, COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK, LSB CDFM Research Group

# The online webinar on “Disaster to Resilience: Learnings from Türkiye’s Recent Earthquakes”

February 6, 2024

## **Abstract**

This document contains the structure of the online webinar “Disaster to Resilience: Learnings from Türkiye’s Recent Earthquakes” and summarises the key lessons learned. The devastating earthquakes that occurred in Türkiye on February 6, 2023, serve as a reminder of the unpredictable and destructive nature of seismic events. In order to better understand the significance of reflecting on learning from these earthquake disasters, this event will focus on the urgent need for resilience building. This will be through an exploration of the impacts of the earthquakes, response and recovery efforts, and knowledge sharing of the experts. We all hope this will then further improve the ongoing global earthquake awareness, mitigation, and preparedness discussions and promote sustainable development.

The online webinar on “Disaster to Resilience: Learnings from Türkiye’s Recent Earthquakes” on the 6<sup>th</sup> of February 2024.

Organisers: Keio University (Japan), University of Leicester (UK), Türkiye’s Disaster and Emergency Management Authority (AFAD), United Nations Disaster Risk Reduction (UNDRR), Japan International Cooperation Agency (JICA), University of Leicester Institute for Environmental Futures, University of Leicester Crisis Disaster Risk Management Research Group, University of Portsmouth (UK), Columbia University (USA), Middle East Technical University (Türkiye)

This report was prepared by the Global Resilience Innovation Laboratory, Keio University, GRIL, Japan.

## 1. Background

Türkiye is a country located in multiple tectonic plate boundaries and is prone to earthquakes. The earthquakes that occurred on February 6, 2023, killed more than 53 thousand, affected 15.73 million people and 4 million buildings. There were approximately 345,000 apartments, at least 518,009 houses destroyed, and 516 university buildings impacted, with 106 of them heavily damaged (AFAD, 2024).

Building awareness and knowledge-sharing about earthquake preparedness, response, and recovery are fundamental to preventing future earthquakes. In light of this, “Keio University (Japan),” “University of Leicester (UK),” “Türkiye’s Disaster and Emergency Management Authority (AFAD),” “United Nations Disaster Risk Reduction (UNDRR),” “Japan International Cooperation Agency (JICA),” “University of Leicester Institute for Environmental Futures” and “University of Leicester Crisis Disaster Risk Management Research Group,” “University of Portsmouth (UK),” “Columbia University (USA)”, “Middle East Technical University (Türkiye)” organized an online webinar on title “Disaster to Resilience: Learnings from Türkiye’s Recent Earthquakes” to gain insight into recent earthquakes, its effects, and strategies to build resilience.

Scheduled on the solemn anniversary of the 2023 earthquakes, the webinar titled "Disaster to Resilience: Learnings from Türkiye’s Recent Earthquakes," aimed to delve deep into the lessons gleaned from the earthquake. By facilitating discourse among experts and stakeholders, the webinar sought to shed light on the causes, impacts, and effective strategies for bolstering resilience in the face of natural disasters.

Drawing upon the collective expertise and practitioners in the field of disaster management, the webinar provided a platform for sharing insights, best practices, and innovative approaches to disaster risk reduction. Through interactive discussions, participants gained valuable perspectives and the session was moderated by Dr Ayse Yildiz.

In the beginning, Dr. Ayse welcomed all the speakers and participants and began the program by discussing the effects and opportunities arising from disasters. She emphasized that although disasters have many adverse effects, they undoubtedly offer an opportunity for development and change to prevent future disasters.

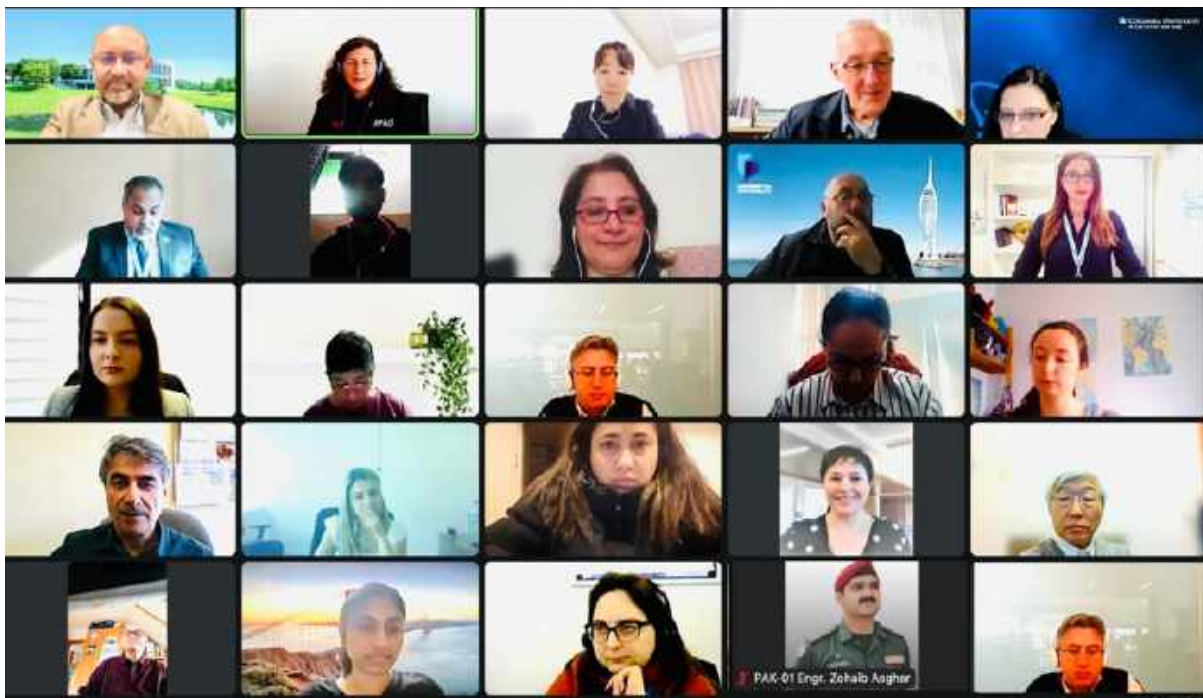
The devastating earthquake disaster that occurred last year, on February 6, 2023, provides a unique lesson that can benefit not only Turkiye but also countries facing similar earthquake risks. In order to reduce the effects of future earthquake disasters and create resilient communities, it is essential that we understand these lessons.

