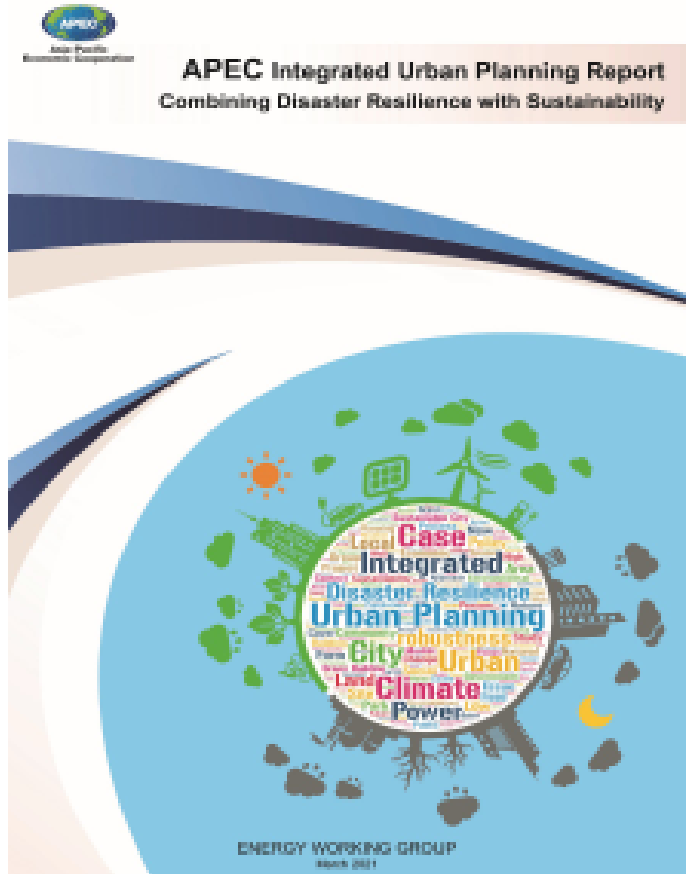


# APEC Integrated Urban Planning Report – Combining Disaster Resilience with Sustainability



## Output of self-funded project EWG 11 2018 S

First draft presented at the Asia-Pacific Energy Sustainable Development Forum, September 2019

Final draft presented at the Asia-Pacific Energy Sustainable Development Forum, September 2020

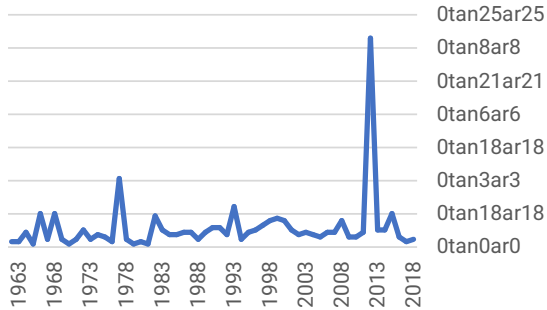
Endorsed by APEC-EWG on 2 Feb 2021. Electronic version available on: <https://www.apec.org/Publications/2021/03/APEC-Integrated-Urban-Planning-Report>

# Contents of the Report

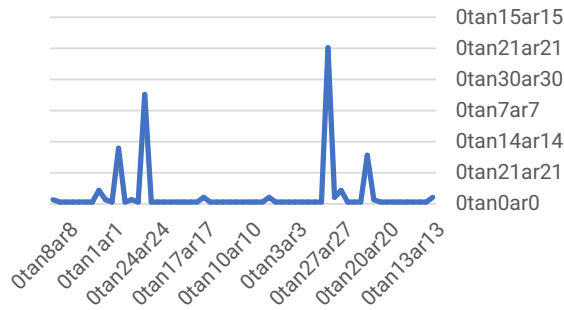
- 1) Understanding the causes of disaster mortality and GDP loss due to disaster risk in APEC cities
- 2) Integrating sustainable development to urban planning: theory and best practice cases in the APEC region
- 3) Disaster resilience of APEC cities: synergies with measures to enhance sustainable energy
- 4) Results-oriented monitoring of local SDGs: Energy, information technology and innovation can accelerate the path towards sustainability of APEC cities.

