

# Climate Change & Coastal Indian Cities



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# Introduction

- >33% pop. now in urban areas, est. 50% by 2050
- many cities located on coasts
- latest estimates based on updated Digital Elevation Maps with much higher resolution provide revised projections of impact of Sea-level Rise (SLR) and associated Climate Impacts on global mega-cities
- Mumbai, Chennai, Kolkata also covered (lessons for other coastal cities/towns too)
- estimated 36 million people in India to be impacted by SLR
- poor urban infrastructure, absence of CC-related plans including in India's NDC/NAPCC/SAPCCs, weak governance, unplanned urbanization send DANGER signals for coming decades

# Climate Justice and Cities: an approach

- questioning models of urbanization in India
- understanding challenges and inter-linkages
- sustainable development ↔ mitigation and climate resilience
- multi-sectoral, multi-disciplinary approach aiming at multiple benefits (co-benefits) across:
  - emission reductions/de-carbonization
  - climate resilience/adaptation
  - local environment and health
  - economic growth/job creation
  - equity/energy access
- socially transformative politics/policies

# Climate Impacts

- SLR, coastal erosion, land subsidence (due groundwater extraction)
- extreme weather, extreme rainfall (>200 mm/day)
- cyclones and other extreme SL events
- air pollution
- Urban Heat Island (2°C > hinterland) effect worse
- water shortage/quality esp. groundwater
- rise in urban in-migration, climate refugees
- rise in vector-borne diseases
- climate vulnerabilities add on to pre-existing structural vulnerabilities

# Climate Vulnerabilities

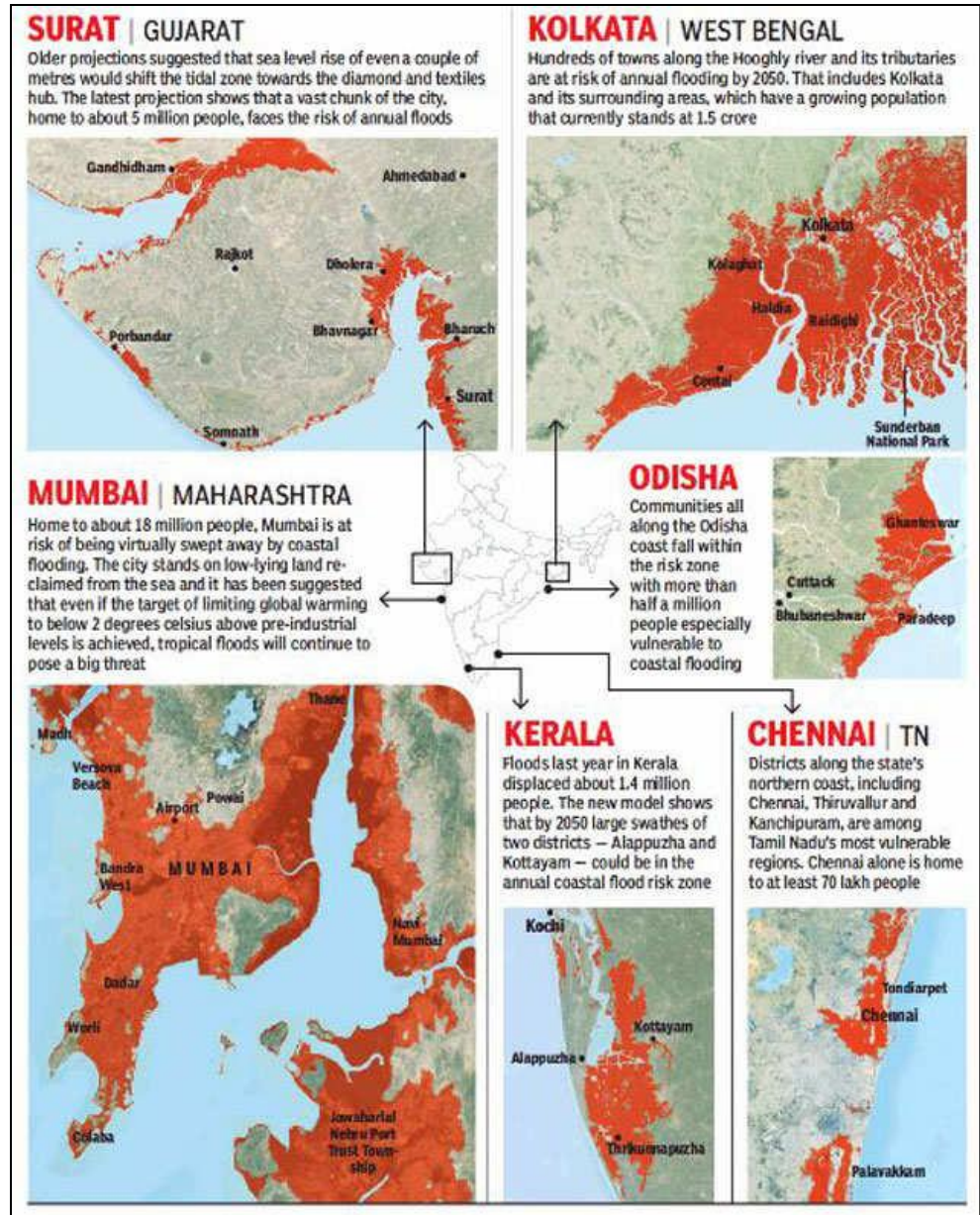
- unplanned and haphazard urban development
- encroachment on coastal areas, construction activities, (sometimes) irreversible damage to vegetated, dunes and other protective ecosystems
- blockage of natural drainage
- under-designed storm-water drains (designed for 'normal' rainfall not extreme weather events) leading to regular urban flooding
- under-prepared disaster management systems despite recent improvements in AP, Odisha
- requires complete re-think of urban development especially in coastal cities



