





TAFF

Technical Assistance Financing Facility for Disaster Prevention and Preparedness

BLOCK 3: From Impact to Recovery



TAFF Workshop Brussels, October 2-3, 2025

Experience from Disasters – Tools, Good Practice, and Opportunities Going Forward

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World Bank



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Why Recovery and Resilience Matter

- Disasters disrupt development.
- The cost of inaction is high: Recovery that rebuilds to pre-disaster standards leaves countries vulnerable.
- Recovery as opportunity: Each reconstruction is a chance to strengthen resilience.
- Plan early → faster, smarter action.
- World Bank's focus: Ensuring disaster recovery is not only fast, but also smarter, greener, and more inclusive.



The World Bank in Recovery and Reconstruction: What We

- Financing for resilient recovery
- Post-disaster analytics to inform smarter reconstruction
- Multisector Coordination and Expertise
- Donor Coordination
- Global Knowledge and Innovation on Resilience
- Policy Leverage



World Bank Financing Instruments for Disaster Recovery and Reconstruction

Catastrophic Drawdown Option (CatDDO)

- Immediate budget support after disasters to respond to emergencies.
- Examples: Romania, Serbia.

Rapid Response Option

 Access up to 10 percent of undisbursed balances across the Bank portfolio for urgent emergency response.

Contingent Emergency Response Components

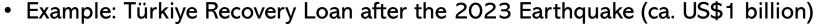
- Pre-approved window- quick financing after disasters within existing projects.
- Regularly included in Bank projects.



Crisis Financing Instruments – Ex Post

Recovery Loans

- Financial support to help countries recover and rebuild.
- Integration of resilient designs (build back smarter).



- Water/sanitation, drainage, solid waste, municipal emergency services.
- Health Services.
- Rural Housing Reconstruction & Recovery.
- Resilience focus, inclusive, coordination among development partners.



Financing Instruments – Ex ante

Investments for Resilience

- Safe Infrastructure: Seismic retrofitting of schools, hospitals, housing.
- Flood and Landslide Risk Management.
- Forecasting and Early Warning
- Preparedness and Response Systems
- Climate-smart Urban Resilience
- Nature-based solutions to buffer floods and heat.
- Institutional Strengthening

Developing resilient cities for the future



Post Disaster Assessments

- PDNA (Post Disaster Needs Assessment)
 - Comprehensive assessment in various sectors and to identify recovery needs; tripartite agreement (WB, UN, EU).
- GRADE (Global Rapid Post-Disaster Damage Estimation):
 - Rapid, tech-enabled assessment, that integrates catastrophe risk modeling, earth observation data, reported damage statistics, and historical data to provide rapid damage estimates.
- Impact360
 - Mobile data collection to enhance post-disaster analysis, facilitating recovery and strategic planning.

GRADE - A frontier in rapid post-disaster damage estimation



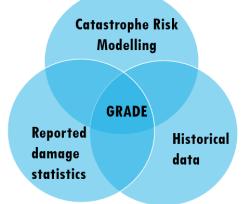






Many urgent questions arise following a disaster:

- How do we assess damage?
- What are the costs of the damage?
- Where are the damages distributed?
- What is the socio-economic impact?



Global RApid Post-Disaster Damage Estimation (GRADE)





















ource: https://turkive.un.org/en/219067-un-supports-rescue-and-relief-efforts-turkive

Global Rapid Post-Disaster Damage Estimation (GRADE) Report

February 6, 2023 Kahramanmaraş Earthquakes

Türkiye Report







- · At least 15 hospitals have suffered partial or severe damage, with damage assessments still ongoing16. Hospitals or hospital wings with risk of collapse have been evacuated by emergency services, with patients referred to facilities across the country and field hospitals established to provide continuity of care.
- · The minimum expected direct damages for the most affected provinces are shown below for the key sectors: residential (housing), non-residential buildings 17, and infrastructure18. Estimates cover buildings and contents; however, the analysis does not include costs associated with humanitarian and emergency response, or the losses associated with economic flows (e.g. business interruption). Moreover, damage assessments are ongoing in the affected areas

Table 1: Estimate of the direct damages by sector and province in absolute values (in US\$ millions). This includes the 11 Provinces which were named as "Disaster Areas" by the Government of Türkiye, plus all other Provinces which experienced damage.

