

LOCALISED ACTIONS FOR RESILIENCE CITIES - Spatial Dimension

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 - Commitments
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BACKGROUND

1

UN HABITAT'S

ROAD MAP

(16/10/2023)

- SPATIAL INEQUALITIES
- PRESSURE OF MIGRATION
- DIFFICULTIES TO PROMOTE INCLUSIVE PROSPERITY & LOCAL ECONOMIC DEVELOPMENT
- GROWING VULNERABILITY TO CLIMATE CHANGE

GREEN RECOVERY FRAMEWORK

(02/10/2023)

- CLIMATE NEUTRAL ECONOMY & SUSTAINABILITY IN POST COVID

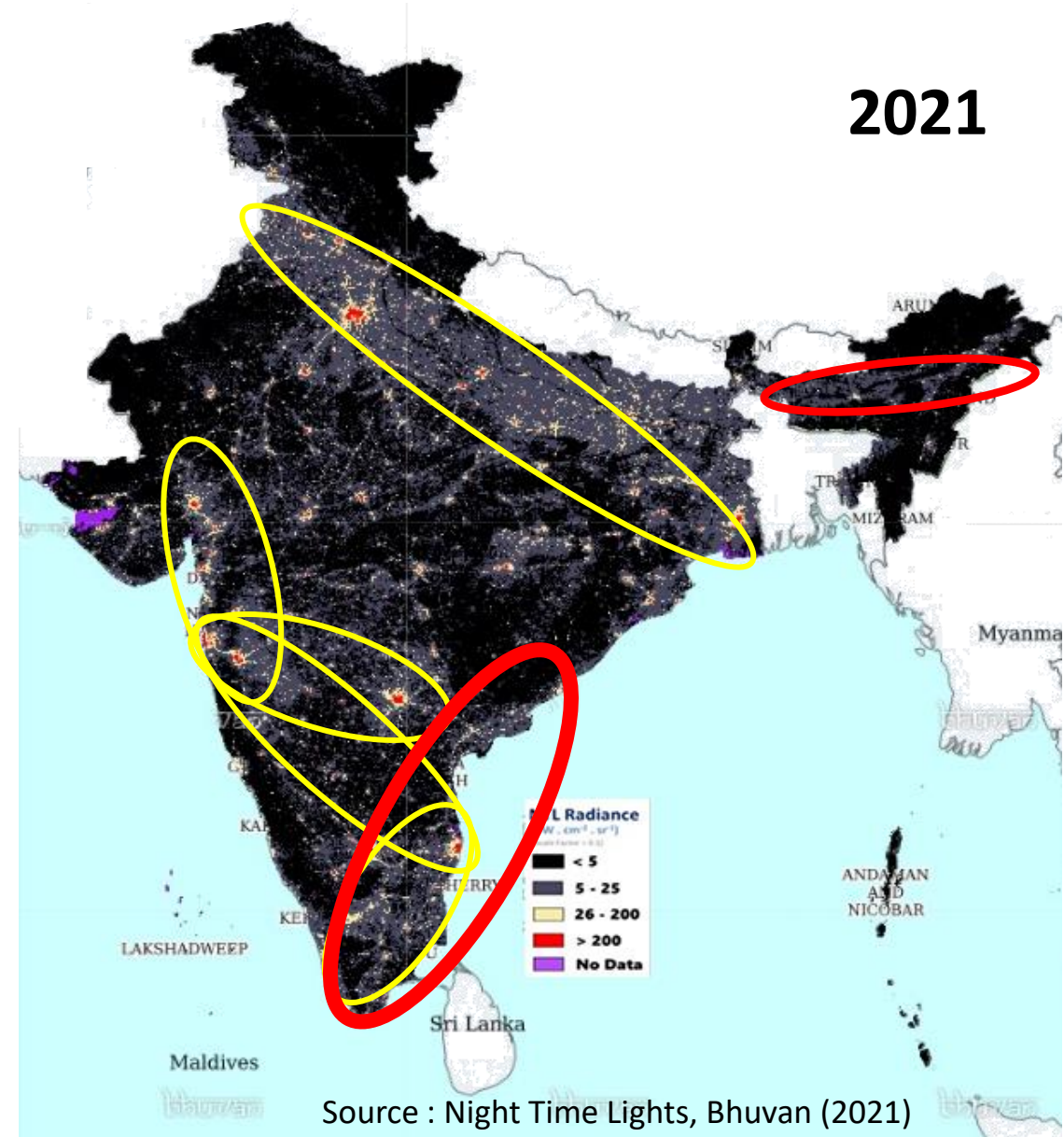
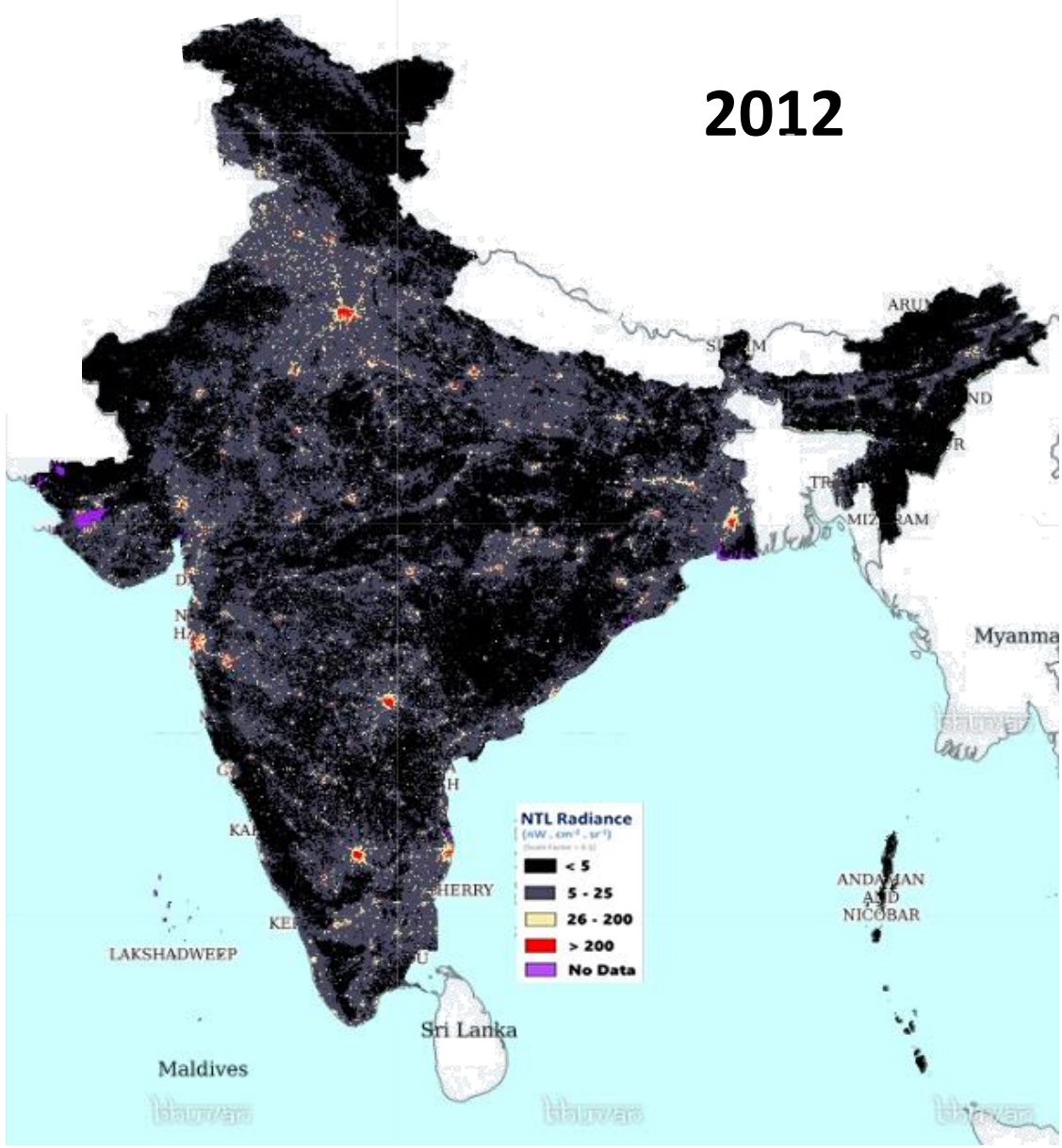
WORLD ECONOMIC FORUM (2023) & UNHABITAT

- CITIES INVESTMENT FACILITY (CIF)
- UN-HABITAT/UN-CDF – GUARANTEE FACILITY FOR SUSTAINABLE CITIES
- RAPID OWN SOURCE REVENUE ANALYSIS (ROSRA)

Urban shift/decentralisation

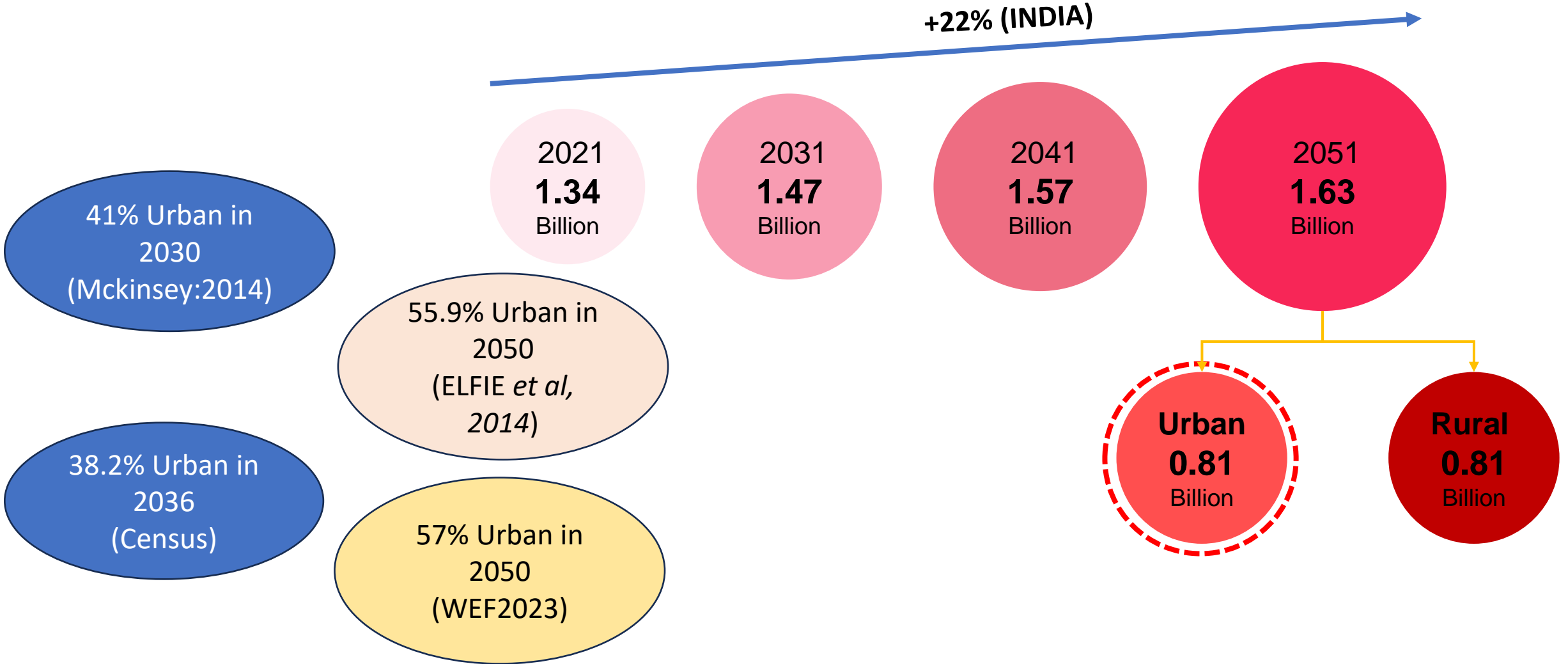
- Globally Post 1980s, shift from big metros to near by towns, increasing commuting cost initially and actual development of small towns merging with metros.
- India too is having the same phenomenon & peri-urban strongly emerging. Emergence of Census Towns along Corridor is fast developing.
- Locally: 3 Main forms of Spatial Policy is emerging in the world (MacKinnon, Kinossain, Pike, et al: 2023):-
 - Metropolitanization to support Large City Regions (stated above)
 - Extension of Competiveness Policies to small cities and towns
 - Place-based industrial policies and area development