Dr. Ayse then extended welcome to all the speakers and participants, urging them to embark on a journey from disasters to resilience together.



Dr Ayse is an Assistant Professor (Lecturer) at the University of Leicester. She has a keen interest in working with children and young people in disaster risk reduction and understanding the factors shaping individuals' natural hazard risk perception and preparedness. She is also interested in climate change, disaster education, community-based disaster resilience, and risk communication.

From the webinar:



## 2. Purpose and Agenda of the Webinar

This online webinar aimed to:

1. Understanding the impact of the earthquake on the affected communities.
2. Discuss effective disaster preparedness and response tactics based on the learned experiences and practices.
3. Recommend strategies to raise public participation and awareness of earthquake mitigation and resilience measures.

Agenda:

- Moderator's introduction and framing issues. Opening remarks are given by Prof Rajib Shaw.
- Each speaker is invited to speak for an uninterrupted presentation time on the themes of their expertise (no more than 10 mins for each speaker). Session titles:
  - Disaster Recovery - Dr Sujit Kumar Mohanty, UNDRR
  - Overview of the two earthquakes, key lessons learned – Dr Yeliz Teker, AFAD
  - Overview of JICA's Cooperation for Disaster Risk Reduction in Türkiye - Ms Yuko Tanaka
  - Use of Earth Observation data in disaster resilience - Prof Richard Teeuw, University of Portsmouth, UK
  - Building resilience – Dr Ebru Gencer, Columbia University, USA
  - Preparing for future disasters - Prof B. Burcak Basbug, METU, Türkiye
- Audience questions
- Concluding remarks are given by Prof Rajib Shaw.

## 3. Opening remarks

Rajib Shaw is a professor and chair at the Graduate School of Media and Governance at Keio University, Japan. Shaw is the recipient of United Nations Sasakawa Award for Disaster Risk Reduction in 2022 for his lifetime contributions in the field of disaster risk reduction. In addition, he is also the recipient of “Norio Okada Implementation Science Award 2022” from International Society for the Integrated Disaster Risk Management (IDRIM).



In the opening remarks, Professor Shaw began by expressing deep sympathy and offering condolences to the families affected by the tragic Turkey Syria earthquake that occurred one year ago. He highlighted the significance of past seismic events such as the İzmit/Kozaeli earthquake of August 17, 1999, also known as the 1999 Gölcük earthquake, which resulted in the loss of over 18,000 lives. Additionally, he referenced the Hanshin Awaji Earthquake of 1995, noting that temporary shelters from that disaster were utilised in affected areas.

Professor Shaw emphasized the advancements made since those disasters, including improvements in land use zoning, building codes, resilient infrastructure, and earthquake insurance. Despite these advancements, the recent major earthquake claimed the lives of over 50,000 individuals, with significant damage extending along the fault line from Gaziantep to Hatay in September 2023.

He underscored the shared vulnerability of Japan and Turkiye to seismic activity due to their locations on tectonic boundaries and fault lines, citing the Noto Peninsula earthquake that struck on January 1st. This event highlighted the vulnerability of older structures and the challenges posed by an aging population. Professor Shaw extended his condolences and prayers to those who lost their lives in these disasters.

He compared the Turkiye and Japan earthquakes which occurred on the 1st of January 2024. Both earthquakes experienced numerous aftershocks, and secondary disasters such as snowfall and harsh weather in evacuation centres compounded the challenges faced by affected communities as both disasters happened in the wintertime. These complexities underscored the importance of addressing compound disasters.

Despite the challenges, Professor Shaw expressed optimism about the significant progress in the recovery process. He conveyed gratitude to the attendees for their participation despite their busy schedules and looked forward to their contributions and insights throughout the webinar.