Province	Residential	Non-Residential	Infrastructure	Total		
				Median	Lower	Upper
HATAY	6,601	3,516	2,331	12,448	11,236	13,643
KAHRAMANMARAS	3,182	1,609	1,040	5,831	5,037	6,720
GAZIANTEP	2,285	1,516	1,066	4,867	3,907	5 ,996
MALATYA	1,493	660	450	2,604	2,105	3,197
ADIYAMAN	1,190	525	295	2,011	1,714	2,372
ADANA	915	475	394	1,783	1,308	2,352
DIYARBAKIR	883	518	315	1,716	1,283	2,296
OSMANIYE	654	453	251	1,358	1,084	1,716
SANLIURFA	447	273	137	856	632	1,144
ELAZIG	127	61	52	240	160	474
KILIS	88	37	26	152	116	199
MERSIN	58	15	32	105	36	159
MARDIN	27	7	9	42	8	73
KAYSERI	22	10	7	40	13	104
SIVAS	23	9	5	37	22	50
NIGDE	23	4	9	37	-	66
BINGOL	15	2	5	23	1	40
OTHER	1	0	0	2	1	147
TOTAL	18,036	9,691	6,424	34,151	28,665	40,751





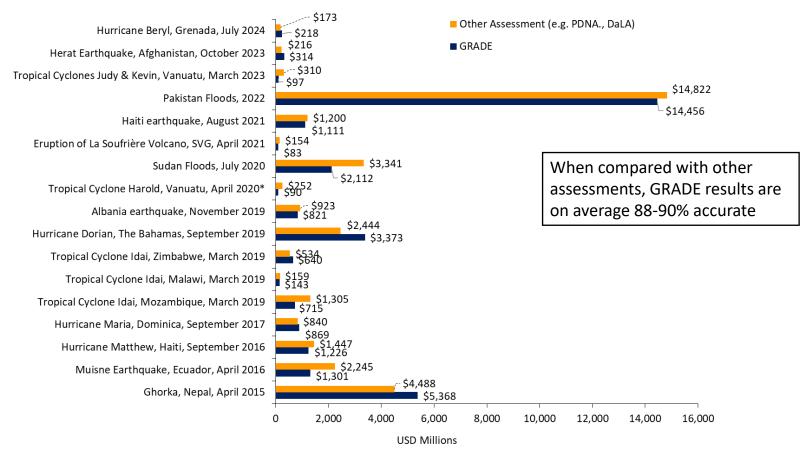




¹⁷ Non-residential buildings include buildings that are private or public, commercial (offices, hotels, trade/retail, etc.), educational, hospitals and clinics/health centers, public administration, and industrial/warehouses.

¹⁸ Infrastructure covers roads, bridges, ports, airports, railways, embankments, culverts as well as underground

How does GRADE perform vs. other assessments?











Economic Damage Assessment

Exposure Modeling Vulnerability Modeling Damage Estimation Hazard Modeling • Seismic ground motion Mapping population Global database of Cost of direct damage and asset values building damage data to buildings, critical map infrastructure • Wind field map Global housing census • Damage vs. hazard data severity by structure Cost of direct damage • Flood extent map due type to crops to excess rainfall during • Gross capital stock data storms, riverine, flash • Real-time event data Human casualties due Residential buildings flooding from social media to building collapse by structural type, age, (photos, video, drone Storm surge inundation height Estimation of direct footage) and indirect damage map Non-residential • Remote sensing data to other important Tsunami inundation. buildings by use, economic sectors • Post-disaster analytical map structure structural vulnerability • Potential impacts on • Infrastructure (roads, tool GDP and the economy bridges, ports, airports, etc.) iURBAN tool for spatial distribution • Urban/rural consideration **Exposed Values** Vulnerability **Event Footprint GRADE** by Asset Type & Curves by Generation **Event Report Resistance Class Resistance Class**