# Trends in deaths due to disasters 1960 – 2018 APEC

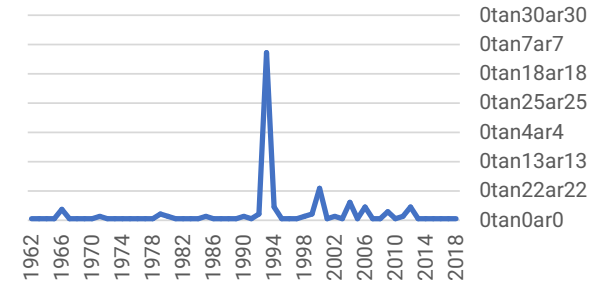
Deaths from hydrometeorological disasters, APEC, 1960 - 2018



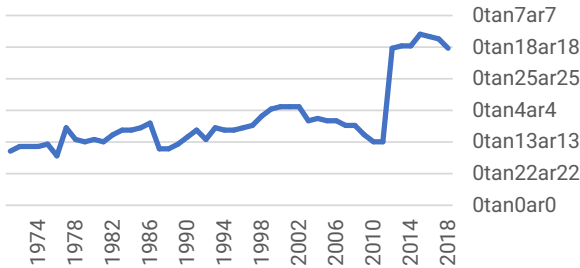
Deaths from geological disasters, APEC, 1960 - 2018



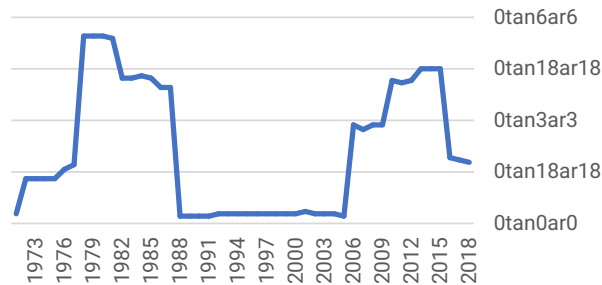
Before COVID-19  
Deaths from epidemiological disasters, APEC, 1960 - 2018



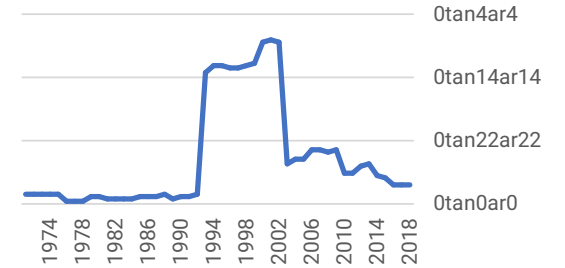
Deaths from hydrometeorological disasters, 10year moving averages, APEC, 1969-2018