Urbanisation Trends – Spatial Trend & Concentration



Source : Night Time Lights, Bhuvan (2021)

Urbanisation and Projections



Source: Mahmood and Kundu (2006)

Urbanisation and Population Projections

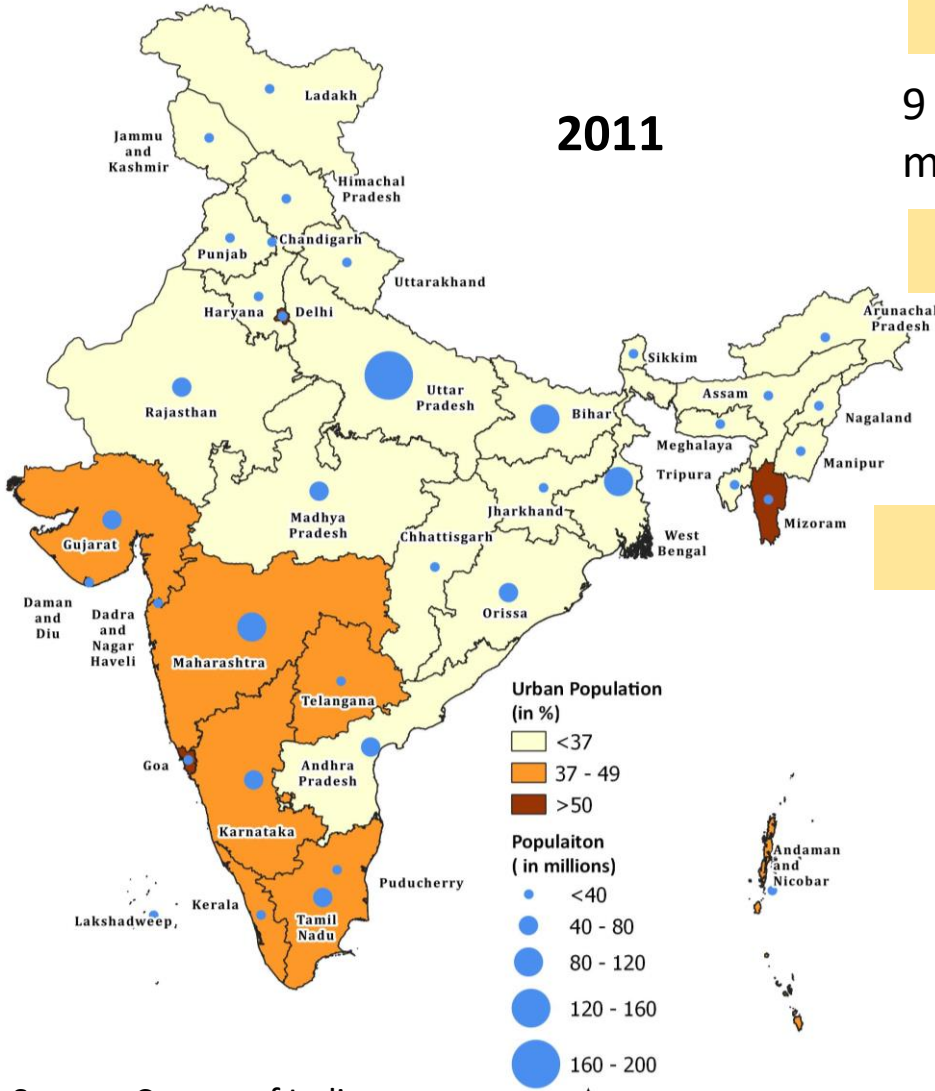
2011

2011

9 states having urban population more than national average.

2051

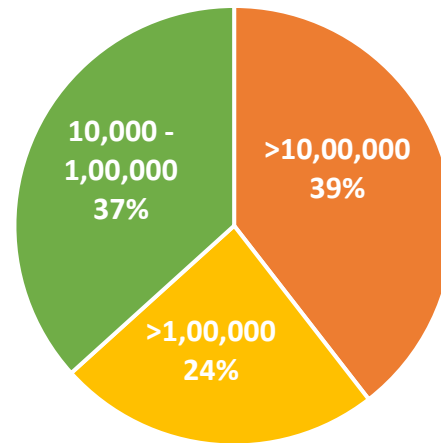
16 states will become more than 57% urbanized.