Impact360: Post-Disaster Data Collection and Assessment Mobile Tool

Impact360 aims to enhance the gathering and analysis of post-disaster data and facilitate its application across various aspects of recovery and strategic planning

SIRED



Key Lessons Learned or Take Aways

- Invest in pre-disaster recovery planning so that assessment → funding → action happens fast.
- Rapid Damage Assessments: Standardize multisector assessments and use technology for fast, accurate damage mapping to prioritize actions.
- Financial Preparedness: Access to crisis financing instruments is crucial for timely and resilient disaster response.
- Build implementation capacity now: procurement-ready templates, building codes, drills.
- Invest in resilience now to reduce reconstruction costs.

Recovery is not a return to the past — it is an opportunity to shape a more resilient future.

Thank You & Contacts

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Risk Data Hub

European Commission Joint Research Centre



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Risk Data Hub - Overview



Centralise, harmonise and disseminate disaster risk and loss data



Europe-wide geospatial datasets



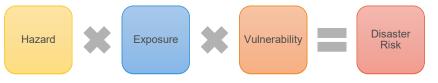
Open access to data



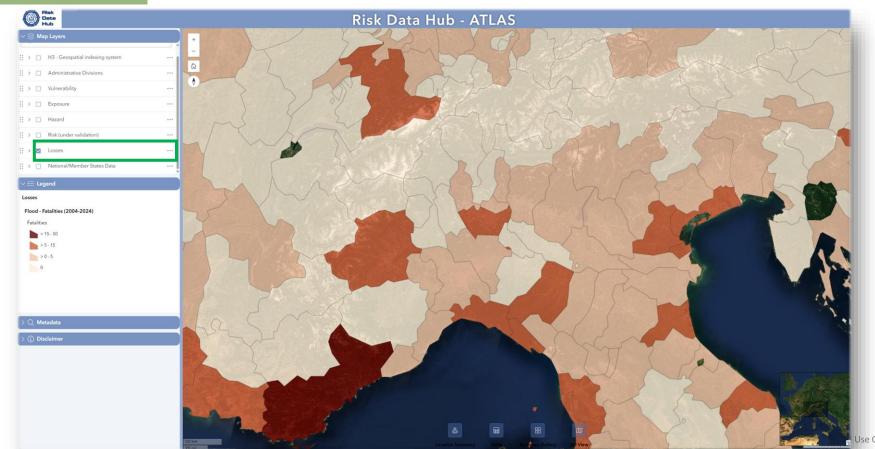
Common data standards to improve comparability across countries