Deaths from geological disasters, 10year moving averages, APEC 1969 - 2018



Deaths from epidemiological disasters, 10year moving averages, APEC, 1969 - 2018

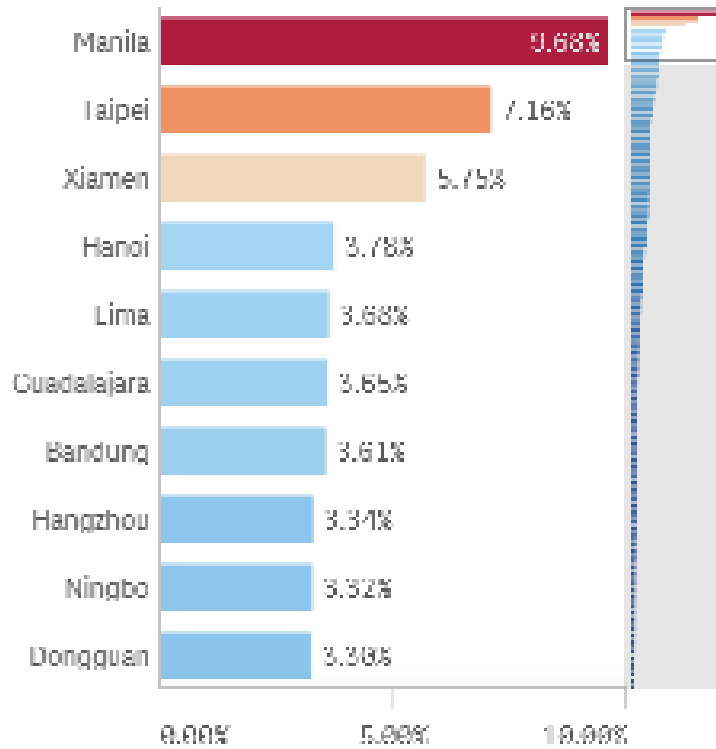


Statistically measurable increase

Statistically not measurable decrease

Statistically not measurable increase

## APEC Cities: highest Risk to GDP (except for war-torn cities)



Manila is worldwide the most threatened city that is not war-torn, with 9.68% GDP at risk. Manila is also the most disaster-threatened APEC city

World's most exposed cities (in %GDP) for all 22 threats cumulated are all war-torn:

torn:

Kabul 17%,

Tripoli 16%,

Saana 15%,

Baghdad 15%,

Khartoum 13%,

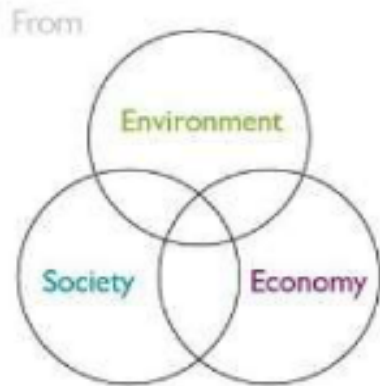
Kinshasa 11%,

Beirut 10%

Bearable risk level (all threats) < 1-2% GDP, e.g. Hong Kong: 0.93% GDP

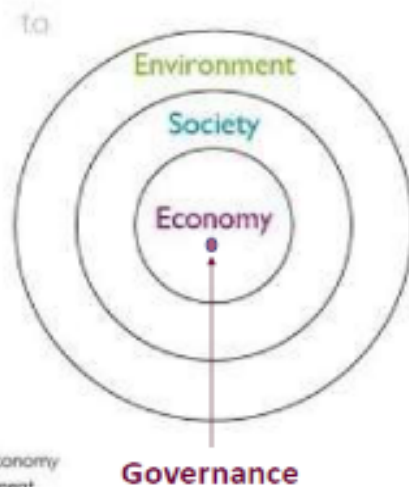
# Sustainable Development (SD) Concepts 1992 to 2019