Source: Census of India, 2011

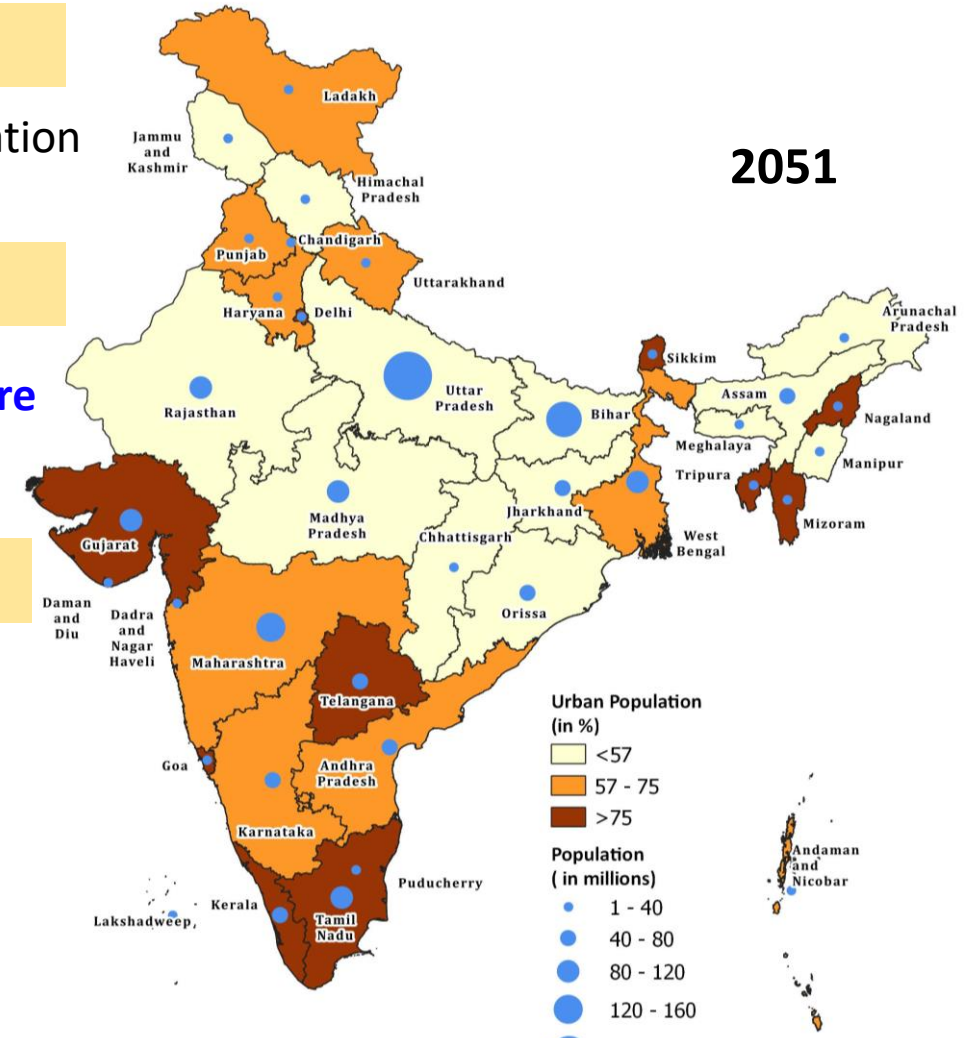


Cities Classification

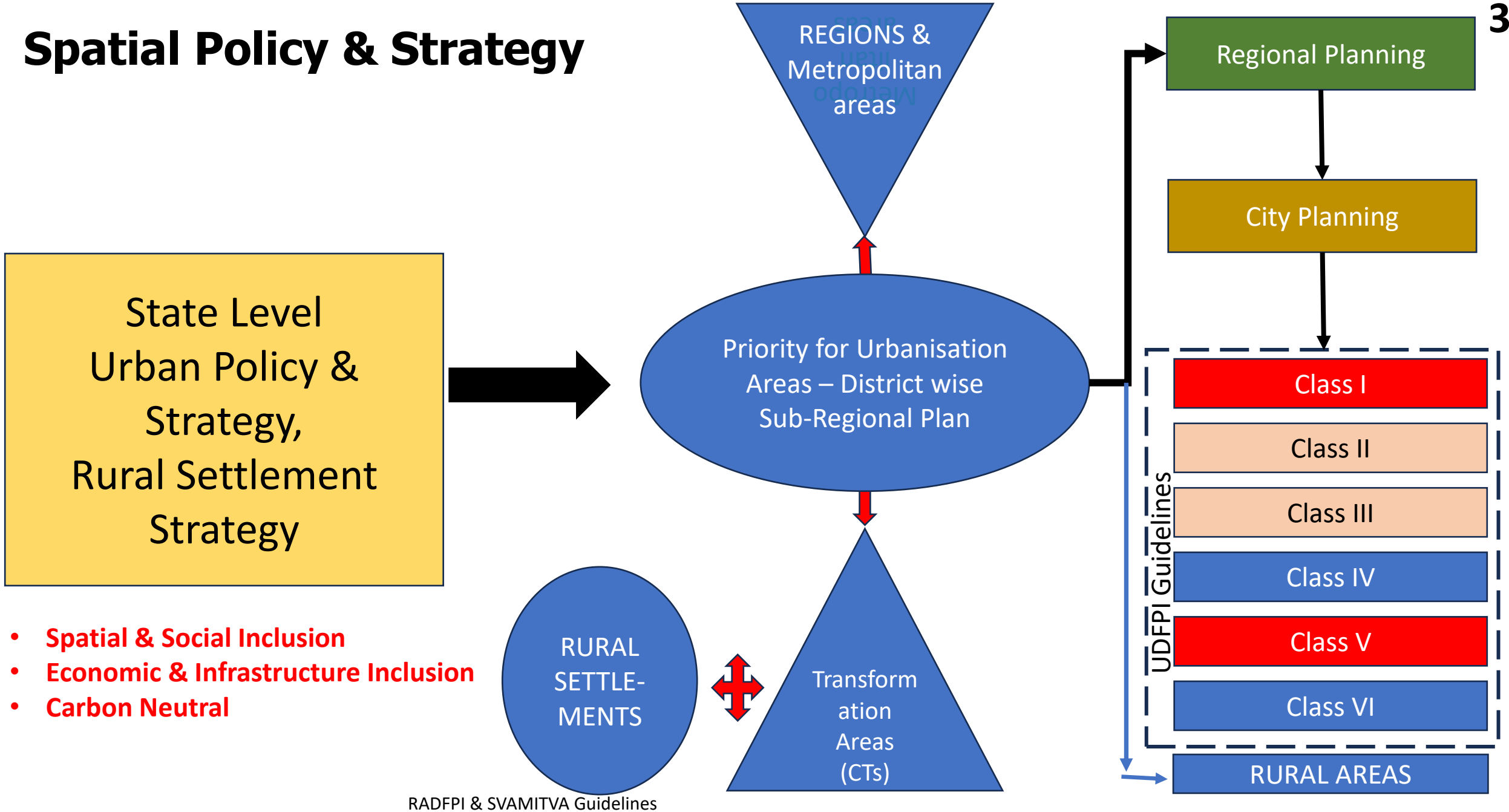


Source: ELFIE, et al (2014)

2051



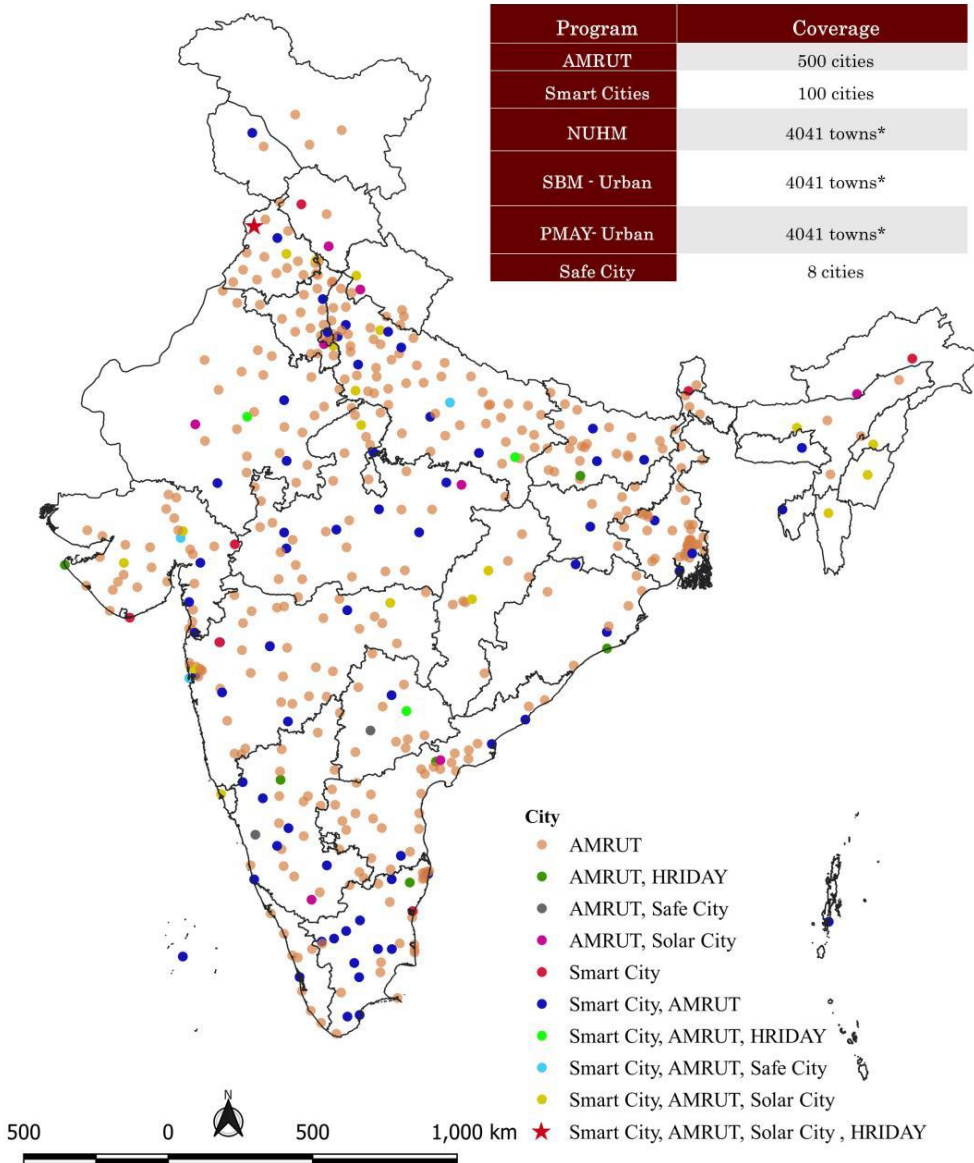
Spatial Policy & Strategy



- Spatial & Social Inclusion
- Economic & Infrastructure Inclusion
- Carbon Neutral

RADFPI & SVAMITVA Guidelines

❖ Urban Missions in India



Source: Various website of urban missions

Programmes, Projects towards Climate Action

- 📍 By 2050 more than 2/3th of the global population could be living in cities
- 📍 National Government aim to establish a balanced and equitable urban infrastructure
- 📍 Urban Mission – important role in achieving the SDGs

❖ Linkages with SDG-11

Prominent Urban Missions	11.1 Adequate, safe and affordable housing	11.2 Safe, affordable, accessible and sustainable transport systems for all	11.3 Inclusive and sustainable urbanization	11.4 Protect and safeguard the world's cultural and natural heritage	11.5 Reduction in the number of deaths and the number of people affected caused by disasters	11.6 Reduction in the adverse per capita environmental impact of cities	11.7 Universal access to safe, inclusive and accessible, green and public spaces
AMRUT	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SMART City	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PMAY	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SBM	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NULM	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HRIDAY	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SAFE City	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SOLAR City	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NUHM	Yes	Yes	Yes	Yes	Yes	Yes	Yes

📍 SCM and AMRUT - extremely instrumental in achieving the SDGs

AMRUT - Atal Mission for Rejuvenation and Urban Transformation

SBM - Swachh Bharat Mission

SCM - Smart Cities Mission

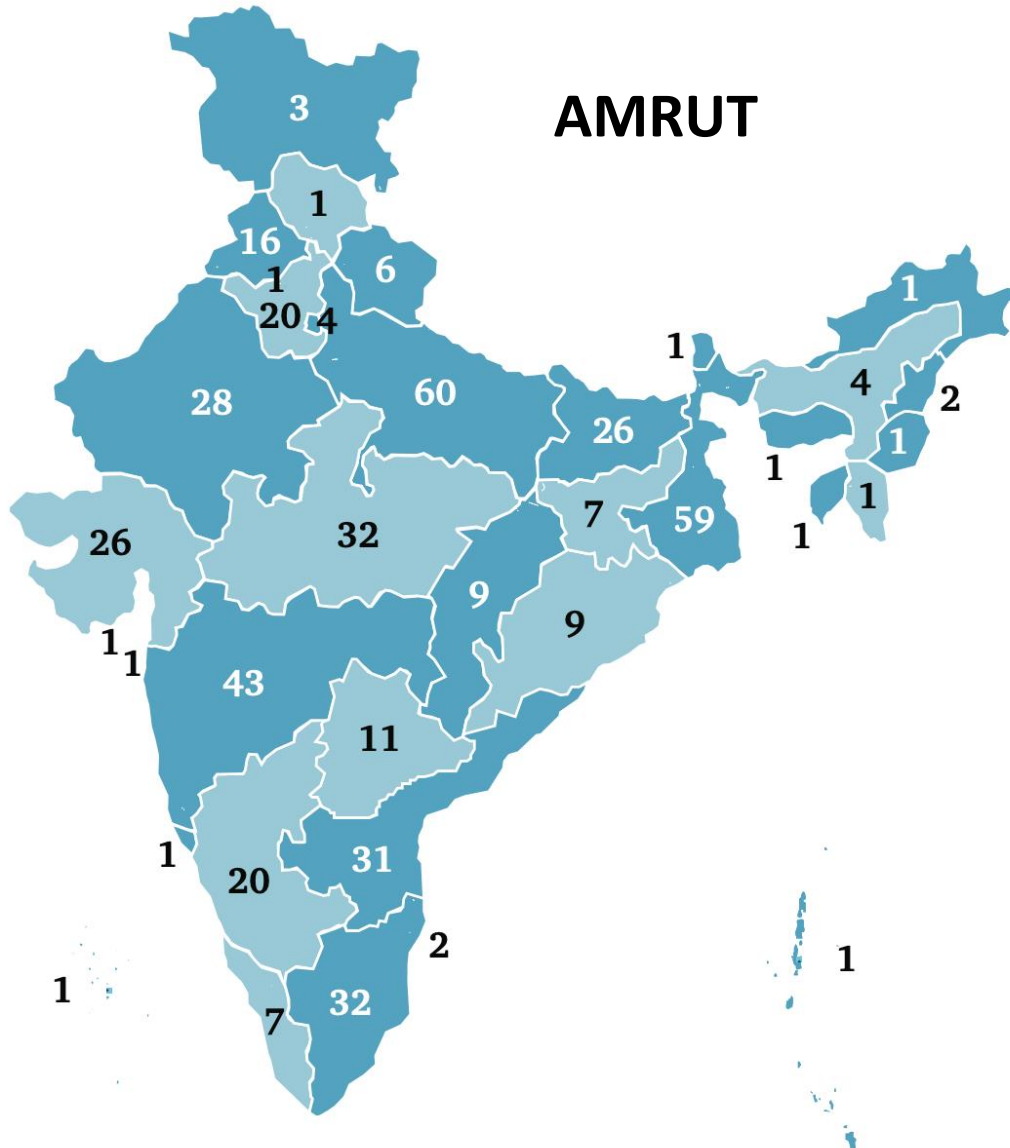
PMAY - Pradhan Mantri Awas Yojana

NUHM - National Urban Health Mission.