#### **4. Disaster Recovery - Dr. Sujit Kumar Mohanty, UNDRR**

Dr. Sujit Mohanty has over 22 years of experience in DRR, humanitarian coordination, development and climate change. Before assuming his position as Chief of Intergovernmental Processes, Interagency Cooperation and Partnerships Branch in UNDRR in July 2023, he served as Chief of UNDRR Regional Office for Arab States since 2017. Prior to this, he was the UNDRR Regional Platform Coordinator for the Asia-Pacific region since 2011.



Dr Sujit Mohanty highlighted the critical importance of learning from past events to shape a resilient future, particularly in the aftermath of a significant earthquake. As we reflect on the challenges faced over the past year, it becomes evident that this moment serves not only as a reflection on past actions but also as a catalyst for future endeavours, he added.

It is an opportune time for collective engagement in discussions centred around building back better and establishing robust frameworks for recovery. Despite the strides made in strengthening infrastructure and modernising systems, there remains much to be accomplished, with a focus on inclusivity and leaving no one behind.

Collaboration with organisations such as the UN system is vital in advancing development cooperation frameworks and facilitating recovery efforts. The leadership demonstrated by various entities in navigating complex processes, including national strategies and agenda setting, has been commendable. Leveraging the expertise and experience of regional offices and signatory agencies within the UN system further enhances the efficacy of recovery initiatives.

A key takeaway from recent events is the importance of adopting best practices and leveraging lessons learned to inform future strategies. Embracing innovative approaches bolstered by community engagement and inclusive decision-making processes is essential in ensuring resilience and addressing the needs of vulnerable groups.

This includes enhancing infrastructure resilience, providing timely information to stakeholders, and fostering partnerships to facilitate recovery efforts. Moving forward, there is a clear imperative to prioritise forward-looking strategies that promote resilience and sustainable development.

This entails empowering communities with the necessary guidance and resources to navigate recovery processes effectively. By embracing a collaborative and proactive approach, we can pave the way for a more resilient future, one that is characterised by inclusive growth and equitable development, he concluded.

#### **5. Overview of the two earthquakes, key lessons learned, Dr Yeliz Teker, AFAD**

Dr Yeliz Teker is a geological engineer who has been working in AFAD for more than 14 years. She is working under the project management office for disaster risk management.



Dr Teker Yeliz, representing AFAD, has presented an overview of the two earthquakes and key lessons in the webinar. Her presentation covered the following:

- a) Disaster Diversity in Turkiye
- b) AFAD organisational chart
- c) Integrated Disaster Cycle
- d) Turkiye Disaster and Emergency Management System
- e) Information regarding Earthquake
- f) Search rescue and support activities
- g) Evacuation Information



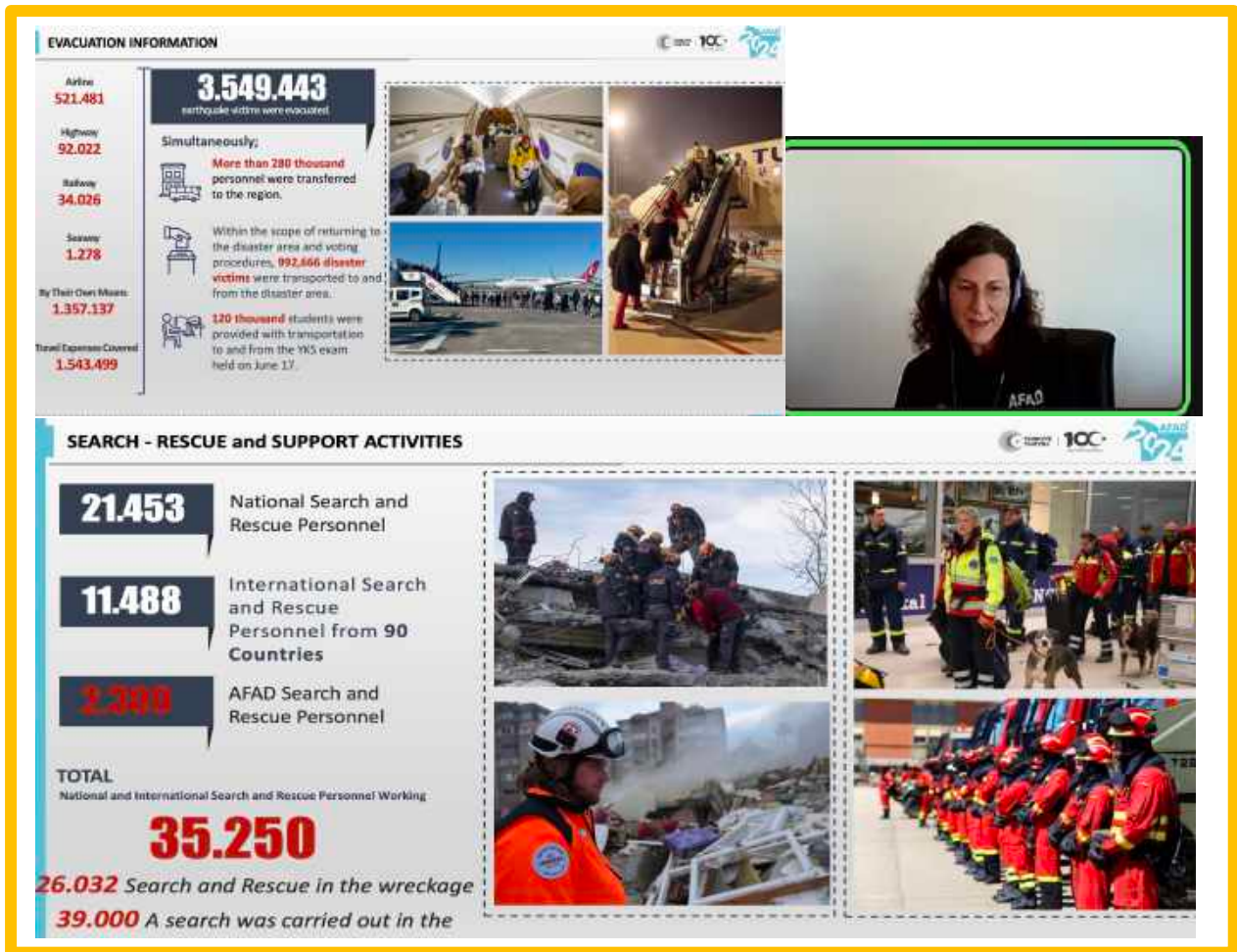
She highlighted common disasters in Türkiye, such as earthquakes, floods, forest fires, chemical transpiration, etc. and the importance of disaster management for risk reduction. In addition, she explained the flow of the organisational chart and how AFAD works for disaster management in Türkiye. Dr Teker Yeliz explained the integrated disaster cycle, which encompasses several crucial phases: reduction, preparation, response, and recovery. In the reduction phase, she emphasised the importance of hazard and risk mapping, awareness training initiatives, legislative measures, disaster insurance schemes, urban transformation projects, and fortification of public infrastructure. This proactive approach lays the groundwork for mitigating potential risks and minimising the impact of disasters. Moving forward, the preparation phase involves meticulous logistics planning, formulation of robust evacuation strategies, comprehensive volunteer training programs, deployment of effective warning systems, and special provisions for vulnerable demographics. These preparatory measures serve as the backbone of a resilient disaster management framework. In a comprehensive overview of Türkiye's disaster management system, Dr Teker Yeliz outlined the strategic pillars comprising the Disaster Risk Reduction Plan, the Disaster Response Plan, and the provincial disaster response plans. These meticulously crafted frameworks serve as guiding principles in orchestrating swift and effective responses to disasters of varying magnitudes.

