

City resilience: An investigation and discussion framework from experiences from Istanbul

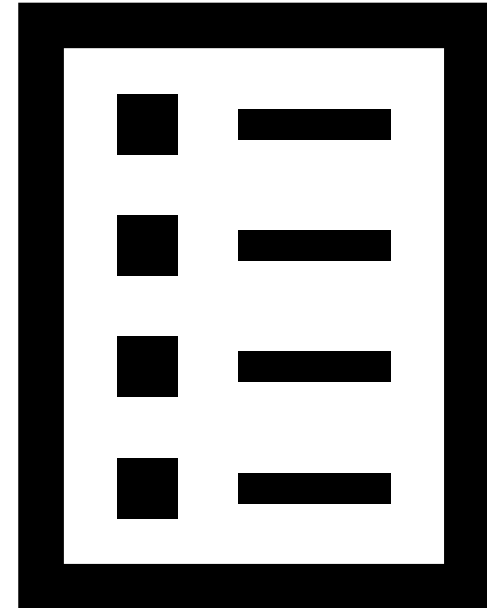
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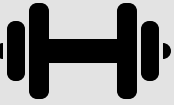


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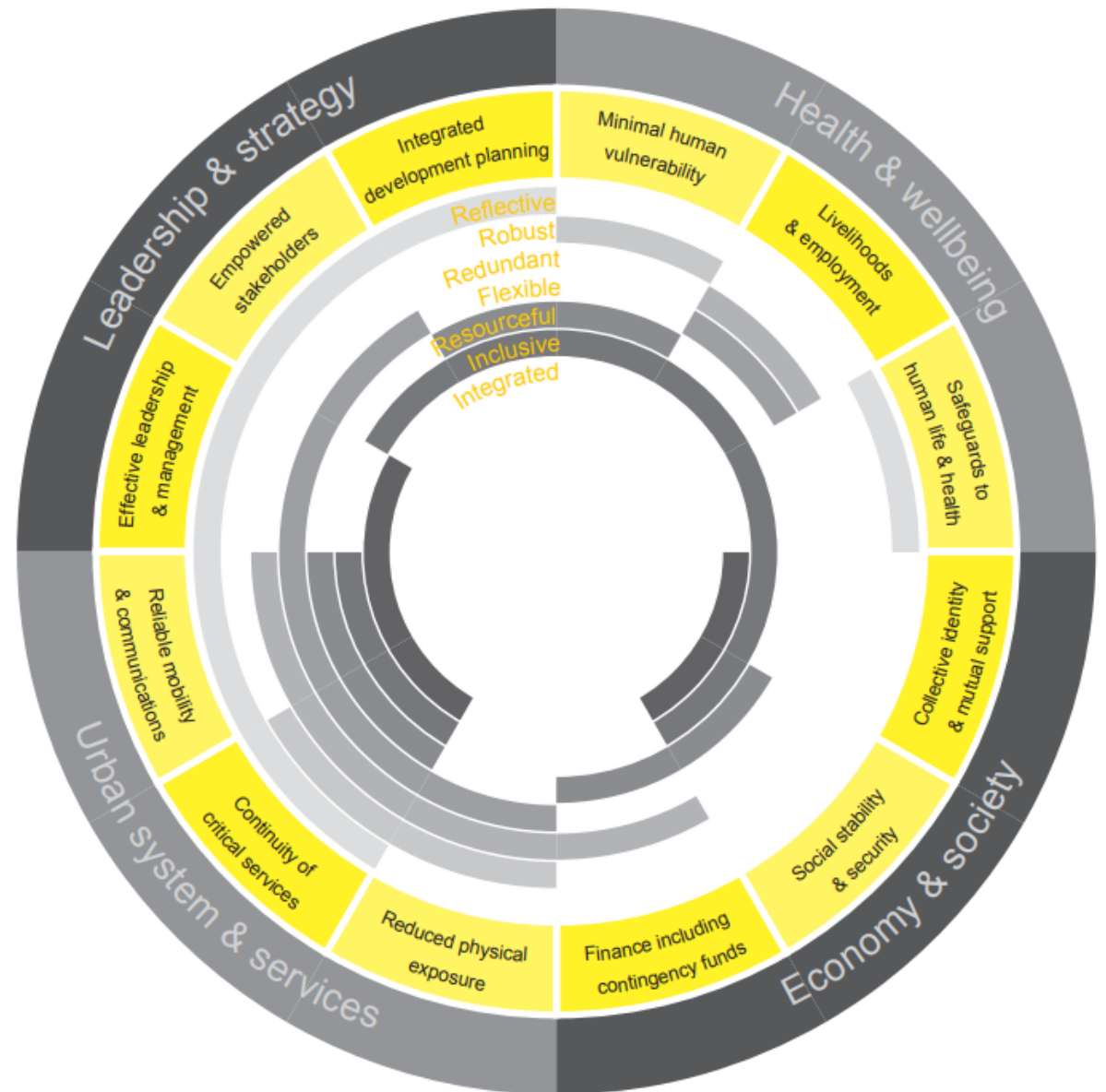
What is city resilience?