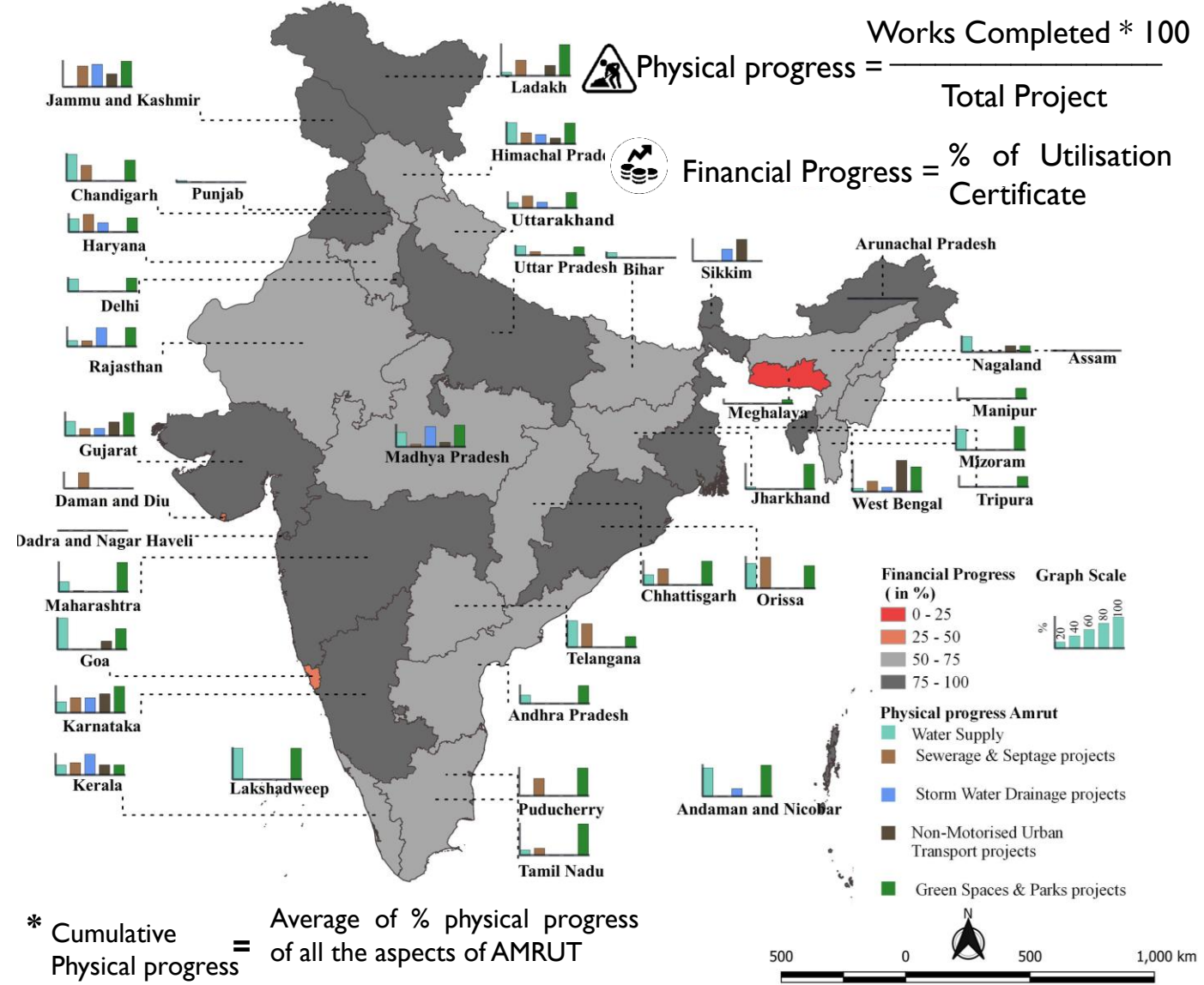
NULM - National Urban Livelihoods Mission.

Urban Missions

Climate related infra

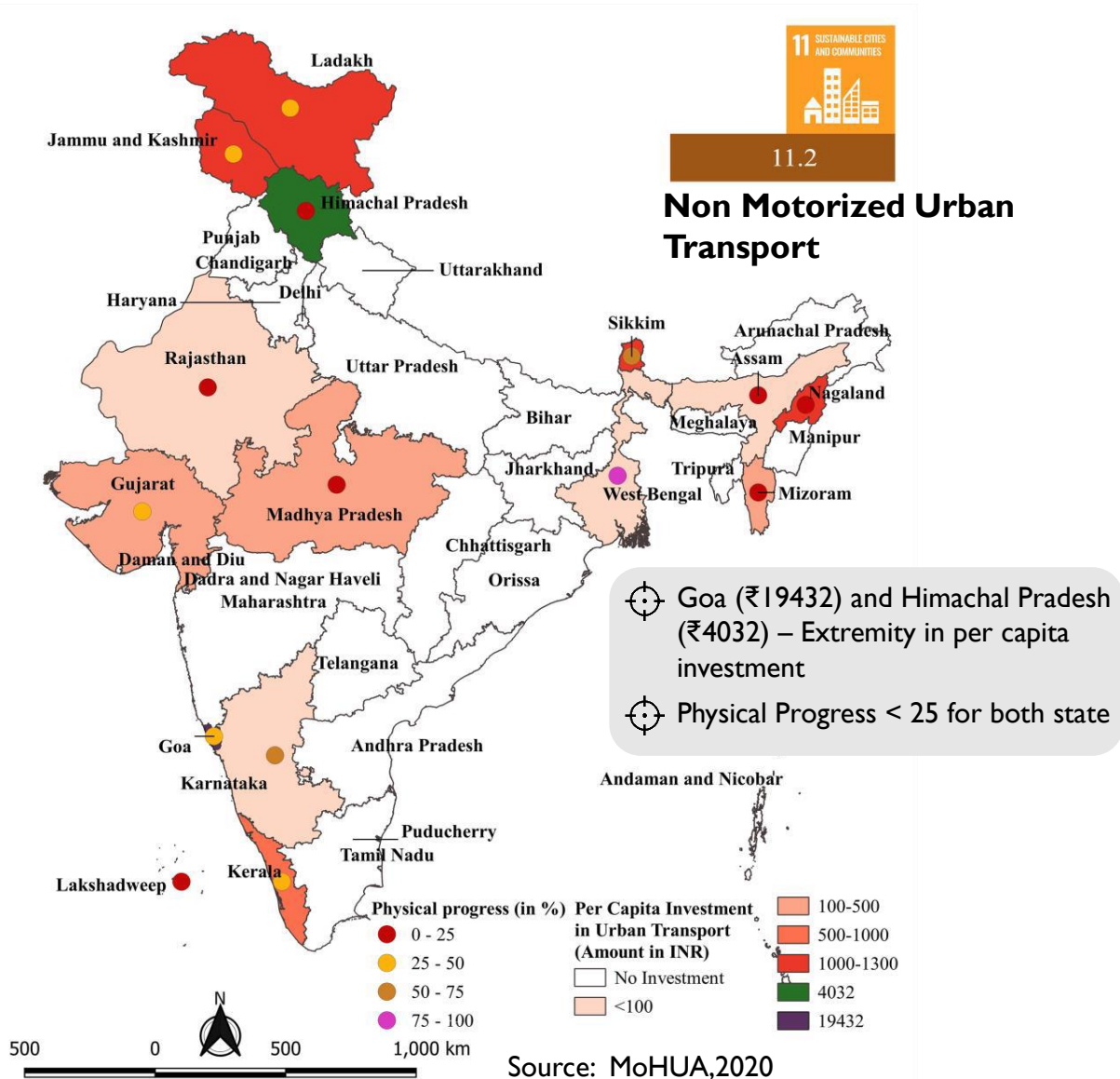


Source: AMRUT (2015-2020), MoHUA

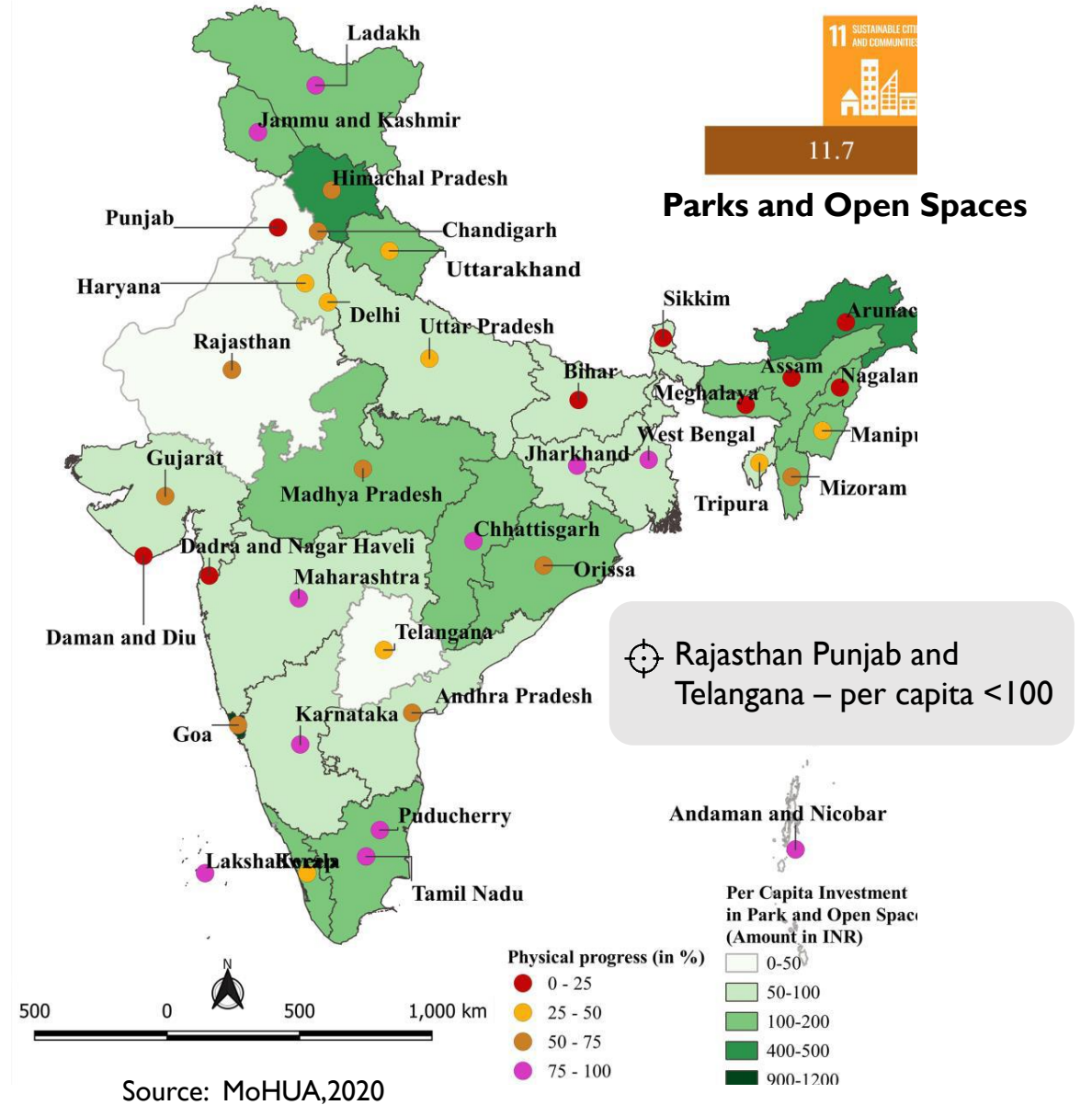


❖ Urban Missions in India

❑ Per Capita Assessment (AMRUT)