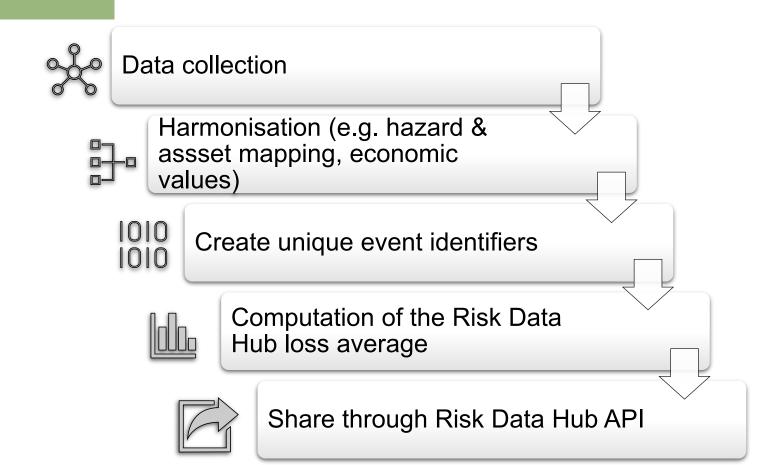
Disaster risk and disaster loss



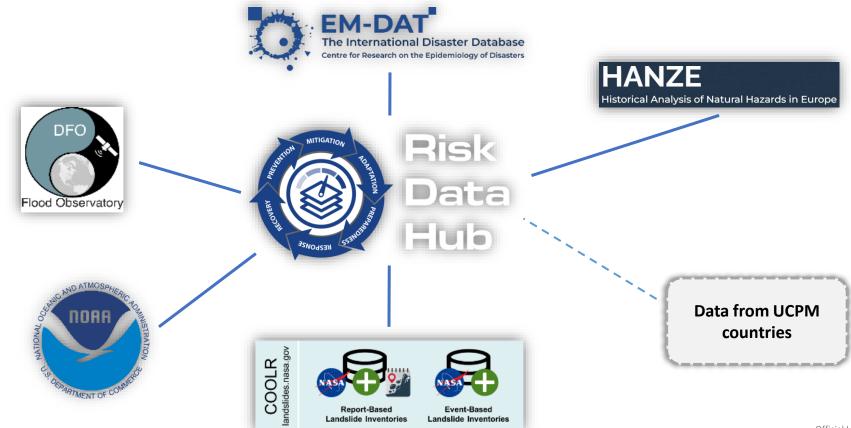




Disaster loss data harmonisation

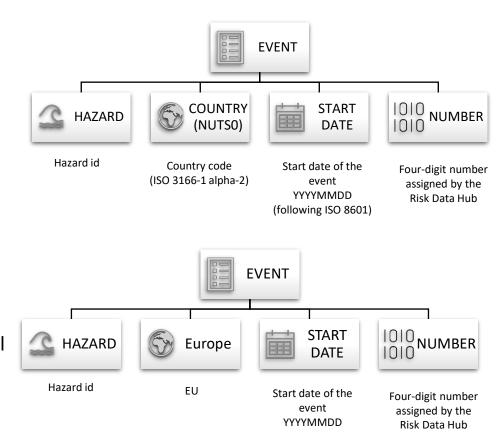


Loss data collection sources



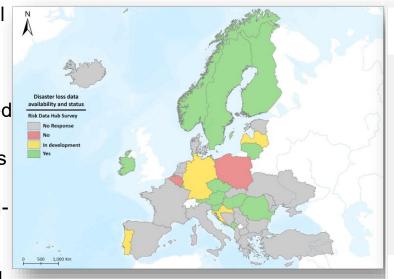
Disaster loss identifier

- RDH unique event identifier at country level
 - Contains information about losses
- Identifier at EU-wide level
 - Groups multiple RDH unique event identifiers (automated grouping, no manual oversight)
 - Loss information remained attached to the RDH unique id at country level



Report on disaster loss data management across UCPM

- Majority of countries collect data on both natural and technological hazards
- •Flash floods, river floods, wildfires most commonly recorded
- •Focus on direct economic losses (e.g. building damage)
- Limited data on indirect and noneconomic losses
- •Challenges: Institutional & Legal Barriers:
 - Resource constraints and fragmented responsibilities
 - Privacy concerns and lack

