



Measuring Disaster Risk for Urban areas in Asia-Pacific

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SDG 11

- Make cities and human settlements inclusive, safe, resilient and sustainable
 - **11.1:** By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums
 - **11.2:** By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons
 - **11.3:** By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries



SDG 11 cont'd

- **11.4:** Strengthen efforts to protect and safeguard the world's cultural and natural heritage
- **11.6:** By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management
- **11.A:** Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning
- **11.B:** By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels



Urban Areas at Risk in Asia and the Pacific

- Urban areas in the Asia-Pacific region, are home to 48.7 per cent (more than 2.1 billion) of the 4.3 billion people in the region
- Approximately 60% of urban residents in the region, 742 million people, are at ‘high’ to ‘extreme’ disaster risk.
- By 2030, it is estimated that up to 980 million urban residents could be at ‘high’ or ‘extreme’ disaster risk.
- Asia-Pacific’s 305 urban agglomerations, 119 are located in flood-risk coastal zones and susceptible to sea-level rise.



Urban Areas at Risk in Asia and the Pacific

- Population density
- Urbanization
 - Migration
- Urban sprawl
 - Spread of “impervious surfaces”
- Urban Slums
- Critical Infrastructures
- Economic Loss
- Disaster preparedness



Urban Slums

- **SDG Indicator 11.1.1** Proportion of urban population living in slums, informal settlements or inadequate housing
- **A slum household** suffers: lack of access to improved water source, lack of access to improved sanitation facilities, lack of sufficient living area, lack of housing durability or lack of security of tenure (UN-Habitat, 2016)



Urban Slum Population Measurement

- 3 approaches reviewed
 - Remote sensing approach
 - Population census-based approach
 - Community-level participatory mapping



urban slum populations, in thousands

Region or Economies	1990	1995	2000	2005	2007	2009	2014
Asia-Pacific developing economies	370,426	402,184	422,425	433,136	432,028	431,121	439,528
East and North-East Asia	135,214	156,049	172,239	185,325	187,934	188,270	191,983
South-East Asia	68,837	72,409	73,680	70,463	68,941	70,735	72,770
South and South-West Asia	166,375	173,726	176,506	177,349	175,154	172,116	174,505
Lower-middle-income economies	221,057	231,575	235,365	232,882	228,844	226,164	225,639
Upper-middle-income economies	148,236	169,099	185,066	197,923	200,745	202,415	205,949

Source 5 - Eradicating Poverty and Promoting Prosperity in a Changing Asia-Pacific



Critical Infrastructure SDG Indicators

- **11.6.1** Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities
- **6.3.1** Proportion of wastewater safely treated



Economic Costs

- ESCAP, estimated in 2016, that “Urban areas in the Asia-Pacific region account for an estimated 80 per cent of regional economic output”
- Need for guidance for disaggregated analysis
 - E.g. focus on slums, or poverty more generally
- Aided by geographically-disaggregated statistics on employment, gov’t revenues, locations of slums, other ‘vulnerable’ districts or areas



“natural systems, when well-managed, can reduce human vulnerability”. - WB World Development Report, 2010