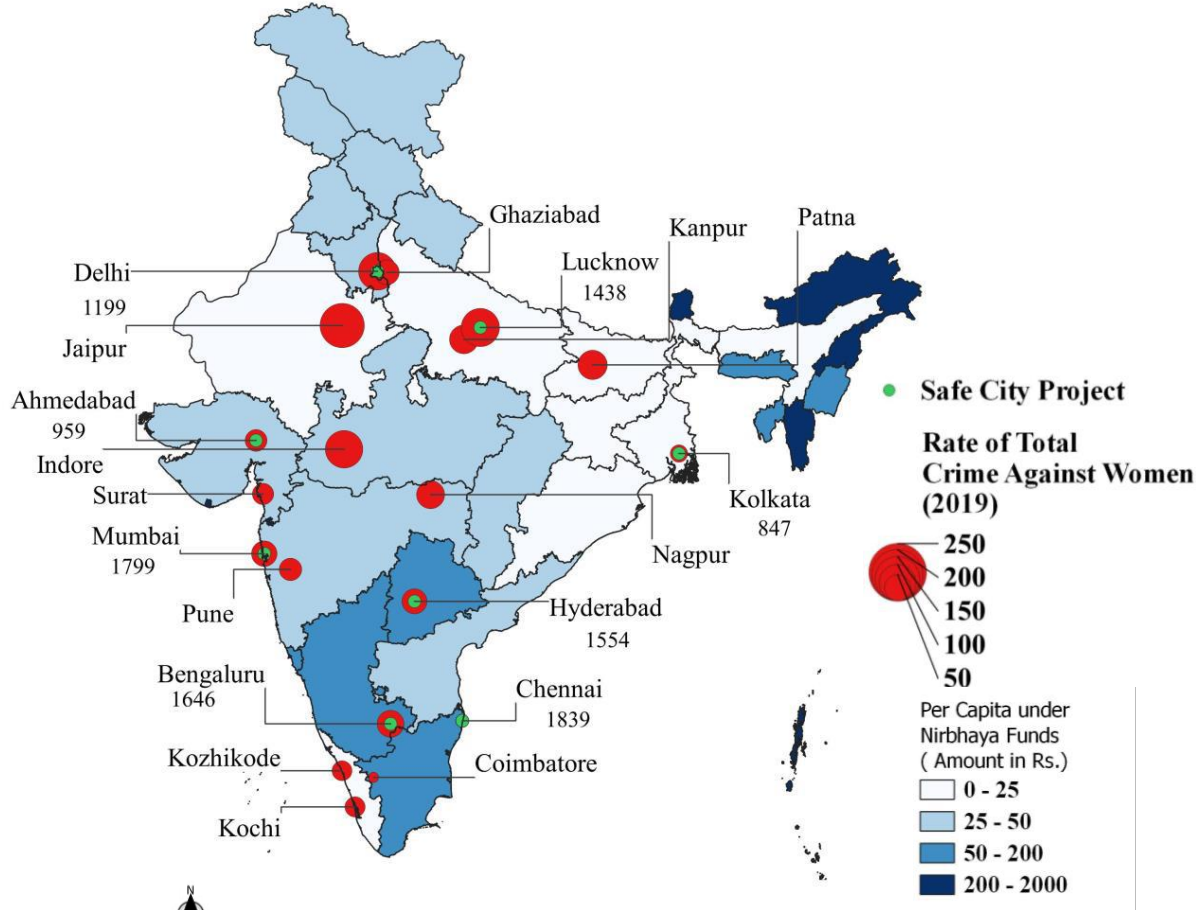


Climate related infra



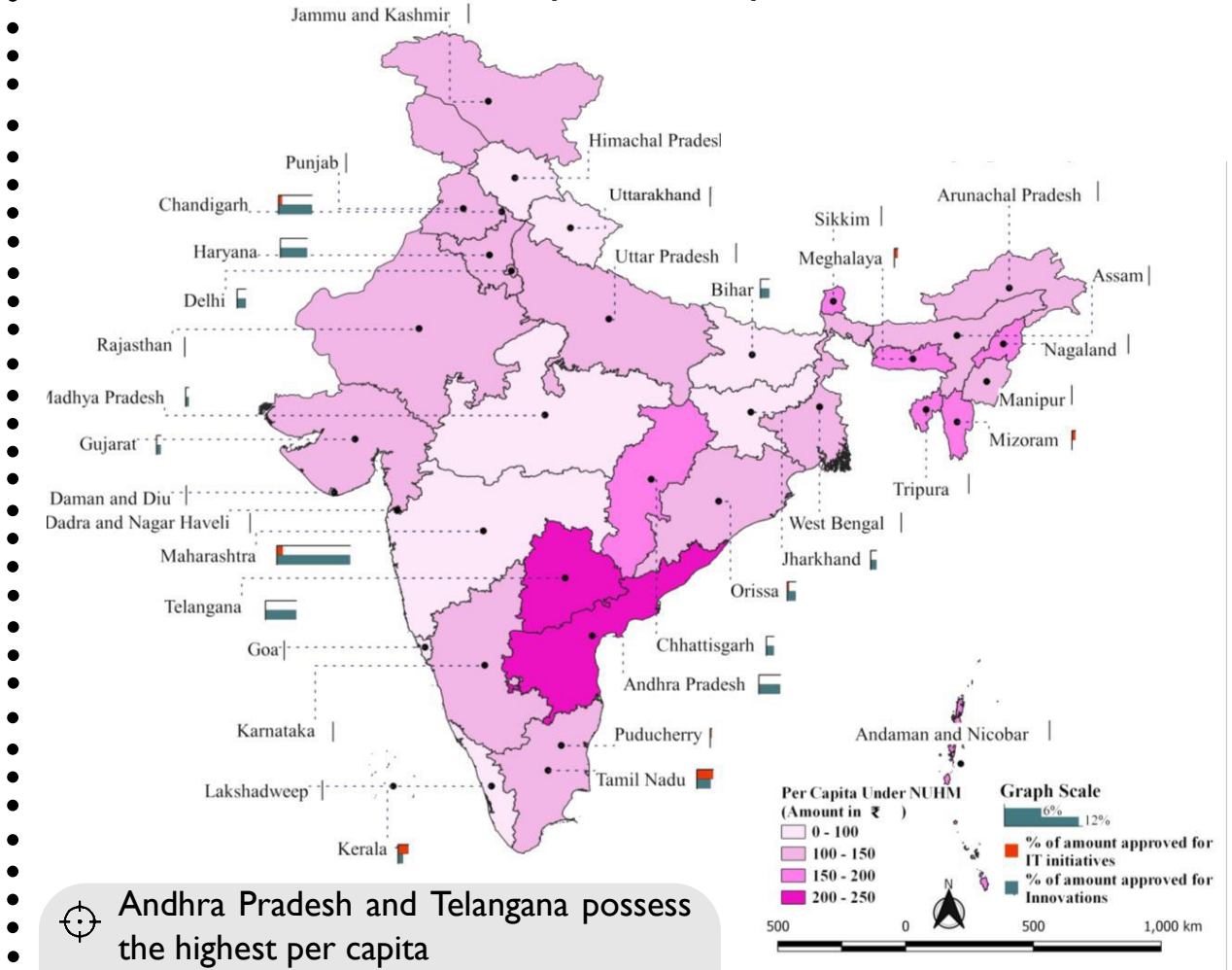
❖ Urban Missions in India

❑ Per Capita Assessment - Safe City Mission



- ⊕ Nirbhaya fund to ensure women safety.
- ⊕ 8 Cities in India with higher rates of crimes against women, host Safe City Projects
- ⊕ High Crime Rate - Jaipur and Indore, but not under Safe City mission

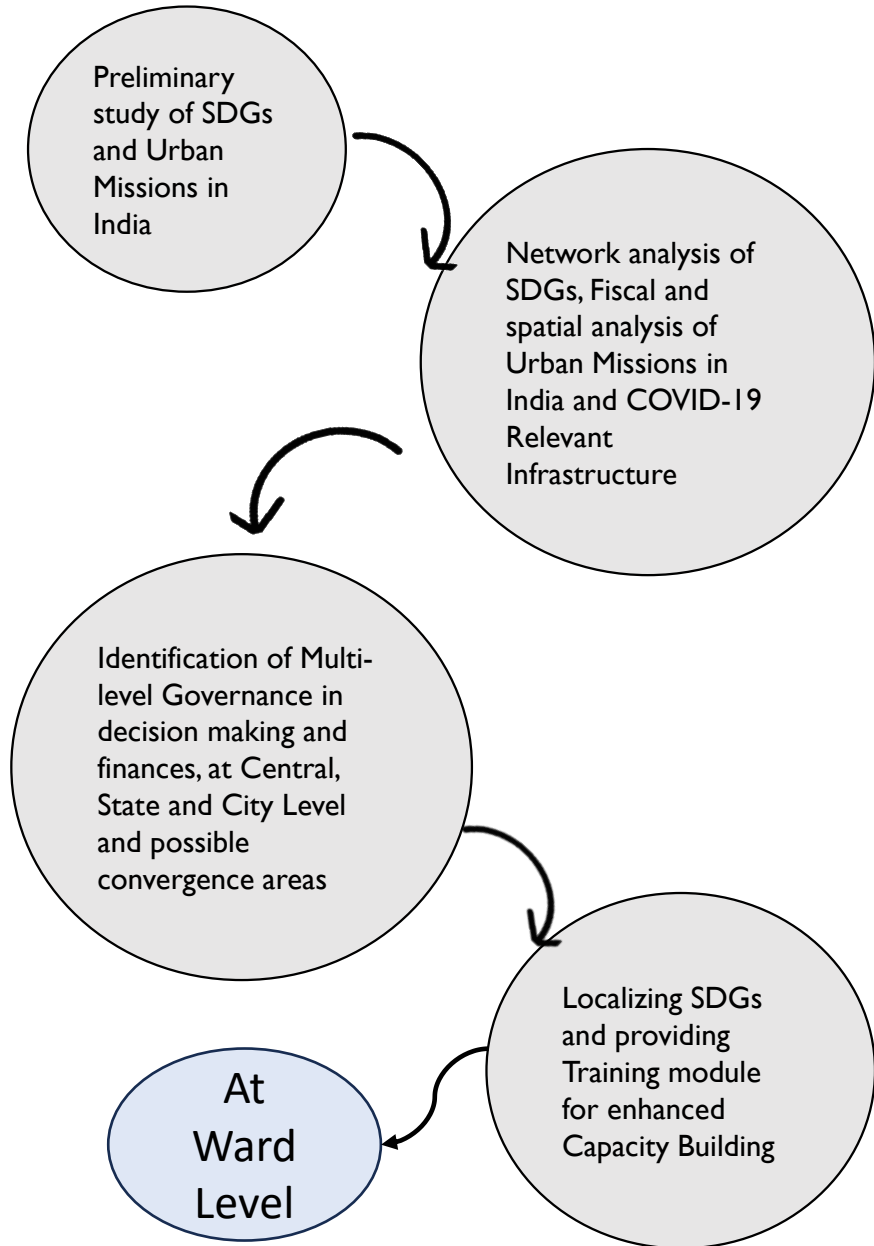
❑ Per Capita Assessment of National Urban Health Mission (2019-2021)