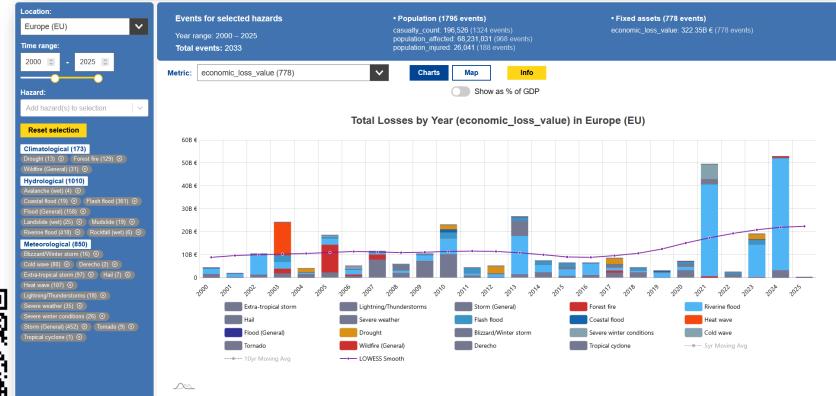






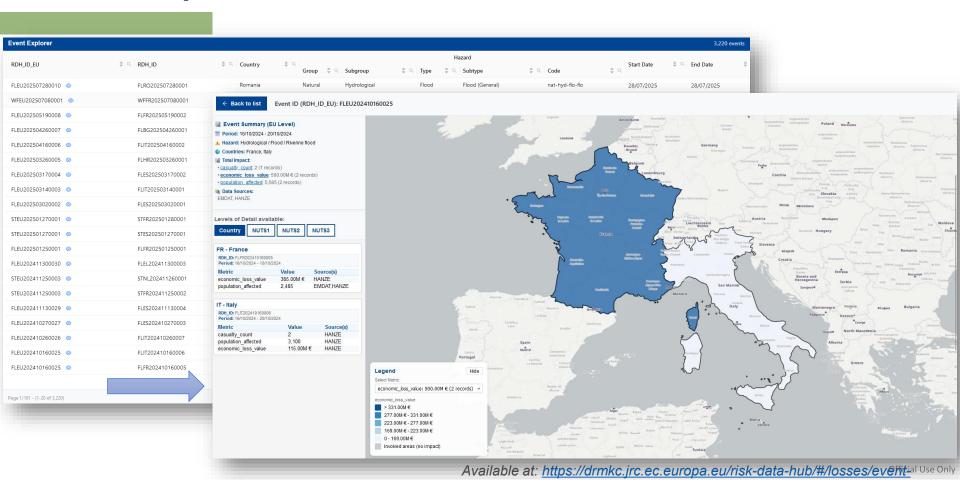


Disaster losses and damages Dashboard



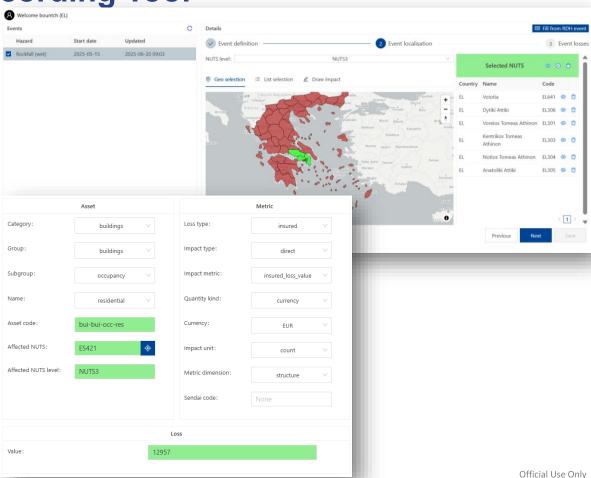


Events explorer



Disaster Loss Data Recording Tool

Allows authorized users to submit data Record loss data in standardised impacts with Sendai indicators



Disaster Losses & Vulnerability

 Vulnerability Index developed by the RDH:

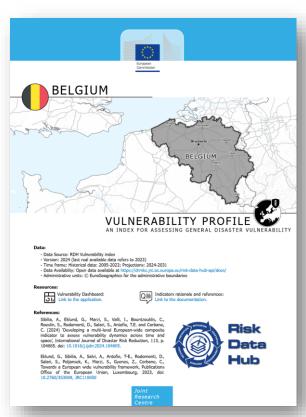




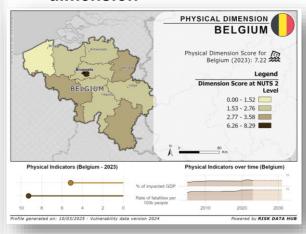


Environmental





 Past losses contribute to determine the physical dimension



Thank You & Contacts

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Risk Data Hub website:

https://drmkc.jrc.ec.europa.eu/risk-datahub#/

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Türkiye's Post-Disaster Recovery and Reconstruction System

Housing Sector

SELCEN ALTINSOY,

STRATEGY AND BUDGET EXPERT

STRATEGY AND BUDGET OFFICE OF TÜRKIYE

Overview of the February 6 Earthquakes

- Magnitude 7.7 and 7.6 earthquakes centered in Kahramanmaraş
- ▶ 14 million people affected, 53,737 casualties
- Over 200,000 buildings heavily damaged or collapsed
- ► Türkiye's largest disaster response operation