- “The capacity of cities **to function**, so that the people living and working in cities – particularly the poor and vulnerable – **survive and thrive no matter** what stresses or shocks they encounter.” (The Rockefeller Foundation and ARUP, 2014)
- “The ability of a city or region **to resist, absorb, adapt to and recover from acute shocks and chronic stresses** to keep critical services functioning, and to monitor and learn from on-going processes through city and cross-regional collaboration, to **increase adaptive abilities and strengthen preparedness** by anticipating and appropriately **responding to future challenges.**” (Smart Mature Resilience, 2016, pp. 8).

City Resilience Framework

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The
Rockefeller
Foundation &
Arup
Framework



The Attributes of Resilient Cities

Classification of the attributes of resilient cities into the four resilience dimensions.

Frameworks (year)	Resilient cities attributes and characteristics
Sendai Framework for Disaster Risk Reduction 2015-2030 (UNISDR, 2015a)	<ul style="list-style-type: none"> Understanding disaster risk Strengthening disaster risk governance to manage disaster risk Enhancing disaster preparedness for effective response in recovery, rehabilitation and reconstruction. Investing in disaster risk reduction for resilience
10 Essentials (UNISDR, 2015b)	<ul style="list-style-type: none"> Increase infrastructure resilience Organize for disaster resilience Identify, understand and use current and future risk scenarios. Ensure effective disaster response Pursue resilient urban development and design Expedite recovery and build back better Understand and strengthen societal capacity for resilience Safeguard natural buffers to enhance ecosystems' protective functions Strengthen financial capacity for resilience Strengthen institutional capacity for resilience
City Resilience Framework (100 Resilient Cities, 2016)	<ul style="list-style-type: none"> Ensures continuity of critical services Provides and enhances natural and manmade assets Fosters long term and integrated planning Meet basic needs Ensure public health services Ensure social stability, security and justice. Supports livelihoods and employment Promotes cohesive and engaged communities Empower a broad range of stakeholders Fosters economic prosperity Provides reliable communication and mobility Promotes leadership and effective management
Resilience to Emergencies and Disaster Index (Kontokosta and Malik, 2018)	<ul style="list-style-type: none"> Social infrastructure and community connectivity Physical infrastructure Economic strength Environmental conditions

City Resilience Dimensions

Resilience dimensions and sub-dimensions.