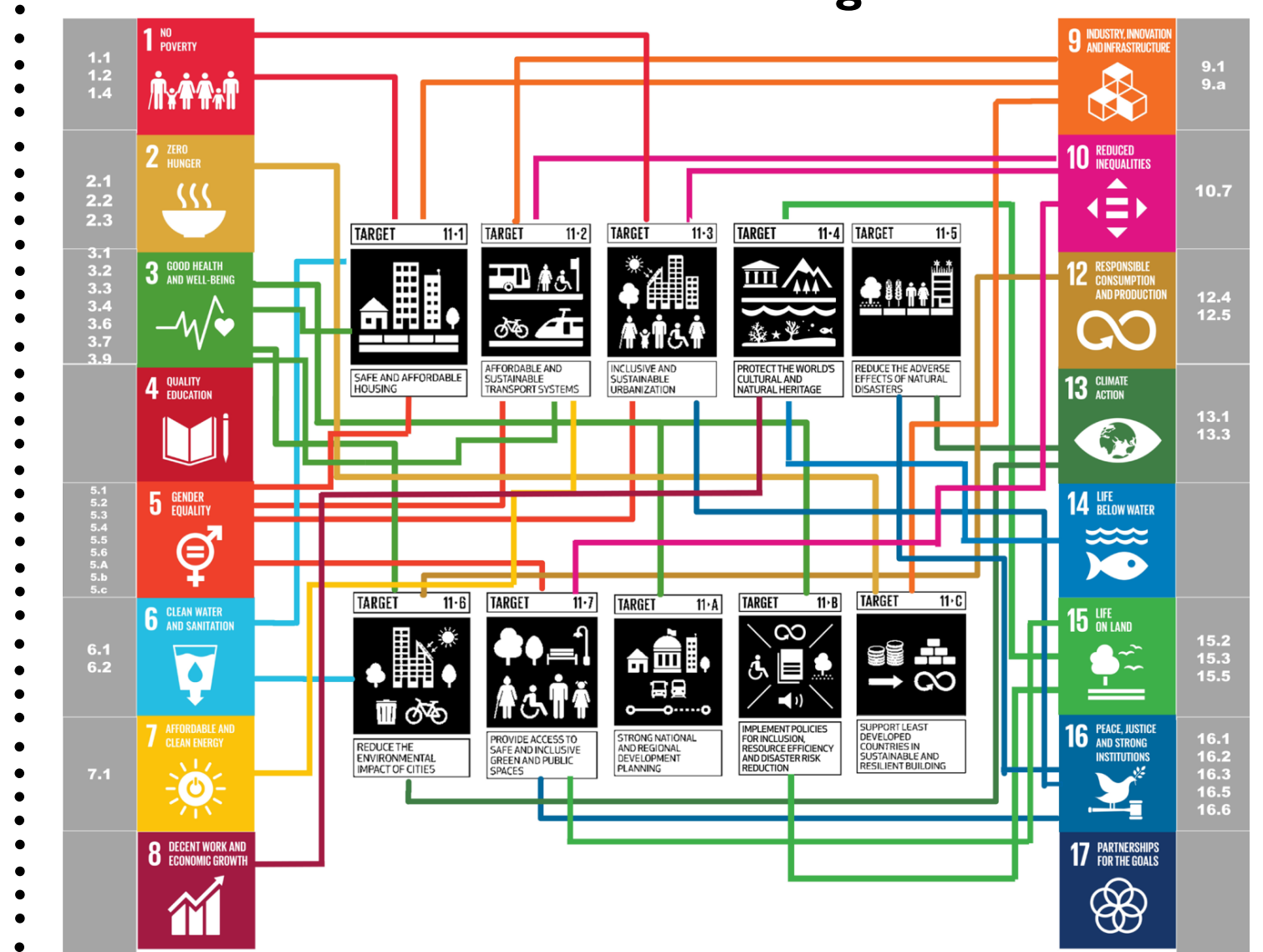
- ⊕ Andhra Pradesh and Telangana possess the highest per capita
- ⊕ Uttarakhand 50% of total approved amount in innovation
- ⊕ Kerala , Tamil Nadu invested in the enhancement of IT for service delivery

Source : nhm.gov.in, accessed between 26 October 2020 – 02 November 2020

❖ Approach



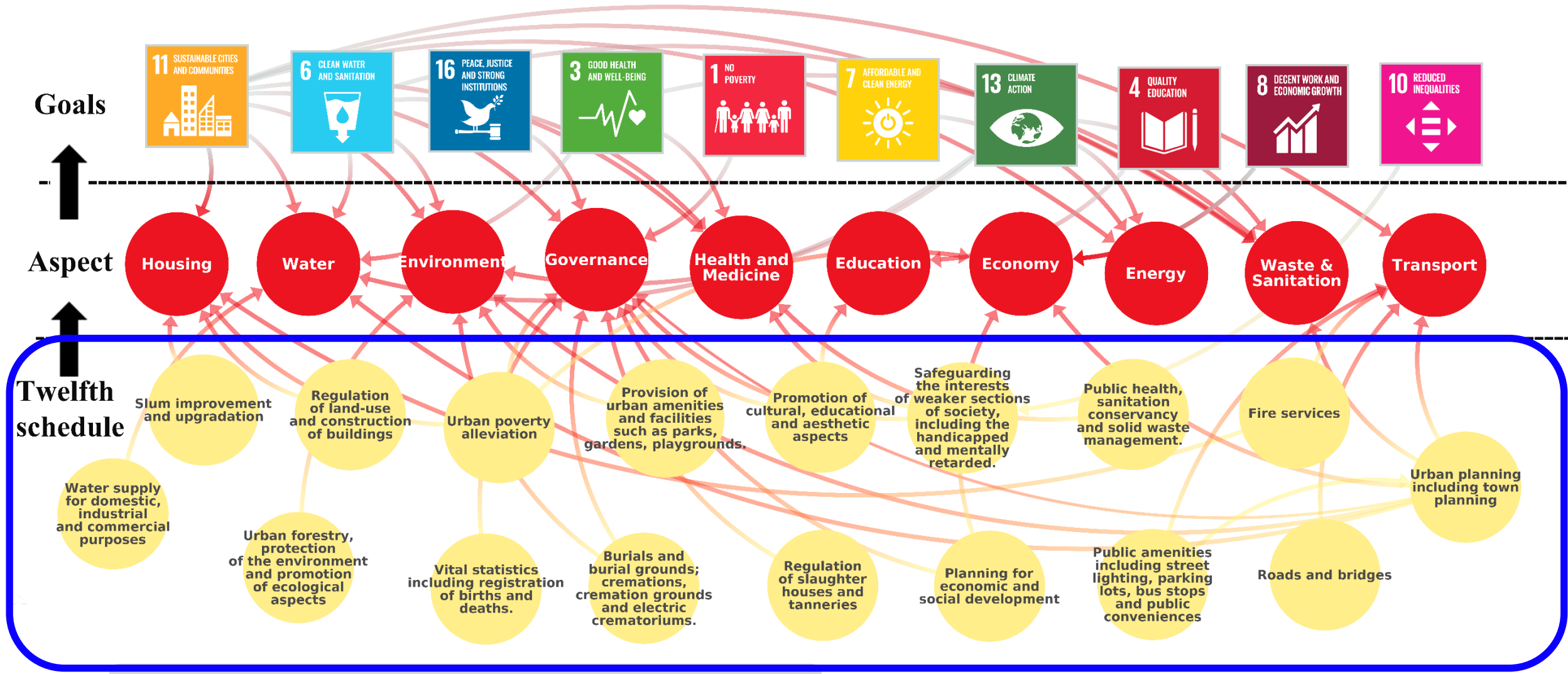
❖ SDG 11 Interlinkages with other SDG



⊕ The network - ensures inclusivity from different perspectives, comprehensive assessment, and monitoring processes.

❖ Governance in Urban India

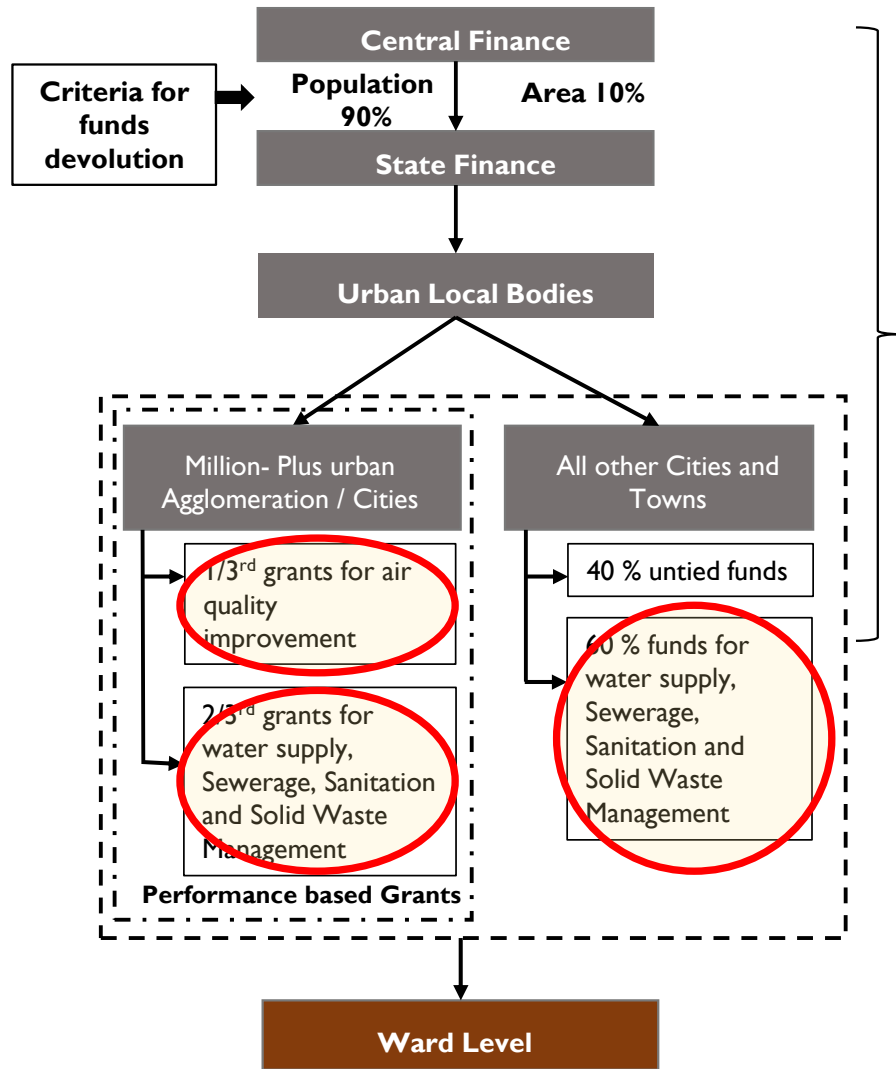
❑ Orientation of Twelfth schedule as per SDG