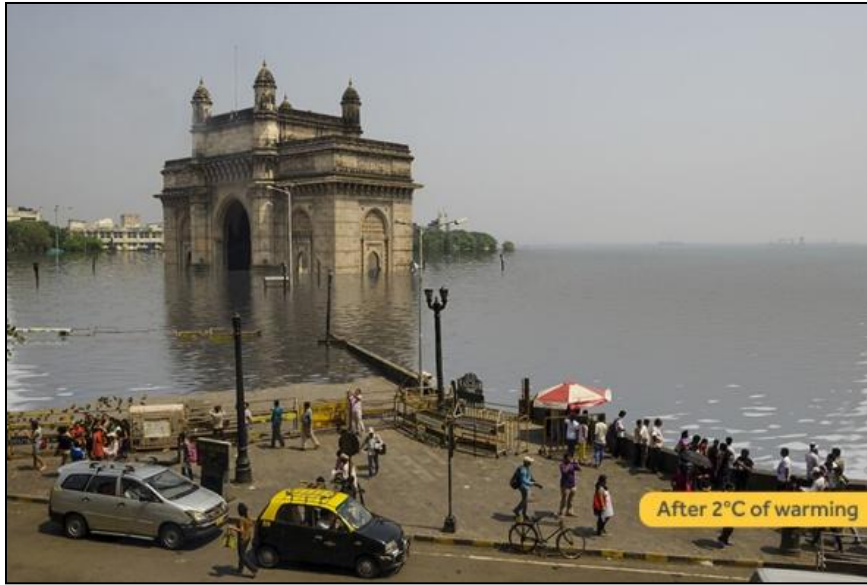
# Particularly Vulnerable Cities/Regions\*