Disaster Management System in Türkiye

- ▶ Türkiye Disaster Response Plan (2014, Updated in 2022)
- ► Türkiye Disaster Risk Reduction Plan (2022-2030)
- Provincial Level Disaster Risk Reduction Plans (Completed for all provinces in 2021)
- ► Türkiye Post-Disaster Recovery Plan (2025)

Türkiye Post-Disaster Recovery Plan

- Systematic and strategic recovery approach
- Consists of 10 sectors and 39 main task areas, responsible institutions, objectives, strategies and actions
- Aligned with the Sendai Framework: 'Build Back Better'
- Includes The Implementation Plan

Important Steps After Kahramanmaraş Earthquakes

- Türkiye Earthquakes Recovery and Reconstruction Assessment (TERRA)
- Prepared by SBO with the colloboration of relevant national bodies and international partners
- Used World Bank methodology
- ► The economic cost has been estimated at \$103.6 billion, equivalent to approximately 9% of the 2023 GDP

12th National Development Plan and Followup Assessments of TERRA

- The results of the first earthquake report were reflected in the 12th Development Plan
- A long-term and comprehensive reconstruction process is underway in the region
- The plan aims to address the economic and social damage caused by the earthquake

«The aim is to enhance the region's resilience, and to rebuild earthquake-affected cities with a climate-friendly, disaster-resistant, and quality-of-life urban planning approach while preserving their historical, social, and cultural fabric.»

- ▶ Public expenditures have reached approximately \$ 75 billion.
- ► Kahramanmaraş and Hatay Earthquakes Reconstruction and Development Reports were published in 2024 and 2025.

Shelter as a Basic Right and Priority

- According to the TERRA report, approximately 56 percent of total losses occured in the housing sector.
- Shelter is constitutionally guaranteed in Türkiye
- ▶ Temporary shelter (tents/containers): 3.7 million people
- ► Goal: 435,000 permanent housing units and barns

Reconstruction Models Used

The Post-Disaster Housing Program includes four main modalities:

- Self-Reconstruction Support (Owner-Driven Housing Reconstruction), providing financial and technical support for rural households to rebuild on their land or allocated plots
- Contract-Based Reconstruction (Procurement Method) for collective housing projects when in-situ rebuilding is not feasible
- ► Mass Housing Development through TOKİ (Housing Development Administration) in partnership with AFAD for large-scale resilient settlements
- ▶ **Urban Transformation**, led by the Ministry of Environment, Urbanization, and Climate Change, focusing on sustainable and disaster-resilient redevelopment of high-risk urban areas

Permanent Housing Construction Process

- Damage assessment Rights recognition Site selection
- ▶ Land provision Microzonation Design & construction
- Carried out by AFAD with the operational support of relevant public institutions.
- ▶ As of 2025, over 296,000 units had been delivered.

Digital Tools and Technology

- Mobile Damage Assessment App
- ▶ GIS, satellite, and drone-based evaluations
- Disaster Management and Decision Support System (AYDES)

Rural Housing Projects

- ► Target: 8,500 rural houses
- Supported by World Bank and AFD
- Integrated layout Energy efficiency Participatory design
- Use of recycled materials and passive house principles

Innovative Approaches in Post-Disaster Housing

- ▶ 3D printing from debris
- Solar-ready housing infrastructure
- Passive design integration
- Resilient and sustainable urban models

Challenges

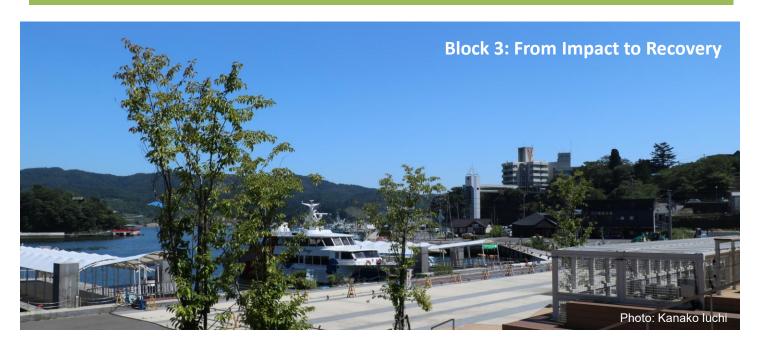
- ► Access delays in vast regions
- Coordination problems
- ► Local capacity deficiencies
- Resource limitations

Policy Results

- Disaster management systems should be tested and continuously updated in the field, not just on paper.
- Coordination is key to success; harmony should be ensured not only by institutional level but also supported by technological infrastructure.
- Settlement planning should be based on geological data, and risky areas should not be opened to construction.
- Trained human resources, digital decision-making systems, and accurate information flow are critical elements in disaster management for all countries.