Dr Teker Yeliz provided a detailed account of the monumental search, rescue, and support efforts undertaken by both national and international personnel in the wake of the earthquakes. Noteworthy statistics included the deployment of over 35,000 search and rescue personnel, the establishment of 350 tent cities, and the distribution of essential supplies such as tents and beds; regarding the evacuation information in the aftermath of the earthquake, an extensive evacuation effort ensured the safety and well-being of affected individuals. A total of 549,443 earthquake victims were successfully evacuated, employing various modes of transportation. This included 521,481 individuals airlifted to safety, 92,022 transported via highway, 34,026 by railway, and 1,278 through seaway routes. Additionally, a significant number of individuals, totalling 1,357,137, managed to evacuate using their own means. Remarkably, the travel expenses of 1,543,499 evacuees were covered, alleviating financial burdens during this challenging time.

Simultaneously, the response effort saw the deployment of over 280 thousand personnel to the affected region, ensuring a swift and coordinated response. Among the critical transportation initiatives undertaken was the facilitation of travel for 992,666 disaster victims to and from the disaster area, aiding in essential return trips and voting procedures. Furthermore, in a demonstration of commitment to education continuity, 120 thousand students received transportation assistance to and from the YKS exam held on June 17.

Some highlights from her presentation:





**6. Overview of JICA’s Cooperation for Disaster Risk Reduction in Türkiye, Ms Yuko Tanaka, JICA**

Ms Yuko Tanaka is the former Chief Representative of the JICA Türkiye Office in Ankara until this January. She coordinated the Japan Disaster Relief team in the earthquake-affected area, and she contributed to the seamless program formulation of Japanese ODA loans, technical assistance, and others.



Ms Yuko Tanaka started her presentation with the deepest condolence and sympathy to all who lost their family and relatives. Chief Representative of the JICA Türkiye Office, Ms Yuka, provided an overview of JICA disaster-related work in Türkiye:

- 1) JICA’s first cooperation activity in Türkiye was “Acceptance of Trainees”, launched in 1959, and the first trainee was in the DRR area. As of January 2022, about 4,200 Turkish

officials participated in the training programs in Japan (approximately 700 Disaster related courses)

- 2) Main cooperation in the field of DRR
- 3) The Study on a Disaster Prevention/Mitigation Basic Plan in Istanbul [2001-2002]
- 4) Capacity Development toward Effective Disaster Risk Management [2013-2017]
- 5) Project of Earthquake and Tsunami Disaster Mitigation in the Marmara Region and Disaster Education in Türkiye [2013-2018]
- 6) Project of Earthquake and Tsunami Disaster Mitigation in the Marmara Region and Disaster Education in Türkiye [2013-2018]
- 7) School-based Disaster Education Project [2011-2014 and 2017-2020(for training)]
- 8) Seismic Reinforcement Project for Large Scale Bridges in Istanbul [2001-2012]
- 9) Strategies for Cooperation in DRR in Türkiye