UNCED, Rio 1992

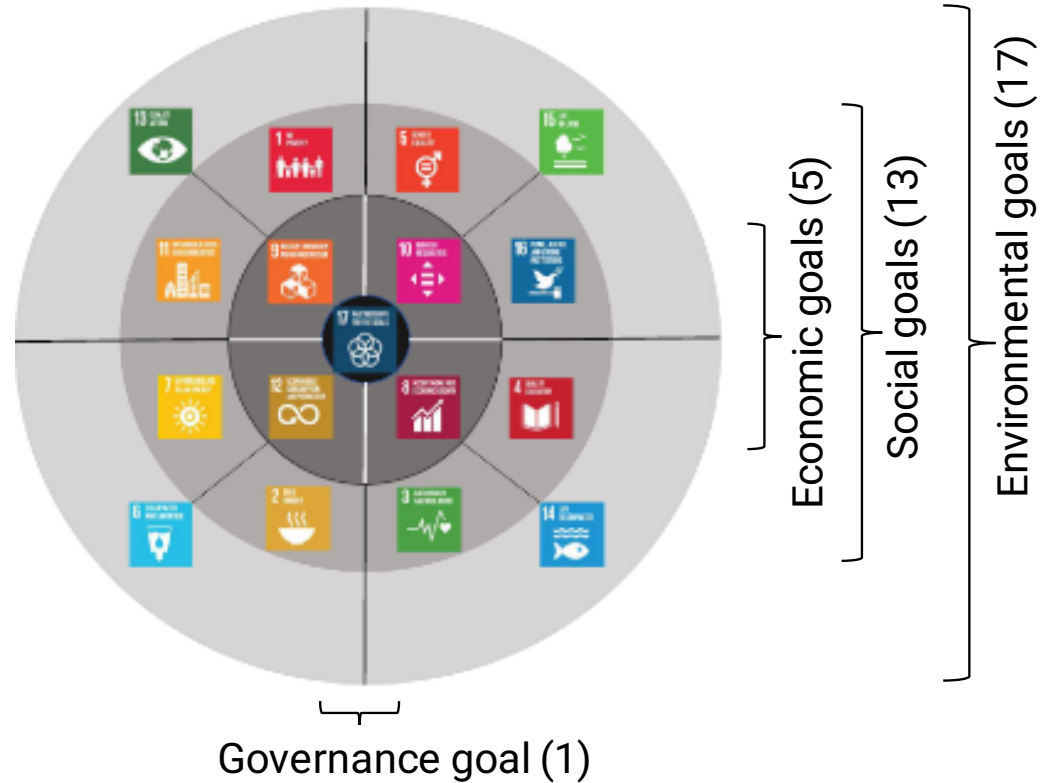


Source: B. Giddings, B. Hopwood, G. O'Brien, Environment, Economy and Society: fitting them together in Sustainable development, Wiley Interscience, 2002