Resilience dimensions	Resilience sub-dimensions
Leadership and Governance	Municipality, cross-sectorial and multi-governance collaboration Legislation Learning culture (learning and dissemination) Resilience plan development
Preparedness	Diagnosis and assessment Education and training
Infrastructure and Resources	Reliability of infrastructures Resources to build up resilience
Cooperation	Development of partnerships with city stakeholders Involvement of resilience networks in cities

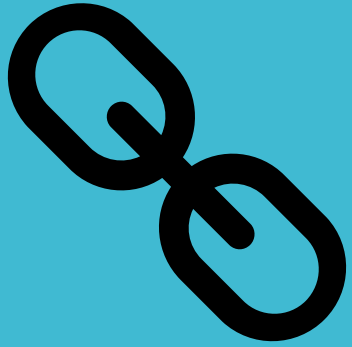
City Resilience Dimensions



Istanbul – A big city, with vulnerabilities

- First settlement – 5500 to 3500 BC.
- Population 15.5 million – more crowded than 131 countries (e.g. Belgium, Greece, Austria)
- Centre of urbanisation in Turkey, rapid population increase after 1960s (1.5 million population in 1960)
- Half million registered refugees
- Economy – larger than 130 countries





Stakeholders

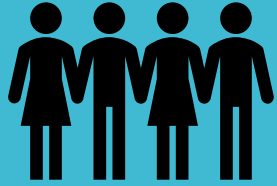
- Public (Locals, immigrants, refugees)
- Local Government & Municipalities
- National Government
- NGOs
- Businesses
- Investors