Yuka explained that JICA started training as DRR work in Türkiye in 1959, and then after, it continuously provided support for Türkiye. There are a few major challenges existing in the DRR field, such as inadequate disaster preparedness in urban areas, insufficient or undeveloped disaster risk reduction plans based on risk assessment, insufficient seismic reinforcement, and seismic isolation for existing buildings. The Study on a Disaster Prevention/Mitigation Basic Plan in Istanbul 2001-2002 1) Conducted micro zonation assessment, (2) Proposed priority programs for building and infrastructure damage mitigation based on the assessment results, and (3) Made recommendations to the IMM DRR Action Plan. The outcome of this is that the DRR Action Plan proposed by the project was approved by the IMM Disaster Management Center. Based on the evaluation results of the project, the World Bank implemented ISMEP1 Project. Then Capacity Development toward Effective Disaster Risk Management was conducted in 2013-2017. JICA has provided assistance in the risk assessment of earthquake, landslide, tsunami, and man-made disasters for AFAD and in the preparation of guidelines for the development of regional disaster reduction plans (IRAPs) based on the assessments. The outcome of this program was that guidelines for conducting risk assessments for earthquakes, landslides, tsunamis, and man-made disasters were developed. AFAD also utilised the technical elements of the guidelines to develop an IRAP for Kahramanmaraş, the pilot province of the project. In addition, the Project of Earthquake and Tsunami Disaster Mitigation in the Marmara Region and Disaster Education in Türkiye [2013-2018] was conducted.

Another important task was the School-based Disaster Education Project from 2011-2014 and 2017-2020 for training. Under this program, activities such as building a teacher training system, creating a disaster education instructional manual, examining instructional plans, and expanding their dissemination throughout the country were conducted. The result of this program was that the trained disaster education instructors continued to provide disaster education in various regions even after the completion of this project. The network of disaster education has expanded through active promotion of the development of teaching materials.

In addition, she added, currently, JICA is coordinating with universities and different organizations for DRR-related projects and local municipalities for capacity building.

Some highlights from her presentation:

### JICA's Seamless and Continuous Support

Kaframanmaraş Earthquake

**Relief**

Rescue, Emergency Medical Service, Shelter

**Recovery**

Lifeline, Temp Housing, Livelihood, Education, Temp Employment

**Reconstruction**

Based on the concept of "Build Back Better", Disaster Risk Reduction, Infrastructure, Reconstruction Plan for Resilient City, Industry and Employment Creation

Recreation of Safety Net and Community

Japan Disaster Relief Team (S&R and Medical) and Relief Goods JDR expert team

Reprogramming of On-going Projects, Follow-up of Past Projects, Grant Aid, Emergency Loan, Technical Recommendation

Support to Reconstruction Plan, Loan to Infrastructure, technical cooperation to DRR for future disaster

JICA has supported the development of seismic-engineering and earthquake-observation technology, disaster risk reduction planning, and disaster risk reduction education in Türkiye. Utilizing the outcome of the past cooperation, JICA will continue to support the further improvement of governance for disaster risk reduction and the promotion of investment in this field, contributing to the swift recovery and reconstruction, strengthening of urban resilience in Türkiye.

### School-based Disaster Education Project [2011-2014 and 2017-2020(for training)]

Activities such as building a teacher training system, creating a disaster education instructional manual, examining instructional plans, and expanding their dissemination throughout the country were conducted.

**Project Overview**

- Project sites: 8 provinces in Marmara region (Bilecik, Bursa, Çanakkale, İstanbul, Kocaeli, Sakarya, Tekirdağ, Yalova) and 2 neighboring provinces (İzmir, Denizli)
- Main activities:
  - (I) improve the ability of master teachers to transfer knowledge on disaster education to their colleagues,
  - (II) improvement of teaching aid materials, and
  - (III) establish a school DRR management system.

**Main Training Places in Japan**

- Discussions with the Hyogo Prefecture Earthquake and School Support Team
- Study of disaster education curriculum at Miyagi University of Education and Shizuoka University Disaster Prevention Center
- Site visit of disaster education at elementary and junior high schools and high schools
- Tour of Disaster Reduction and Human Resilience Institutes etc.



**Main Outcomes**

The trained disaster education instructors continue to provide disaster education in various regions even after the completion of this project. The network of disaster education has expanded through active promotion of this development of teaching materials.



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## 7. Use of Earth Observation data in disaster resilience, Prof. Richard Teeuw, University of Portsmouth

Richard Teeuw is Professor of Geoinformatics and Disaster Risk Reduction at the University of Portsmouth; he is Chair of the UK Remote Sensing Society's Disaster Management group and Co-Secretary of the Royal Geographical Society's Professional Practice Group for Disaster Risk Management.



During the webinar presentation led by Prof. Richard Teeuw from the University of Portsmouth, significant insights were shared regarding the utilization of Earth Observation technology in disaster management, particularly in response to the 2023 earthquakes in Turkiye.