Giddings, Hopwood, O'Brien, 2002



APSEC 2020



Governance goal (1)

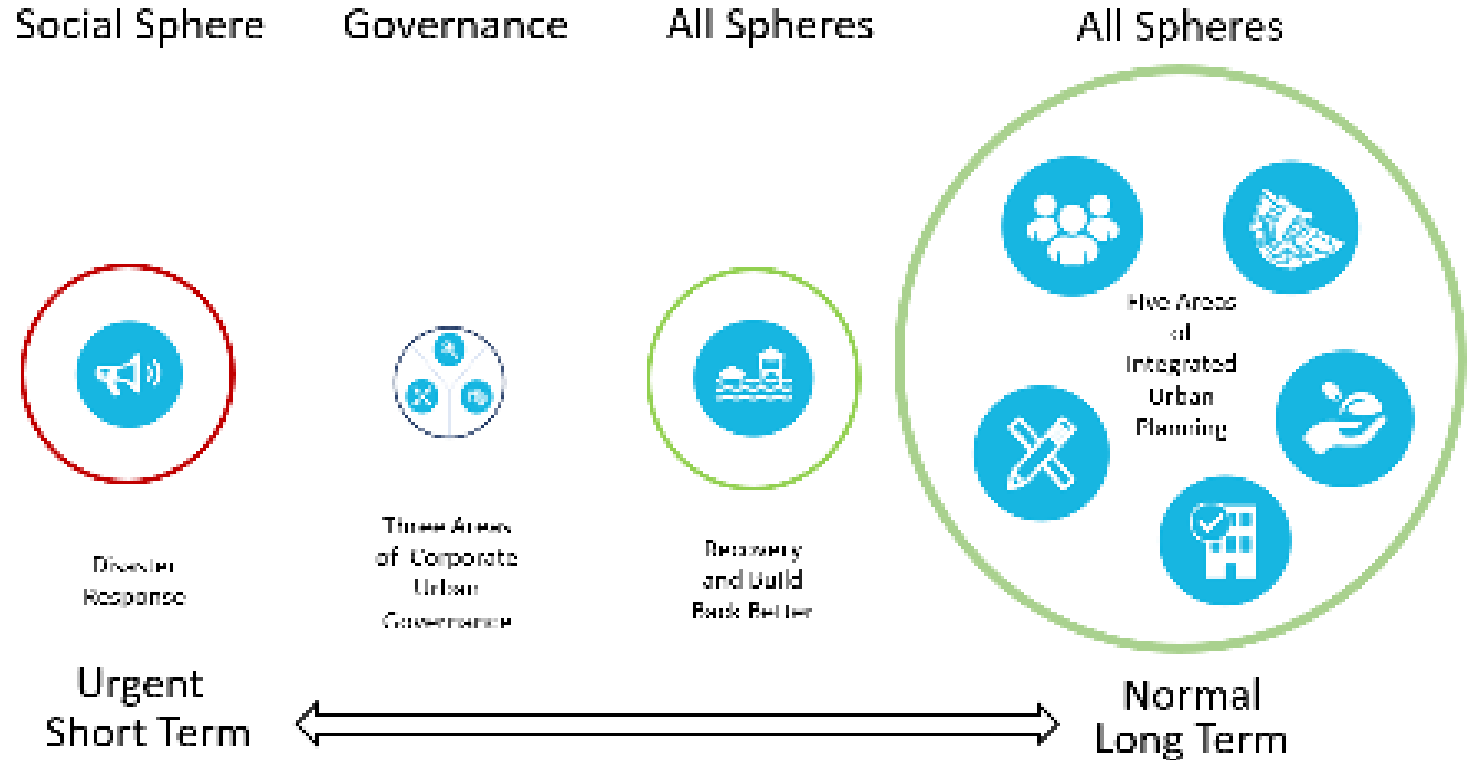
# Disaster Resilience (DR): From DR Scorecard for Cites