Cases – 2009 Flood





Cases – 2013

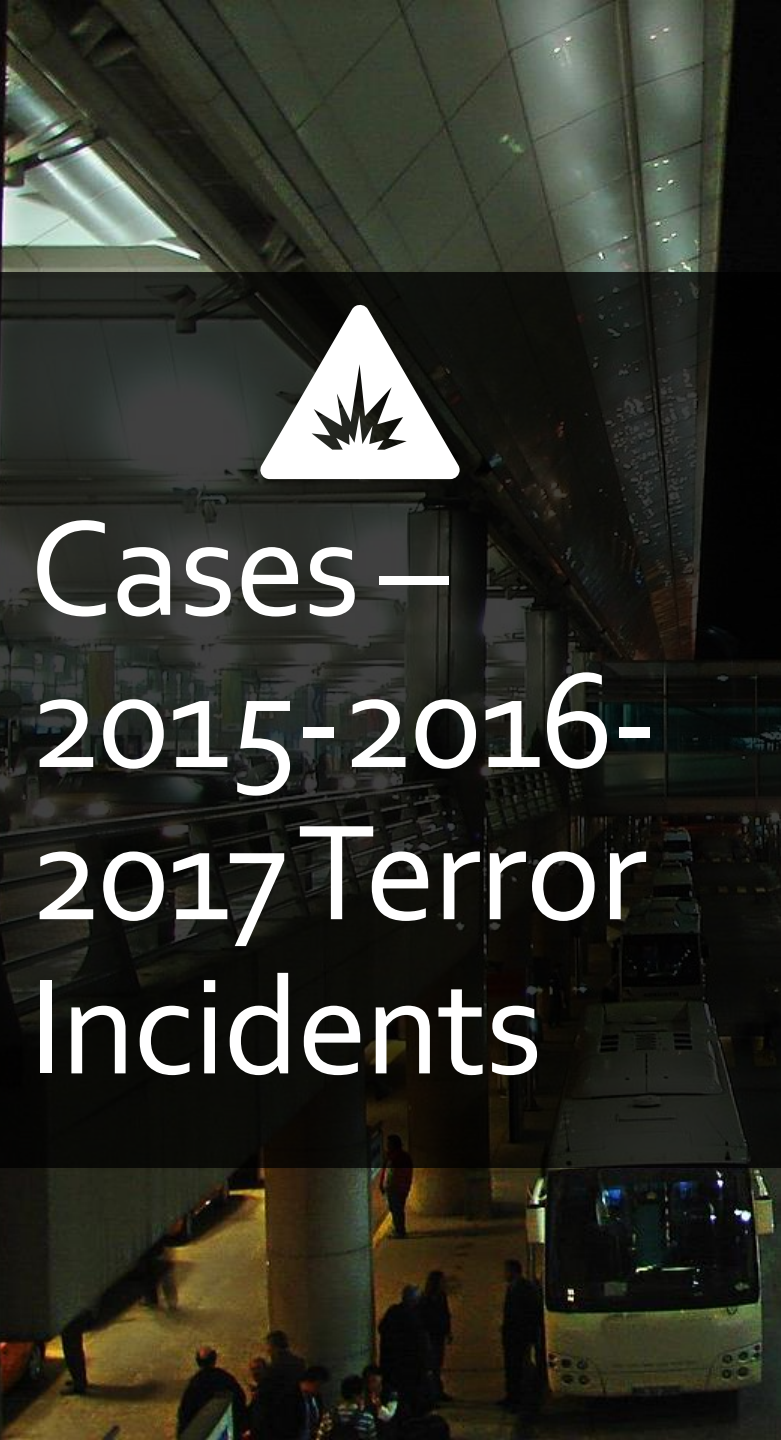
Gezi Park

Protests





Cases – 2015-2016- 2017 Terror Incidents





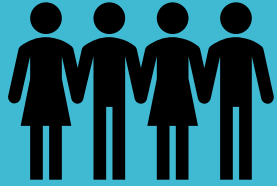
Cases – 2016 Failed Coup Attempt





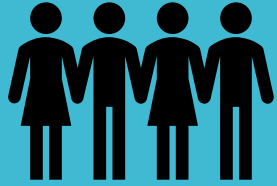
Cases – 2017 Storm





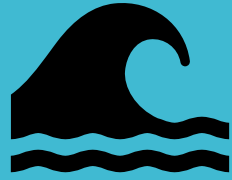
Cases – Immigration & Refugees





Cases – 2021 Student Protests





Cases – 2021 Marine mucilage



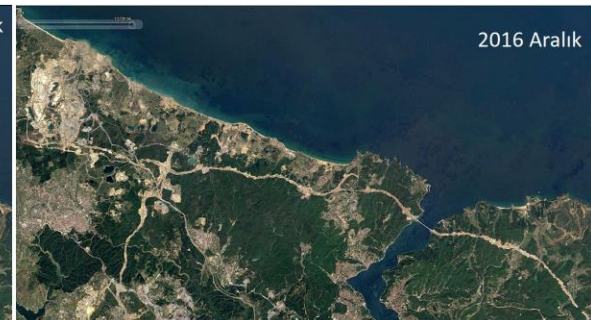
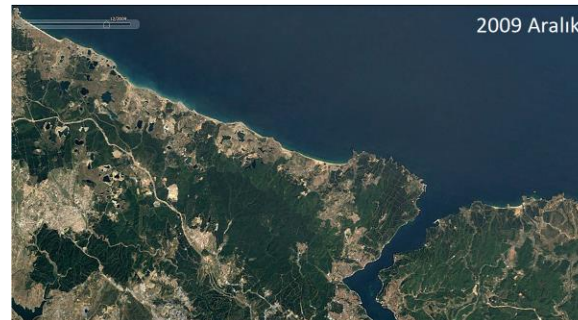


How it was solved?

- Turkey's environment minister, Murat Kurum, said he planned to make the entire **Sea of Marmara a protected area, reduce pollution and improve treatment of waste water from coastal cities and ships** which has helped the sea snail to spread.
- He also called on **local residents, artists and NGOs** to join what he said would be Turkey's biggest maritime clean-up operation, starting on Tuesday.
- "Hopefully, together we will protect our Marmara within the **framework of a disaster management plan**," Kurum said, speaking from a marine research vessel which has been taking samples of the slimy substance.