The European Space Agency's Sentinel-1 satellite radar interferometry imagery played a crucial role in depicting regional ground deformation caused by the earthquakes. Additionally, data from Japan Aerospace Exploration Agency's ALOS PALSAR satellite radar facilitated the detection of earthquake damage, notably highlighted in yellow, using both pre- and post-earthquake satellite imagery.

Notably, artificial intelligence (AI) algorithms were employed to automate the identification of severely damaged buildings, depicted in red, underscoring the efficacy of advanced technologies in disaster assessment.

Furthermore, the presentation emphasised the integration of satellite-enabled rapid mapping for efficient disaster response.

Images captured by remote sensing technologies, including drones, were instrumental in assessing potential hazards such as road damage and landslides. Despite challenges such as cloudy weather affecting satellite imagery, the utilisation of local drones offered a promising solution for targeted assessments, particularly in areas of interest or limited accessibility.

Moreover, the presentation highlighted the impact of the earthquakes on communication infrastructure, as evidenced by a decrease in nighttime illumination captured by NASA's Black Marble imagery. This emphasised the importance of effective information management and communication services, particularly during crisis situations. Overall, the webinar provided valuable insights into the role of Earth Observation technology in disaster management and underscored the importance of collaborative efforts in mitigating the impact of natural disasters.

More highlights from his presentation:

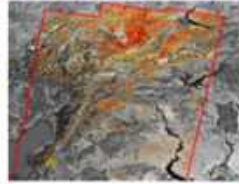


# Remote Sensing for Disaster Management in the Turkiye EQ

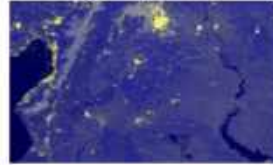


**Pre-disaster** / **Disaster Event** / **Post-disaster** / **Pre-disaster**  
 Warning/Evacuation/ Response / Recovery / Reconstruction / Preparedness /

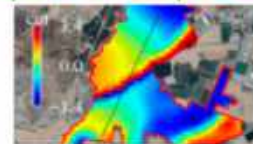
**Regional Monitoring**  
 1:1 M – 1:100,000  
 eg. MODIS / Sentinel  
*Early Warning / Damage*



Ongoing monitoring



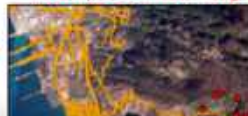
**District Mapping**  
 1:100,000 – 1:10,000  
 eg. Sentinel, ALOS-PALSAR  
*Damage Extent Maps  
 Geohazard, Vulnerability, Risk Maps*



Damage Extent / Preparedness maps

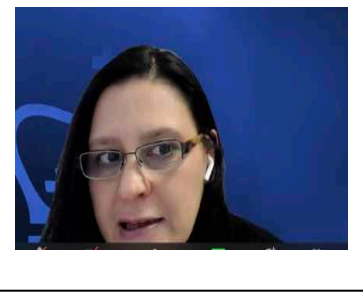
**Detailed mapping**  
 1:10,000 - 1: 1,000  
 eg Maxar, PlanetScope,- aircraft, drone  
*Detailed DEMs & Damage Maps*

HOT-OSM damage maps / IDP maps / Forensic maps



## 8. Building Resilience, Dr. Ebru Gencer, Columbia University in New York

Dr Ebru Gencer is an Adjunct Professor at Columbia University in New York. Dr. Gencer was previously the Chair of UNDRR's Urban Planning Advisory Group and had led the development of resilience scorecard and learning modules for the Making Cities Resilient Campaign.



Dr. Ebru Gencer, has presented on building resilience in the context of Türkiye's earthquakes. With expertise in the regulatory framework for earthquake risk management, Dr. Gencer provides invaluable insights into the background and necessary measures required for enhancing resilience in Türkiye. Initially, she discussed the transformative impact of the 1999 Marmara Earthquakes on disaster risk management in Türkiye. The aftermath of these earthquakes prompted significant changes, including the introduction of new laws and the establishment of specialized agencies dedicated to disaster management. Subsequent revisions in earthquake building codes occurred in 1998, 2007, and 2018, reflecting evolving understanding and responses to seismic risks.

In 2001, the introduction of the draft bill on Development and Urbanization mandated the inclusion of micro-zonation studies in all land use plans across Türkiye, aiming to enhance preparedness and resilience at the local level. Additionally, the enactment of the 2012 Law Regarding Redevelopment of Areas Prone to Disaster Risks, commonly referred to as the Urban Transformation Law, and its accompanying implementation by law in 2013 delineated clear procedures and principles for the rehabilitation, clearance, and renovation of urban areas and buildings vulnerable to disasters. These legislative measures underscore Türkiye's proactive approach to mitigating disaster risks and fostering sustainable urban development. In terms of construction practices, the 2001 Building Supervision Law and the 2006 Regulation on Construction in Earthquake Zones brought rules requiring private construction control firms to have government licenses and standardisation of building materials. A Decree on Compulsory Building Insurance in 1999, which was legislated in 2012, set up the Turkish Catastrophe Insurance Pool (TCIP), which aims to support legal housing in Türkiye.