Thank you for your attention.

Linking Recovery with Economic Revitalization and Social Resilience

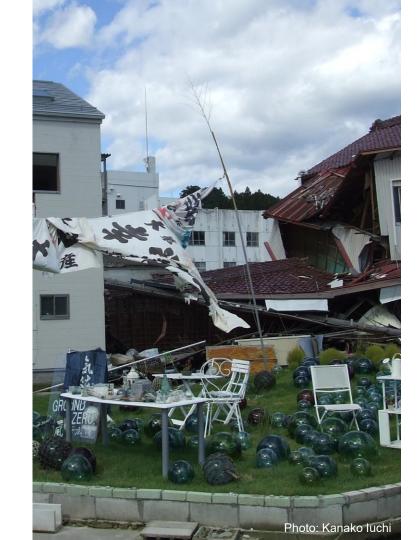




Kanako luchi PhD October 3, 2025

Recovery in Practice

- A complex, multi-faceted process
 - No one-size-fits-all solution
- Key areas of focus
 - Mitigate future hazards
 - Revitalize economy
 - Ensure resident wellbeing
- Challenges
 - Sense of urgency
 - Moving targets

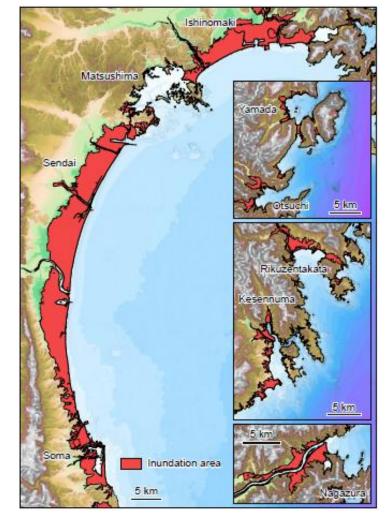


Keys to Achieving Resilience through Recovery



2011 Tohoku Disaster (3.11) and Unprecedented Recovery

- Costliest natural disaster in history
 - Devastation beyond imagination
- Unprecedented recovery
 - Government Paralyzed (70% of 352 LGUs)
 - Collapse of "safety" confidence
- Enduring recovery time
 - Recovery framework, plans, and tools took a year







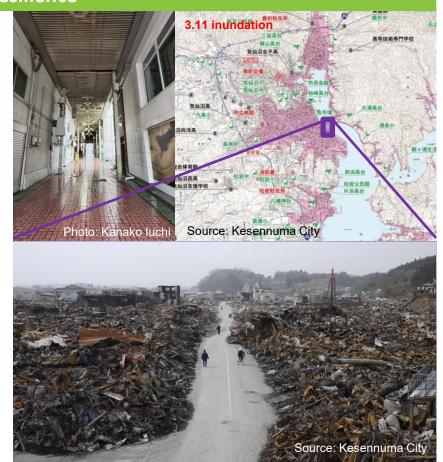
- 1,434 Dead and Missing (2%)
- 15,815 Buildings damaged
- Massive public funds needed to rebuild: 2.5 billion USD (1USD=125 Yen)



