

# Resilience of critical infrastructure

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## DETEC Mobility Conference 2023

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**UNDRR**

UN Office for Disaster Risk Reduction



**SENDAI FRAMEWORK**

FOR DISASTER RISK REDUCTION 2015-2030



Reported disasters



Total deaths



Total affected



US\$ Economic losses

1980-1999

4,212

1.19  
million

3.25  
billion

1.63  
trillion

2000-2019

7,348

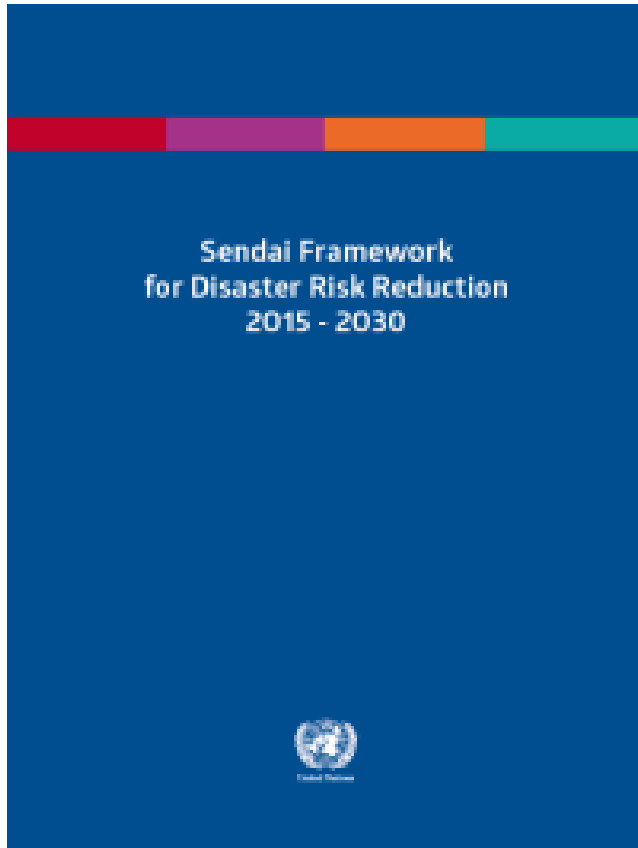
1.23  
million

4.03  
billion

2.97  
trillion

**Recorded  
disasters and  
economic losses  
almost doubled in  
last 20 years**

# The Sendai Framework for Disaster Risk Reduction 2015-2030



15-year, voluntary, non-binding agreement with 4 Priorities for Action and 7 Global Targets.



# Infrastructure Resilience in Global Agreements

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## Sendai Framework Target D

Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030.



SDG 9 Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

# Urgent action required for infrastructure resilience

**142,852**

per year  
between 2015-  
2021

**Critical infrastructure  
units and facilities  
destroyed or damaged  
by disasters**

**Disasters disrupting  
basic services, including  
health and education.**

**363,184**

in 2020 & 2021

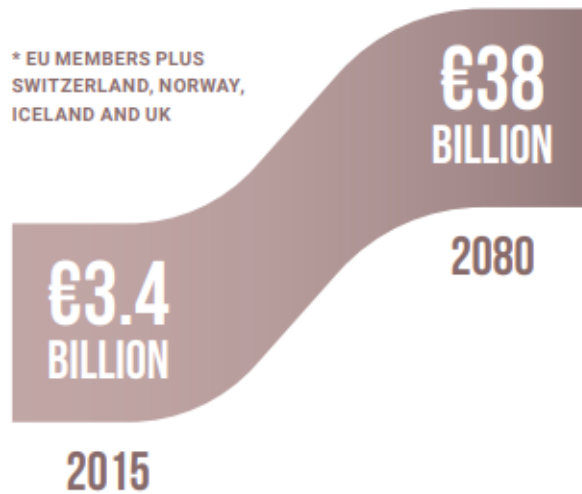
**The Report of the Midterm Review  
of the Implementation of the  
Sendai Framework for Disaster  
Risk Reduction 2015–2030**