📍 Urban Local Bodies play an important role in achieving SDGs

❖ Governance in Urban India

❑ Devolution of funds



15th Finance Commission

❑ Functioning Multiplicity

Selected Items from 12th Schedule	Bhopal	Kochi	Bhubneshwar
Urban planning including town planning	TCPO	Department of Town and Country Planning	Directorate of Town Planning
Regulation of land-use and construction of buildings	Directorate of Town and Country Planning	Department of Town and Country Planning , Approval with Corporation of Cochin	Directorate of Town Planning, Bhubneshwar Development Authority
Planning for economic and social development	Directorate of Town and Country Planning	Corporation of Cochin	Directorate of Town Planning, Bhubneshwar Development Authority
Roads and bridges	PWD, Bhopal Municipal Corporation	Corporation of Cochin	
Water supply for domestic, industrial and commercial purposes	Bhopal Municipal Corporation , Smart City Bhopal	Kerela Water Authority , Cochin Port Trust , Corporation of Cochin	Water Corporation of Odisha , Orissa Water Supply & Sewerage board , Public Health Engineering Department
Public health, sanitation conservancy and solid waste management.	Bhopal Municipal Corporation , Smart City Bhopal , Public Health Engineering Department, Madhya Pradesh Urban Development Company Limited	Kerela Water Authority , Corporation of Cochin , Cochin Smart City	Bhubneshwar Municipal Corporation
Fire services	Bhopal Municipal Corporation	Department of fire and Rescue , corporation of Cochin	Odhisha Fire Services
Slum improvement and upgradation	Bhopal Municipal Corporation , Smart City Bhopal	Cochin Smart City , Corporation of Kochin	Bhubneshwar Municipal Corporation, Bhubneshwar Smart City
Provision of urban amenities and facilities such as parks, gardens, playgrounds.	Bhopal Municipal Corporation , Smart City Bhopal	Cochin Smart City , Corporation of Cochin	Bhubneshwar Development Authority
Vital statistics including registration of births and deaths.	Bhopal Municipal Corporation	Health Department	Bhubneshwar Municipal Corporation

- ⊕ Need of funds allocation framework at local level – participatory budgeting
- ⊕ Aligning with SDGs targets City Level and Local Level

⊕ Different parastatal agency need to considered while focusing on SDGs

Local Governance Scalability & integration

- 74th Constitutional Amendment : -
 - Mohalla Committee/Neighbourhood Committee
 - Ward Committee
 - City

Climate
Resilience
Infra

Extra Constitutional

- City Development Authority (SPVs)
- Parastatal Authority (Water & Drainage Boards, Electricity, PWD, etc)

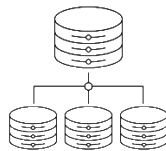
- Not- Constitutional
 - Resident Welfare Associations
 - Advanced Local Management

❖ Localizing SDGs through technological interventions

Non-traditional Data streams for SDG monitoring



Earth observation
Satellite/drone imagery
In situ observatories



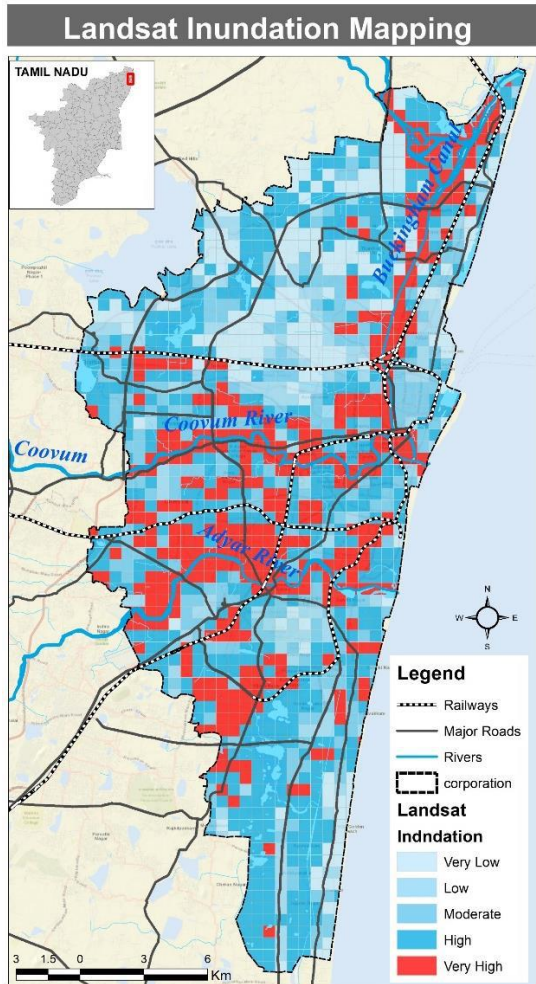
Spatial data infrastructure
Road and water networks
Land cover and land use



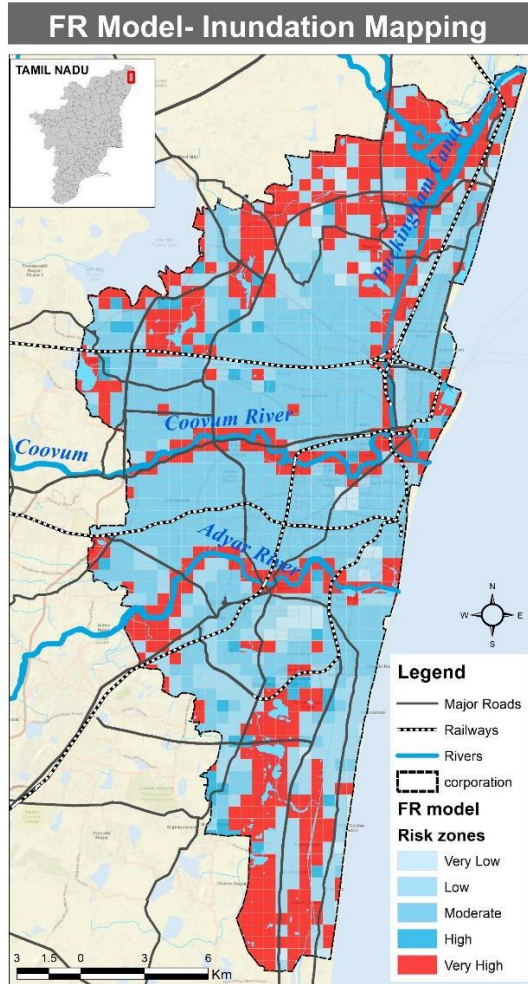
Citizen-generated data
Citizen science
Social media



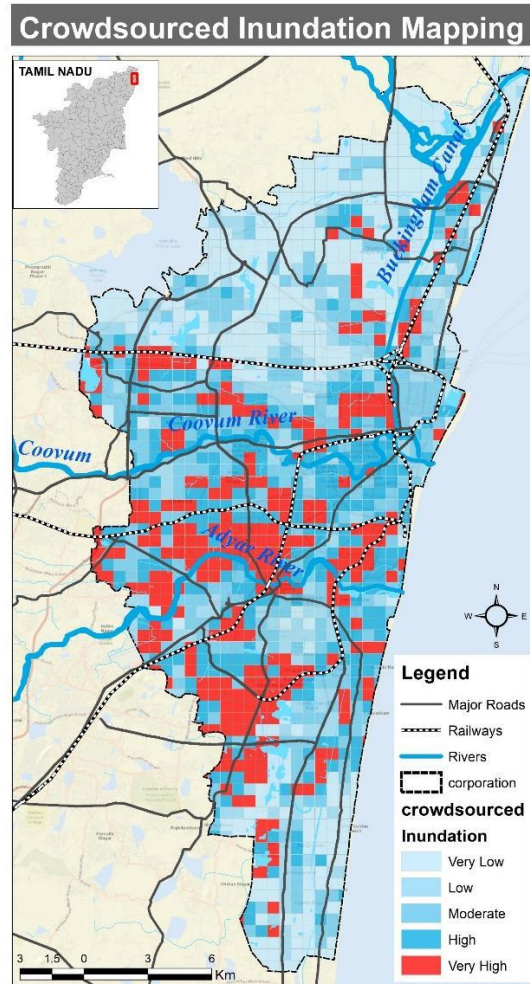
Official sensor networks
Weather and air-pollution stations
Hydrological stations



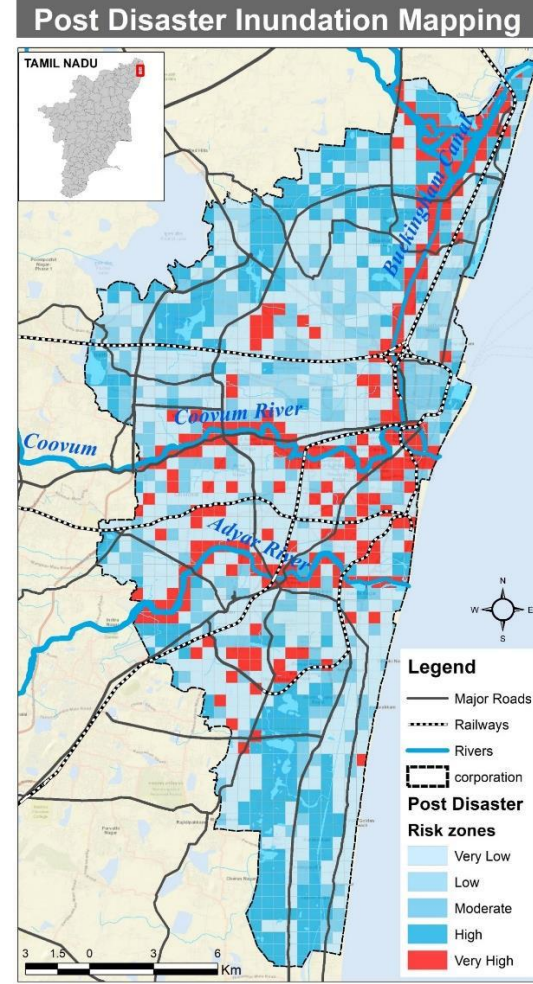
WARD LEVEL ANALYSIS



WARD LEVEL ANALYSIS



WARD LEVEL ANALYSIS



❖ Localizing SDGs through technological interventions

11.2 Affordable & Sustainable Transport System

Estimating populations with access to public transport stops

Case Study : Bangalore (Ward no.160)