She has mentioned that despite the existence of new regulatory frameworks to guide construction, the system had failed due to:

- Lack of awareness of involved stakeholders (from decision-makers to contractors and residents);
- Amnesty laws, violation of planning decisions and corruption of the building certification system.
- Buildings constructed prior to 1998 building codes and without proper techniques and materials.
- Irregular building systems (plan and elevation) or poor building materials,

- Irregular modifications to existing buildings

Then, she emphasised that Turkiye should focus on making the city resilient enough through Capacity Development for Urban Resilience, Systemic Understanding of Risk and Participatory Urban Planning, Multi-hazard risk assessments and a systemic understanding of risk. Participatory planning approaches will empower residents and ensure the feasibility of implementation. In addition, she enhanced capacity development can be done the following way:

- Technical Capacity Development for the Built Environment Professionals
- Continuing education for urban planners to use micro-zoning and other risk-informed planning strategies, including nature-based solutions
- Continuing Education for Architects and Engineers to implement new building codes as well as new technologies for climate adaptation
- Mandatory classes for contractors and builders
- Promote the conservation and revitalisation of traditional design guidelines and craftsmanship

Some highlights from her presentation:





## 9. Preparing for Future Disasters, Prof B. Burcak Basbug, the Middle East Technical University

Burcak Basbug is a professor of statistics and disaster science at the Middle East Technical University. She is the Academic Partnership Director of the Institute of Civil Protection and Emergency Management and a consultant at the World Bank.



Prof B. Burcak Basbug offered a comprehensive overview of the devastating earthquake that struck on February 6th, 2023, labelling it as a centennial event occurring once in a lifetime. She expressed her condolences to those affected by the disaster, emphasising that its impact extended beyond individual lives to encompass the entire nation of Turkey, affecting 11 cities and all 81 provinces.

Her presentation focused on the importance of leveraging historical data and information to understand and mitigate disaster risks effectively. She highlighted staggering figures, including 53,000 deaths, over 100,000 injuries, and more than 100,000 buildings collapsing, resulting in significant economic losses exceeding \$100 billion USD. She stressed that such data is not merely numbers but represents the lives and livelihoods of affected individuals.

Acknowledging the complexity of disaster preparedness, she emphasised the need to learn from both good and bad practices worldwide. Drawing from her academic background, Prof. Burcak underscored the importance of merging technical expertise with social understanding to formulate effective disaster risk reduction policies. She highlighted the need for proactive preparation, noting the challenge of anticipating unexpected events despite previous simulations and preparations.

The presenter highlighted ongoing efforts to consolidate knowledge and translate it into action, citing a collaborative project with UNESCO and the UK Health and Security Agency aimed at developing a toolkit for data policy in times of crisis. This initiative seeks to harness the vast amounts of data available to inform decision-making and enhance resilience.

Prof. Burcak mentioned the significance of unified efforts across various sectors, including academia, policymaking, and volunteer organisations, to build resilient communities and nations. She underlined the need for comprehensive data analysis spanning social, economic, environmental, and physical domains to inform robust decision-making processes.

In addition to her comprehensive overview, Professor Burcak highlighted the necessity of bridging the gap between data analysis and policy implementation. She mentioned the importance of translating data-driven insights into actionable strategies and highlighted ongoing efforts to develop roadmaps and action plans to guide future disaster response and risk reduction initiatives.

Furthermore, she underlined the need for continuous learning and adaptation in the face of evolving challenges. She said that resilience-building is an iterative process that requires ongoing refinement based on lessons learned from past experiences. This adaptive approach, she argued, is essential for effectively addressing the dynamic nature of disaster risks and ensuring sustainable development in the long term.

She added the role of international collaboration in advancing disaster risk reduction efforts. She emphasised the importance of sharing best practices, expertise, and resources across borders to strengthen global resilience to natural and man-made hazards. By fostering a collaborative approach to disaster management, she argued, the international community can better anticipate, mitigate, and respond to future crises, ultimately saving lives and safeguarding livelihoods.

In conclusion, she highlighted the importance of partnerships and collaboration in achieving the Sustainable Development Goals, particularly Goal 17, the need for global cooperation. Prof. Burcak's presentation underscored the critical role of data-driven policies and interdisciplinary collaboration in mitigating the impact of disasters and building a more resilient future.

Some highlights from her presentation:

The image displays a collage of three book covers on the left and a screenshot of a website on the right. The book covers are 'Book Proceedings for Disaster Preparedness 2021-2022', 'HAZARD: A Handbook for Disaster Preparedness', and 'UNESCO Recommendation on Open Science'. The website screenshot is for 'Data Policy in Times of Crisis' by CODATA, featuring a navigation menu with 'About', 'Membership', 'Events', and 'Initiatives'. The main heading is 'Data Policy in Times of Crisis'. Below it is a breadcrumb trail: 'Home > Events > Conferences > FAIR Convergence Symposium 2022... > Data Policy in Times...'. The main content area has the title 'The need for data policy in times of crisis' and describes a public workshop organized by the CODATA International Data Policy Committee on 24 October 2022, 13:30 - 17:00 CEST as part of the 2nd FAIR Convergence Symposium. The location is listed as Collezza 2, LUMC, and online. There is also a logo for the International FAIR Convergence Symposium 2022.