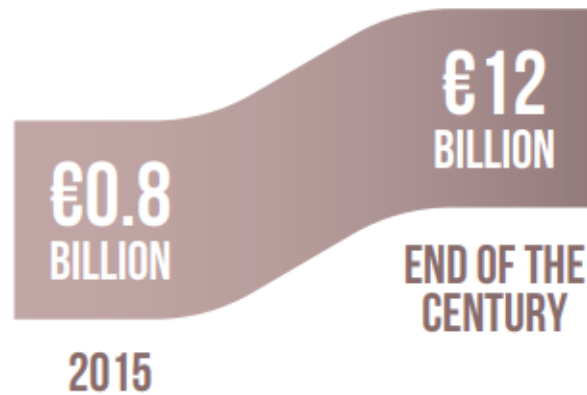
# ESTIMATED MULTI-HAZARD ECONOMIC DAMAGES



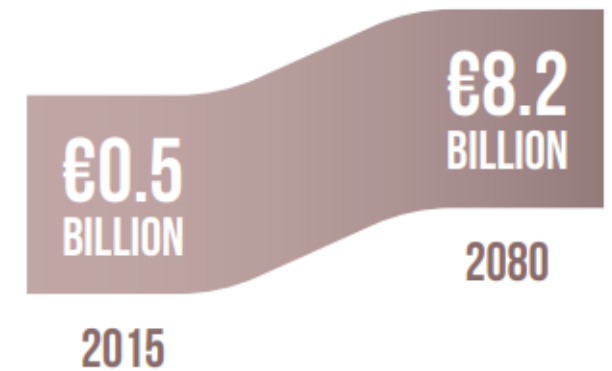
## OVERALL



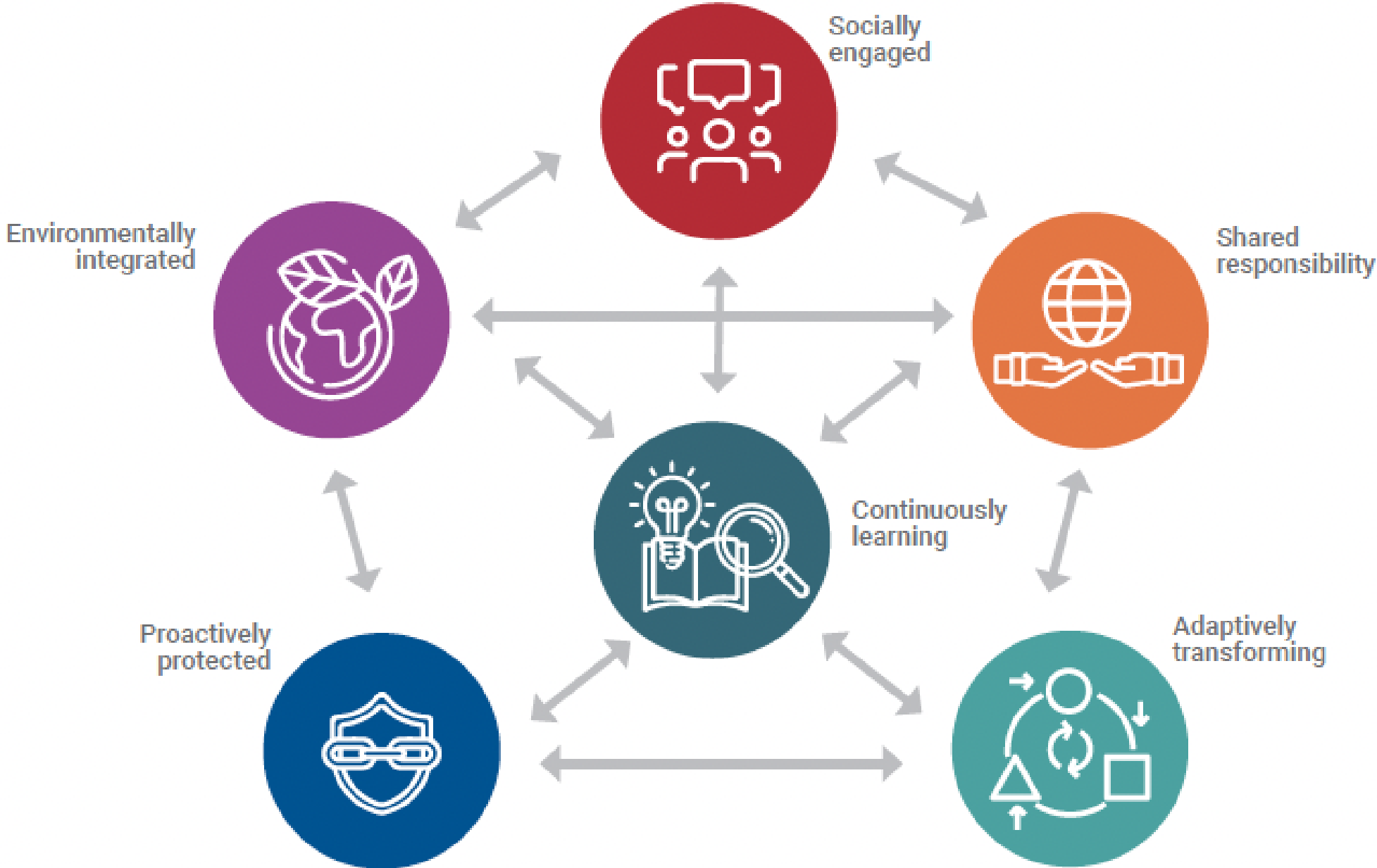
## TRANSPORT SECTOR



## ENERGY SECTOR



# The Six Principles for Infrastructure Resilience





# Examples of how the principles can be used for enhancing resilience in the transport sector

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**(P1) Continuously Learning** – conducting stress testing to expose weaknesses in transport systems