☐ Approach

- ⊕ Identifying the potential tool and data sources
- ⊕ Capturing public transport stops using google maps
- ⊕ Creating service areas of 500 meters for each public transport stops using Network analysis Extensions in Arc GIS
- ⊕ Estimating populations based on number of buildings within the service area of public transport stops

AFFORDABLE & SUSTAINABLE TRANSPORT SYSTEM

60)

Transport stops

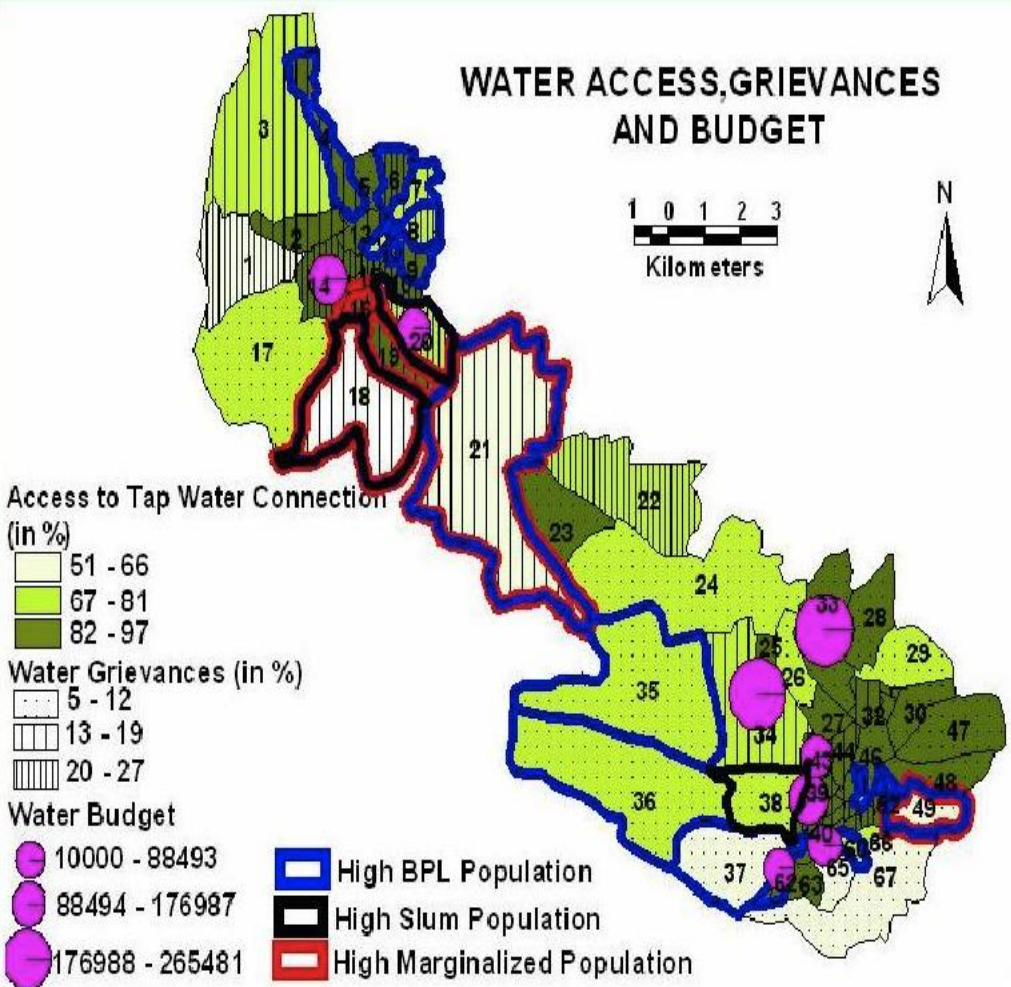
High-capacity public transport systems that are located near homes and jobs. These transport systems need to be well arranged.

It is a shift in the thinking of transport with the focus on the accessibility to services, goods, and opportunities for all. Making cities more compact and walkable through better transport planning (Wiggenraad, 1995).

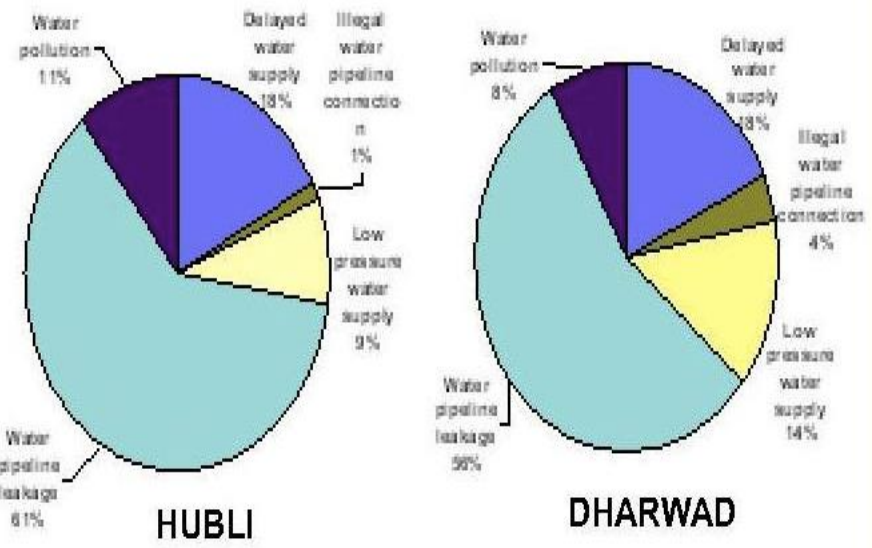
REQUIRED TOOLS

- ArcGIS / ArcMap (Desktop GIS Preferably)
- Technical expertise in spatial analysis and use of network analyst extension in ArcMap

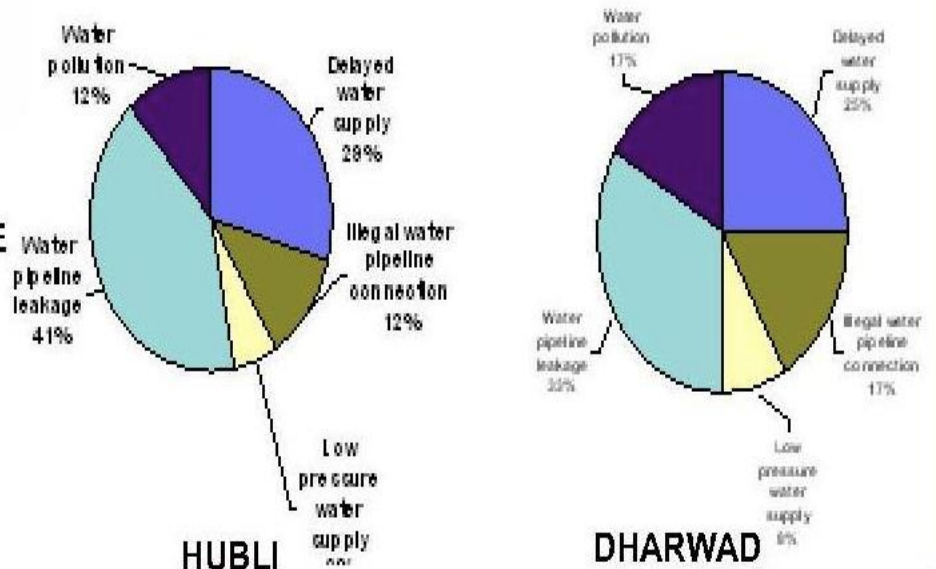
WATER ACCESS, GRIEVANCES AND BUDGET



% OF TYPE OF WATER GRIEVANCES IN HUBLI-DHARWAD



% OF TYPE OF WATER GRIEVANCES IN HUBLI- DHARWAD (DEMO WARDS)



WARD LEVEL ANALYSIS

- WATER BUDGET IS ALLOCATED FOR ONLY 12% OF THE TOTAL POPULATION.
- EXCEPT WARD NO.20, ALL THE MARGINALISED, SLUM AND BPL WARDS ARE EXCLUDED FROM BUDGET ALLOCATION.

The focused-adaptation report aims to help leaders embark on adaptation journeys.

Focused adaptation aims to reduce the complexity of adaptation for city leaders by identifying a short list of adaptation actions leaders could evaluate for their city. The report did the following:

- 1 Compiled more than 100 of the most common adaptation actions that build resilience to 5 physical climate risks
- 2 Assessed and scored the risk-reduction potential of all actions relative to each other based on quantitative case studies, peer-reviewed impact research, and expert perspective
- 3 Assessed and scored the relative complexity of implementation for all actions in terms of financial cost, infrastructure difficulty, and stakeholder complexity
- 4 Identified the actions with the highest potential that cities could consider adopting, using a benefit-by-feasibility matrix
- 5 Grouped cities into “typologies” based on economic, built-environment, and governance variables to assess whether the highest-potential actions differed based on these variables; concluded that roughly the same actions rose to the top for all typologies



Four high-potential systemic-resilience actions



Risk assessment: hazard maps, impact assessment, and spatial analysis



Incorporating climate risk into urban planning



Early-warning systems and protocols



Climate insurance provision and alignment

High-potential actions for each of 5 hazard types

● Nature-based solution

<p>Extreme heat</p> <ul style="list-style-type: none"> ● Street trees Cool surfaces 	<p>Inland flooding</p> <ul style="list-style-type: none"> ● River-catchment management ● Nature-based sustainable urban drainage solutions (SUDS) 	<p>Coastal flooding and storm surges</p> <ul style="list-style-type: none"> ● Coastal nature-based barriers Coastal artificial barriers Flood- and storm-resilient buildings 	<p>Drought</p> <ul style="list-style-type: none"> Water-conservation behavior programs Water-system efficiency 	<p>Wildfires</p> <ul style="list-style-type: none"> Development planning Preventive forestry management
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Actions Required:

A) Local Level

- Spatial Data Infrastructure & Management (SDIM)
- Spatial & Participatory Budgeting
- LSG Policy to monitor @Ward level:
 - Climate, SDG & Long-term Fiscal Commitment

B) State level:

- Settlement Policy and Strategy
- Fiscal Commitment for Climate Resilience & Funding
- Amendments to 74th CAA and Town and Country Planning Act linked to FRBM

C) National Level:

- 16th CFC - Linked to Settlement Policy

Thanks