## 10. Questions and answers

During the question-and-answer session, several important topics were addressed by the speakers. Professor Richard discussed the effectiveness of drones in urban search and rescue operations following disasters, highlighting the need for further study on their efficacy. He emphasised the evolving capabilities of drones and their potential to assess damage and monitor displaced populations. Regarding earth observation technologies, Professor Richard highlighted their utility in guiding policy and practice, particularly in selecting safer redevelopment areas after disasters. He emphasised the importance of integrating satellite imagery and daily updates into response strategies to inform decision-making effectively.

Professor Burcak, on the other hand, explained the role of local leaders and influencers in promoting earthquake awareness within communities. She highlighted the significance of teachers, religious leaders, and administrative figures in remote areas, emphasising their respected status and influence. In addition to this, the importance of continuous and sustainable training for these leaders to ensure the dissemination of disaster awareness information to the wider community. Regarding changes to building code enforcement, she noted the regular revisions and updates to building codes following significant events like earthquakes. She also highlighted the need for continuous collaboration and updates to building codes to enhance resilience in the face of future disasters.

Similarly, Dr Teker Yeliz from AFAD answered the questions related to disaster preparedness and response. She discussed measures to improve international search and rescue efforts in Turkey and also highlighted the development of standard operating procedures for host nation support and the importance of exercises at the port level to facilitate efficient entry of rescue teams. Additionally, she underlined the importance of providing accurate information and support to rescue teams as needed.

She then answered the questions strategic planning for disaster risk reduction in Turkey. She explained the National Earthquake Strategy and Action Plan, which serves as Turkey's roadmap for reducing earthquake risk. The plan includes seven objectives, nine strategies, and 87 action items assigned to 13 responsible agencies. Over the years, various activities have been successfully completed, including the development of earthquake hazard maps, public awareness campaigns, and improvements in building codes and infrastructure resilience.

Ms Yuko Tanaka from JICA answered the questions related to disaster management and vulnerability, particularly focusing on women and other vulnerable groups. She emphasised the importance of inclusive preparedness activities and earthquake drills that consider the diverse needs of society. Regarding success stories from JICA-supported projects in Türkiye, she highlighted initiatives such as the Bosai Koshien promoting earthquake resilience among students and teachers.

Dr Ebru Gencer answered questions related to earthquake resilience capacity development and institutional strengthening for disaster management and urban planning. Regarding the first question on multidisciplinary collaboration for capacity development, Ebru emphasised the importance of a whole-of-society approach, including involvement from various sectors such as international organisations, academia, civil society, and the private sector. She highlighted the role of professional organisations, chambers of commerce, and chambers of architects and engineers in supporting capacity-building initiatives. She also mentioned the establishment of a resilience fund at Columbia University to support capacity development projects in Turkiye, emphasising the need for collaboration to enhance resilience.

Regarding the second question on strengthening institutions responsible for disaster management and urban planning, Ebru highlighted the importance of enhancing the capacity of urban planning professionals. She noted the lack of disaster-related education in traditional urban planning programs and highlighted the need for integrating disaster resilience and climate change considerations into urban planning curricula. Ebru also highlighted the importance of equipping urban planners with the necessary knowledge and skills to address disaster risk and climate change challenges effectively, particularly in making planning decisions and understanding micro-zoning. She mentioned the significance of updating educational pedagogies to incorporate new information and ensure that urban planners are adequately prepared to tackle emerging challenges.

At the end of the Q &A session, Professor Rajib Shaw emphasised the ongoing nature of improving earthquake resilience, stressing the importance of preventing new risks. He highlighted the critical role of building construction and the implementation of building codes in Turkiye, noting that while the country has strong codes, enforcement remains a challenge, particularly in private construction. To address this, he recommends stronger legislation and stricter construction inspections, coupled with increased public awareness to demand safer housing. Additionally, he underscores the need for retrofitting existing buildings, suggesting incentive-based programs supported by local governments to encourage building owners to retrofit their structures, with awareness playing a crucial role once again.

## **11. Closing**

In conclusion, Professor Shaw added that recovery is a long process. As of the 30th anniversary of the Kobe earthquake, it is evident that recovery efforts continue to unfold, emphasising that resilience extends beyond physical infrastructure to encompass the restoration of social cohesion and livelihoods. The imperative of inclusive recovery, encapsulated by the principle of "Nobody is left behind," underscores the importance of addressing the needs of vulnerable populations and fostering community resilience.

Furthermore, the cyclical nature of disasters necessitates a proactive approach to preparedness and learning from past experiences. As aptly expressed in the Japanese proverb, we constantly find ourselves between two disasters, emphasising the critical role of

integrating recovery lessons into future preparedness strategies. Today's discourse, enriched by valuable interventions from all speakers and participants, highlights the collective commitment to advancing understanding and practices in disaster recovery.

Moving forward, we commit to synthesising the insights shared today into a comprehensive report for broader dissemination, facilitating continued learning and collaboration in disaster recovery efforts. At last, he thanked all speakers and participants for their valuable time as well and he extended special thanks to his colleague Dr. Ayse Yildiz from the University of Leicester for her leadership and initiative.

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