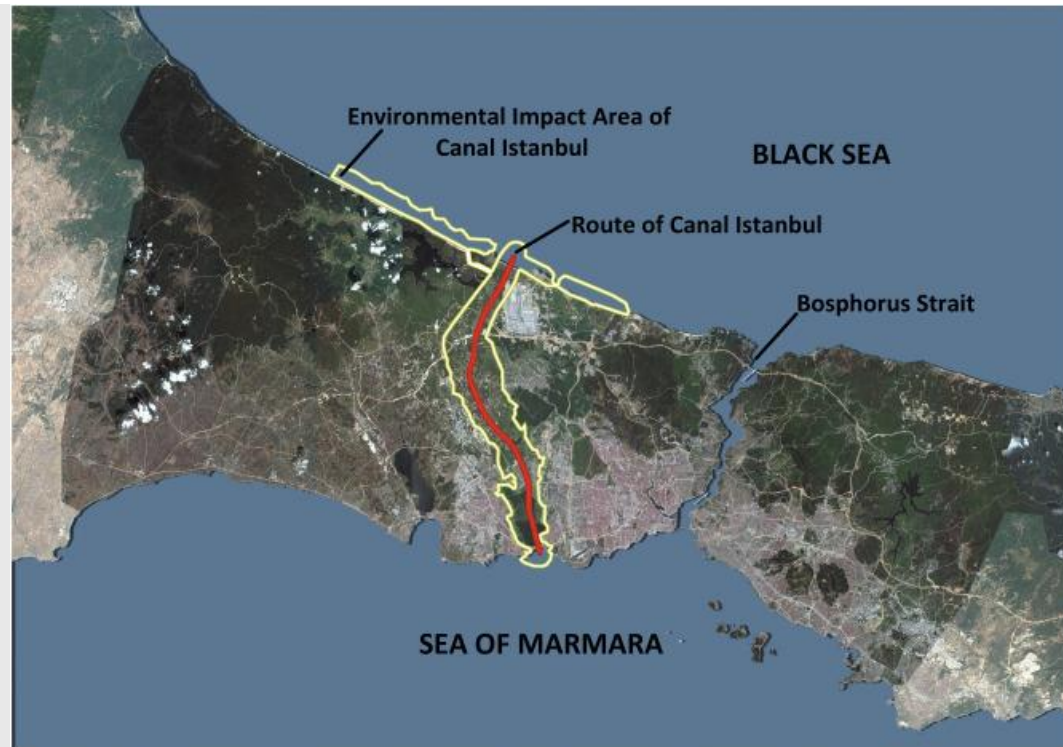
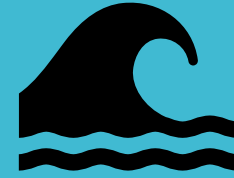


Cases – Deforestation & Big Projects

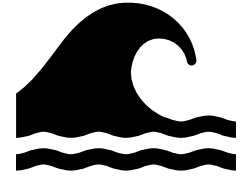
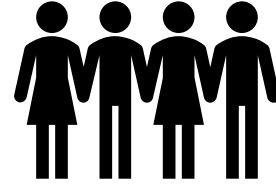




Cases – Deforestation & Big Projects



How to improve the resilience?



- Environment friendly settlement & consumption
- Action plans
- Contingency plans
- Technology integration
- Collaboration of stakeholders
- Policies