## Three major areas:

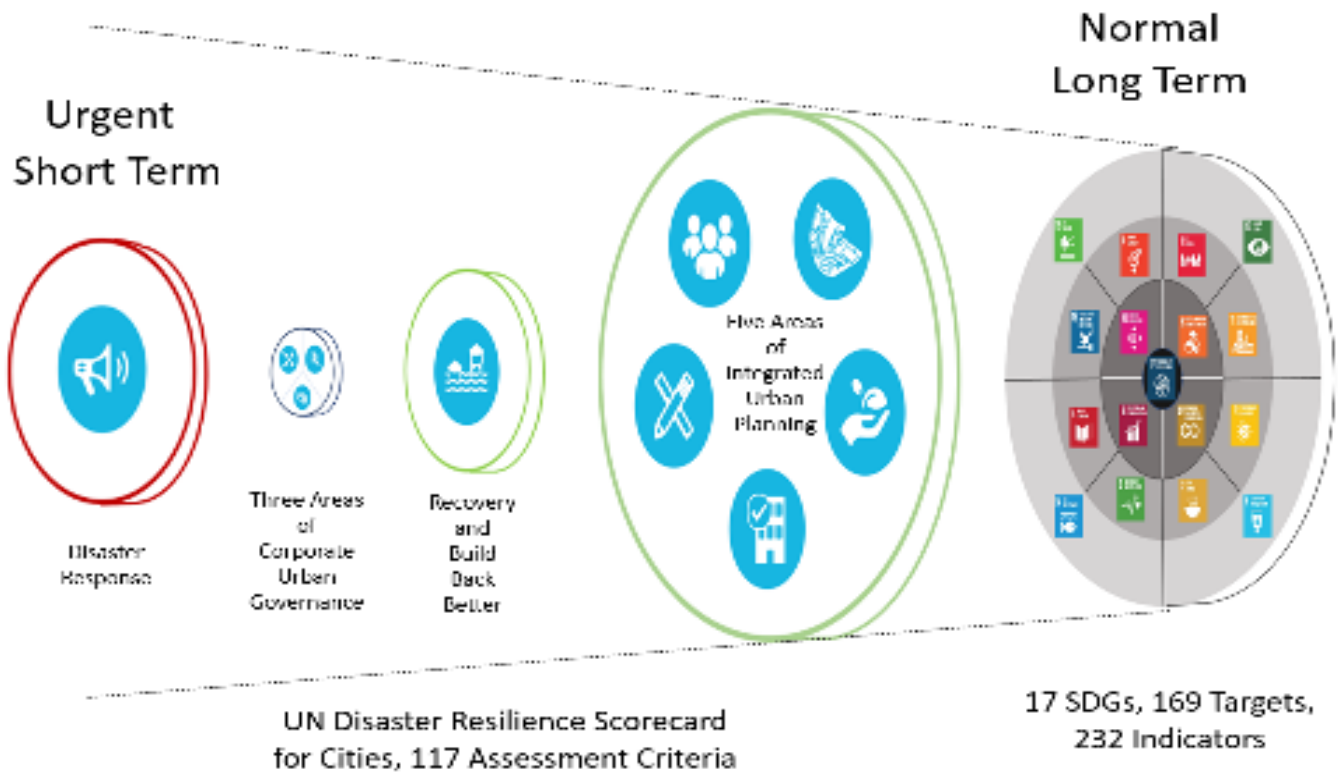
Response planning

City governance

Integrated planning



# Integrating DR with SD



Systems-theoretical elements:

SDGs = objectives or targets

Each target needs at least one instrument to attain it

Disaster Resilience = instruments to attain the targets

# Synergies between Disaster Resilience and Sustainable Energy

## Fight against Extreme Temperatures

- Generalize passive housing and solar-powered HVAC
- Generalize use of renewables for space cooling
- Promote solar-powered district cooling
- Define cooling as energy product
- Generalize heat-reflective paint
- Promote integrated PV-crop cultures
- Promote PV-cooled greenhouses

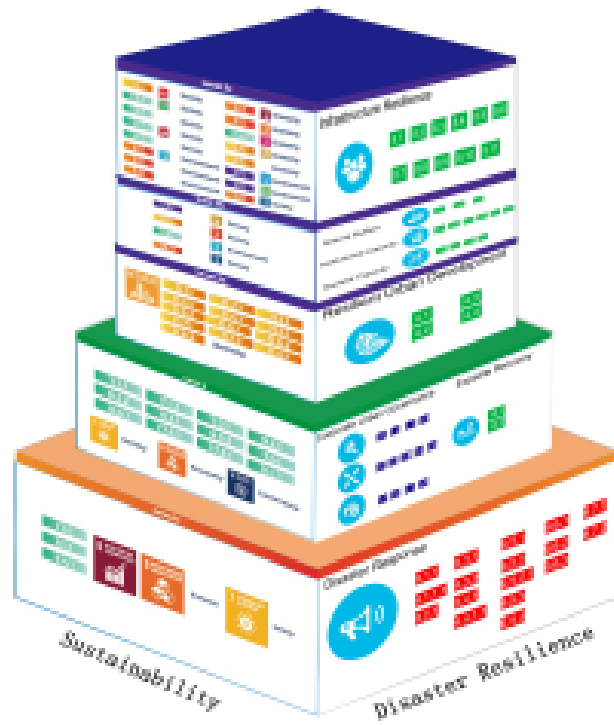
## Fight against all other disaster types

- Combine economic stimulus packages with measures attaining key SDG targets
- Equip HVAC with UV-C disinfection
- Existing buildings: combine seismic and energetic exterior insulation
- Generalize wastewater-to-energy treatments
- Storage basins combined with floating PV
- Avoid building thermal power stations except along coasts
- Improve building standards for cyclones and tropical windstorms
- Regulate risk of artificial earthquakes (e.g. fracking)
- Highest standards for water dam cascades



# Three Steps towards an Urban SDG Tracker

Step-by-step build-up according to Commitment Levels



→ **Commitment level 3:** Implementing and evaluating local action plan  
**Objective:** In-depth transformation towards integrated sustainable development and disaster resilience. Data requirement aiming at monitoring equilibrated in-depth development in all major urban areas

→ **Commitment level 2:** Local 2050 vision, 2030 targets, elaborating integrated holistic local action plan  
**Objective:** Data requirement aiming at achieving rapid progress, driven by key areas: Energy, Industrial Innovation, IT

→ **Commitment level 1:** Improve sustainable development and disaster resilience and showcase results  
**Objective:** Allowing APEC communities of any size to participate in the Cooperative Network of Sustainable Cities CNSC network whereby only basic data is needed



THANK YOU  
FOR YOUR  
ATTENTION !