**(P2) Proactively protected** – raising essential safety requirements of transport assets

**(P3) Environmentally Integrated** – using nature based solutions such as mangrove restoration to protect coastal roads by stabilizing slopes

**(P4) Socially Engaged** – engaging local communities in rural road development and maintenance

**(P5) Shared responsibility** – information on the cost of port elevation versus potential flooding costs can trigger resilience building investment

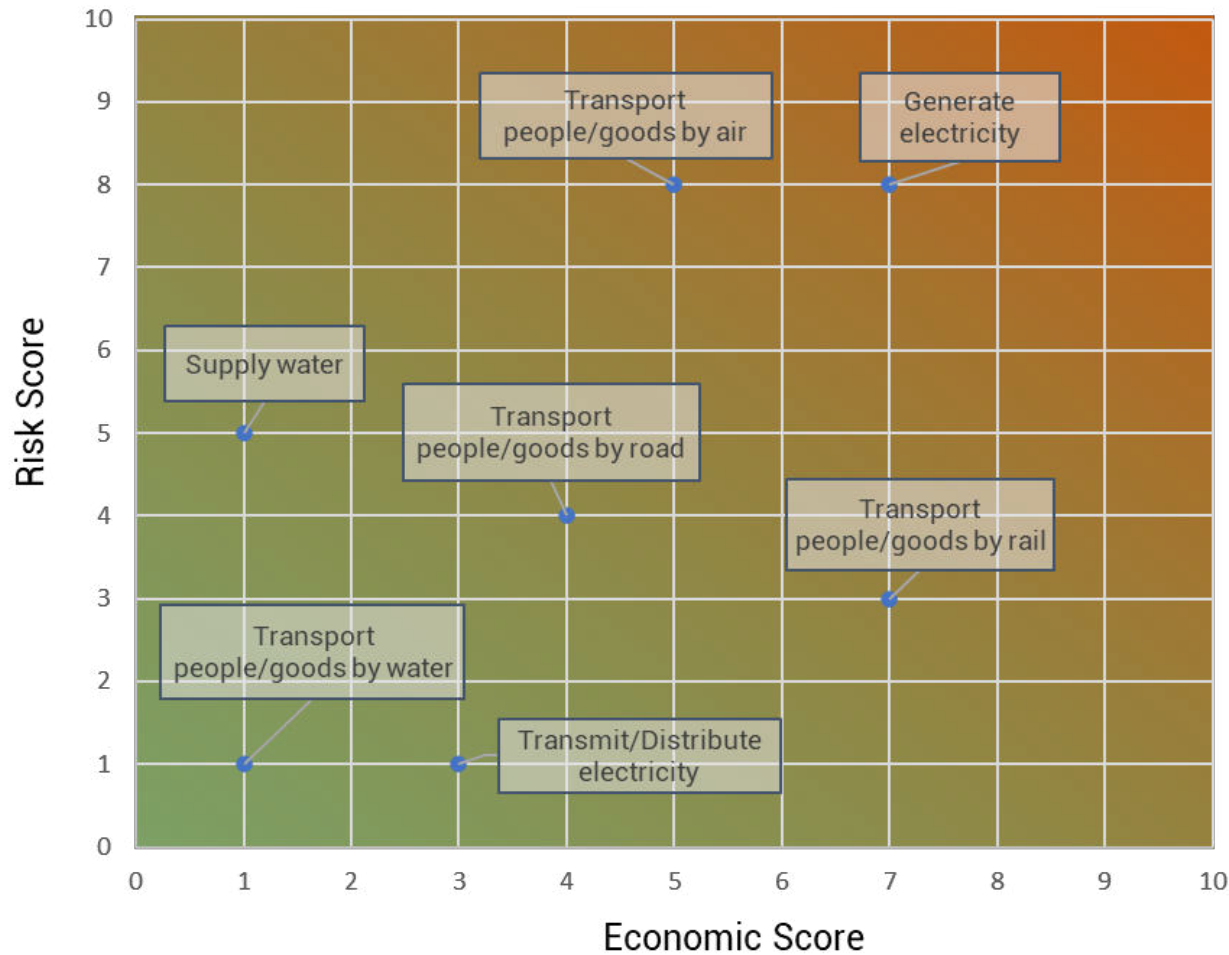
**(P6) Adaptively transforming** – include manual overrides to allow for human discretion during an aborted plan landing