Cooperation

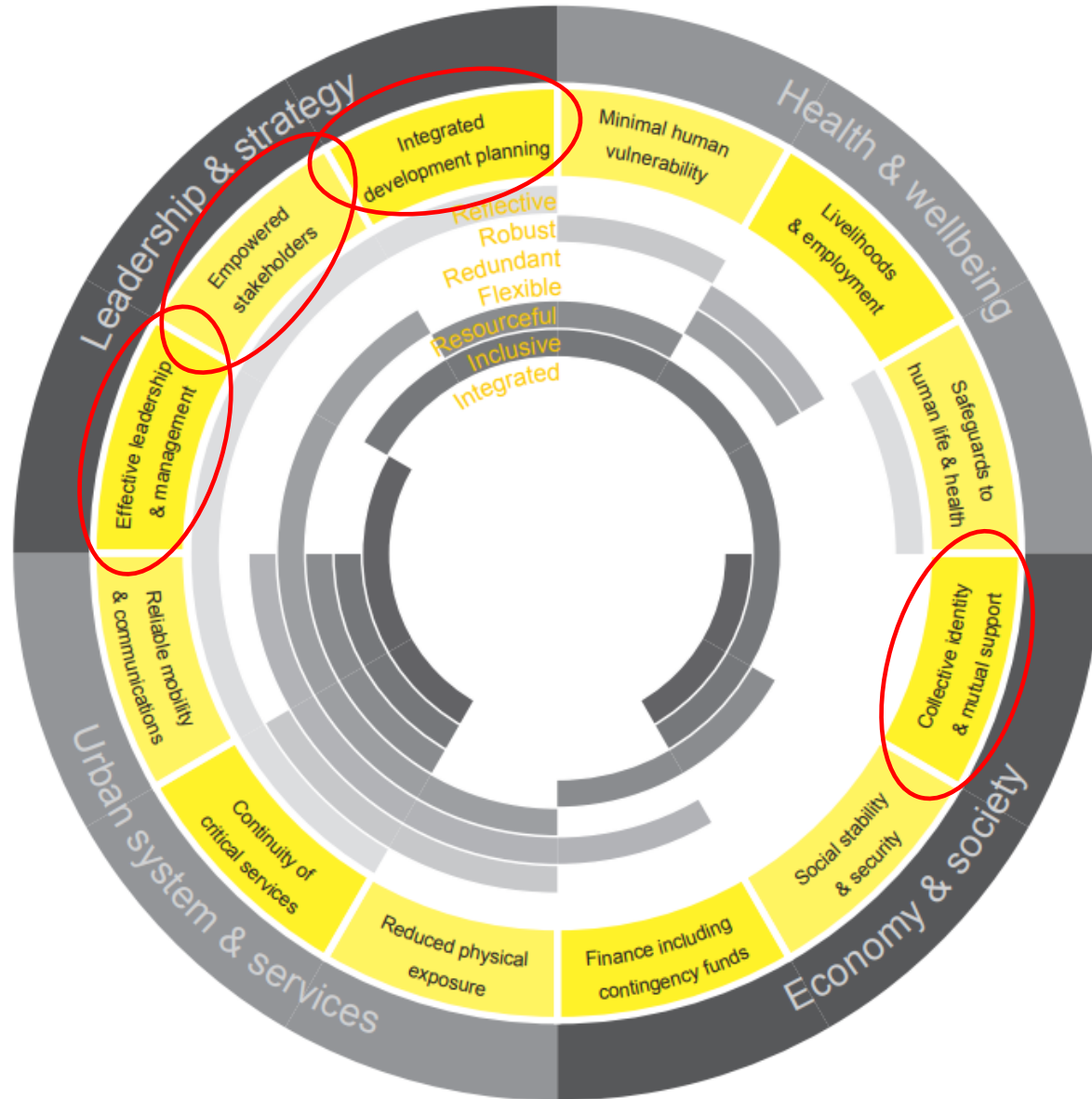
- Policy makers:
 - Local Municipalities
 - National Government
- NGOs
- Businesses
 - Private
 - Public
- Public
 - Local
 - Immigrant
 - Refugees



City Resilience Framework

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The Rockefeller Foundation & Arup Framework



Thank you!



References

- Baltaci, H., Akkoyunlu, B.O. and Tayanc, M., 2019. An extreme hailstorm on 27 July 2017 in Istanbul, Turkey: Synoptic scale circulation and thermodynamic evaluation. In *Meteorology and Climatology of the Mediterranean and Black Seas* (pp. 7-20). Birkhäuser, Cham.
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