*\*Climate Central with new high-res DEM based on satellite data*



# Some Modeling Projections\*



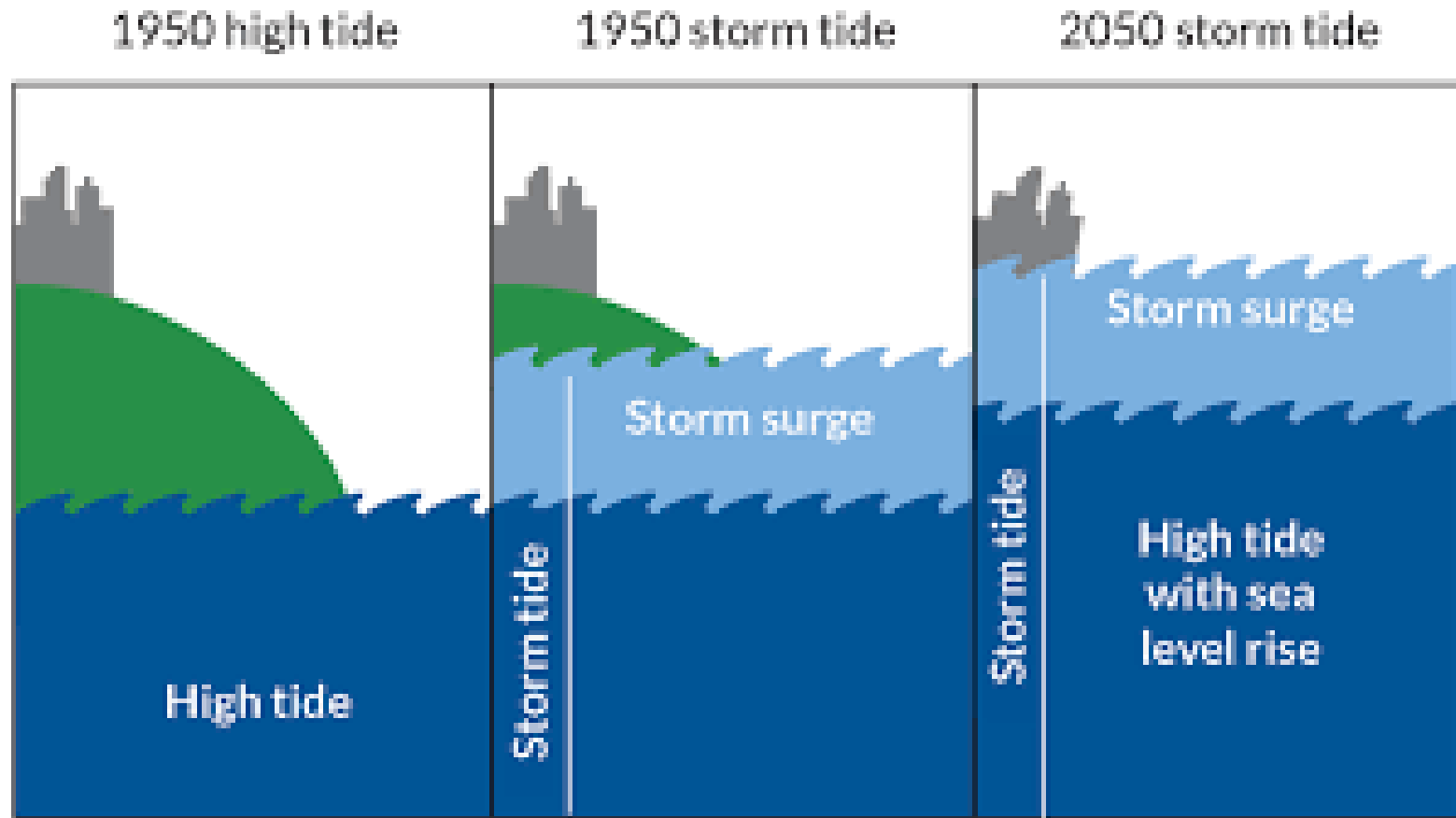
Gateway of India: 2°C



Gateway of India: 4°C

*\*Climate Central IDEM Report*

# SLR adds to High Tide + Storm Surge





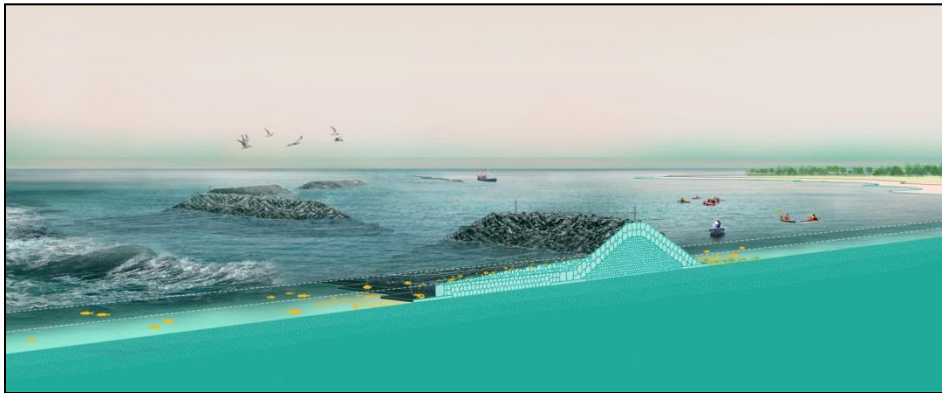
# Some Plans/Actions



New York \$15bn plan



Amsterdam: installed



# Measures required in India

- re-conceptualize urban planning/development
- upscale and redesign urban drainage
- protective barriers
- build capacities of urban planners, municipalities
- integrated CC+DM planning: no silos
- re-distribute urban settlements, prevent urban sprawl towards coasts
- enforce and tighten CZR
- Centre starving States: most adaptation measures fall under State laws/regulation
- FINANCES?
- Central allocation of Rs.450 cr, now 3,500 cr for Urban Adaptation to CC is a cruel joke
- re-cast SAPCCs
- Radically restructure Urban Governance

# Thank You!

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