# Stress testing infrastructure resilience

## Identifying vulnerabilities and cascading impacts



Provides data and reveals vulnerabilities for enhancement and continuity of services

# Enhancing resilience of the transport sector in Costa Rica



Source: Comisión Nacional de Emergencias, Facebook

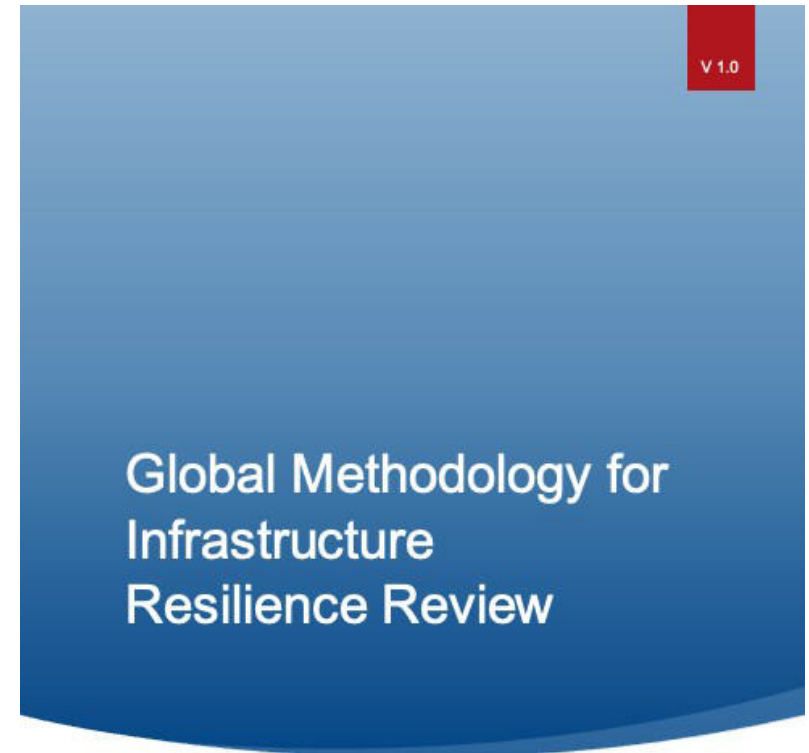
# Global Methodology for Resilient Infrastructure Review

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- Increased awareness and understanding of infrastructure vulnerability and resilience among key stakeholders
- Strengthened national capacity for risk-informed infrastructure planning and delivery
- Enhanced collaboration between the stakeholders and exchange of knowledge



***Tailor to the country context***



# Thank you