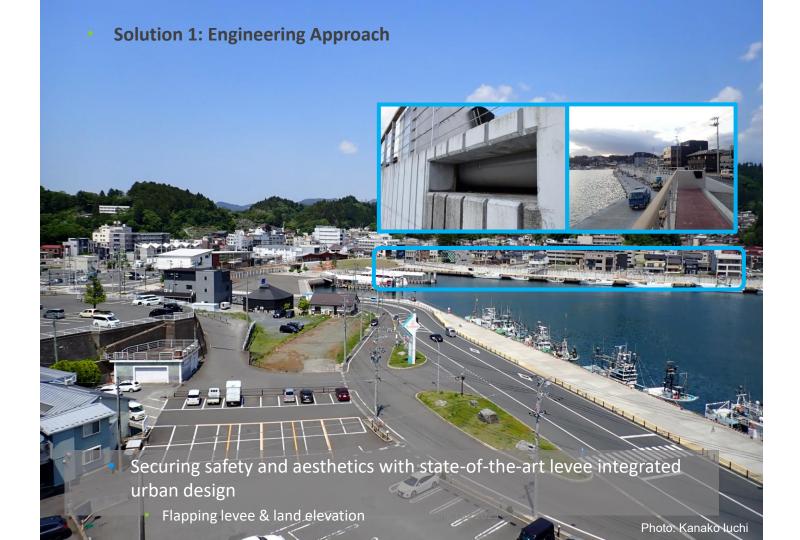
Unpacking Kesennuma's approach to Resilient City

1. Physical (engineering) resilience

- Challenge 1:
 Vulnerable development
 pre-3.11
 - Geographically prone to natural hazards
 - 3.11 tsunami inundated 40% of inhabitable land
 - Accelerating climate change impacts
 - Motorization & Suburbanization
 - Urban core shrinkage









2. Socio-economic resilience

- Challenge 2:
 Declining financial and social vitality
 - Decline in social vibrancy
 - 34% Population ↓ since 1980
 - 39% population 65 +
 - Youth outmigration
 - Weakening fisheries industry
 - 30%↓ fishermen post-3.11
 - Lack of successors



- Solution 2: Creating and leveraging socio-economic resources
 - Human-Centered Machizukuri
 - Citizens as business leaders
 - Programs supporting startups and in-migration
 - Fishing industry
 - → industrial tourism
 - Developing tourism programs to attract visitors
 - Successors working in renovated industry
- Gain: Diversity & empowered businesses



3. Organizational resilience

- Challenge 3: Operating with a business-as-usual model
 - Disjointed decision-making process among key organizations













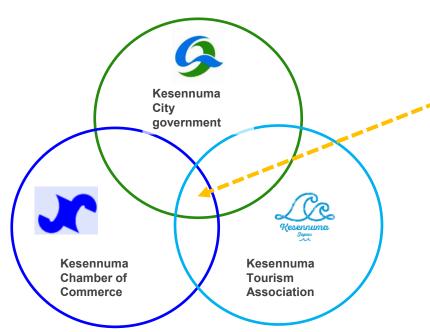






Photos: Kesennuma City

- Solution 3: Adopting a collaborative, inclusive business model
 - Organizations work together towards shared goal
 - New organizations and programs
- Gain: The city re-flourishing as businesses evolve and attract people





- Destination Marketing Organization: new ideas/ programs/activities
- 2. Educational programs: startups and old businesses
- 3. Inclusive approach: attracting old/new residents



Lessons to learn from Kesennuma City

- A living laboratory for Resilient City
 - Diverse ideas and conversations
 - → innovations
 - Openness to challenges
 - → attracted people & businesses
- Result : Increased residents' sense of wellbeing

	2013	2024
National average	6.7	5.89
Kesennuma City	5.6	6.44

Source: Kesennuma City

[©] Regional Resilience Planning Lab 2025



Triangulated approach to a resilient city through recovery

Kesennuma City's Resilient City approaches

Aspects in resilience	Challenge	Solutions/Actions
Physical (Engineering)	Vulnerable geography to natural hazards; urban core shrinkage	Densification and beautification of downtown area with state-of-the-art engineering solutions
Socio-economic	City-wide declining of financial and social vitality	Created and leveraged socio- economic & human resources
Organizational	Maintaining a business-as-usual model before 3.11	Adopted a collaborative, inclusive business model

Key aspects for building a resilient city

- Transform the recovery space into a living laboratory
- Work with three resilience dimensions
 - Good balance of three resilience aspects aid regenerating devastated city and reach its best potential

Questions?



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