

Smart Cities: Start and Journey-----

TRAINING PROGRAMME
ON
SMART CITIES
HUDCO HSMI, CGG, UAoA,
Nainital

Why talk about **Urban**?

Where is this urbanization taking place?

What are the challenges of Urbanization

What is New Urban Agenda?

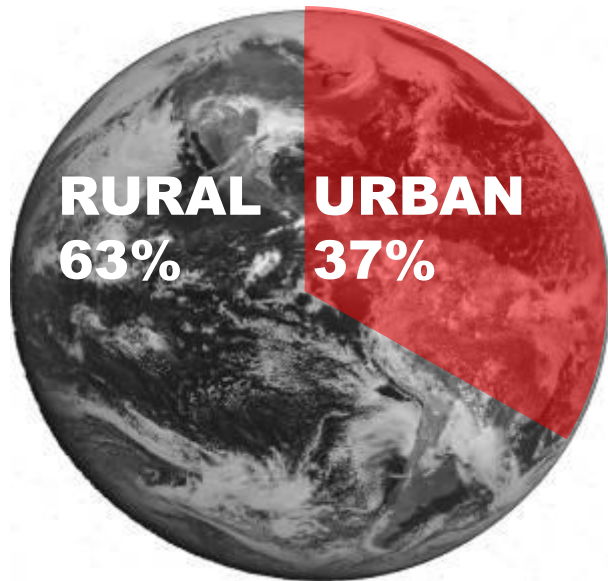
What are the SDGs?

Which SDG caters to Urban Development

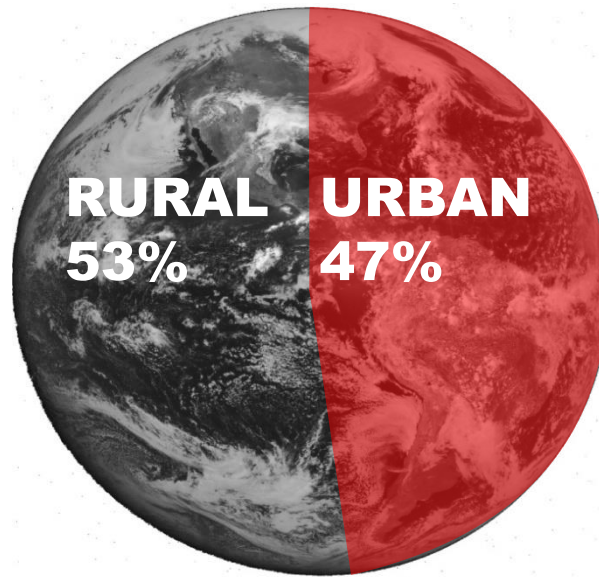
How India is responding to global frameworks



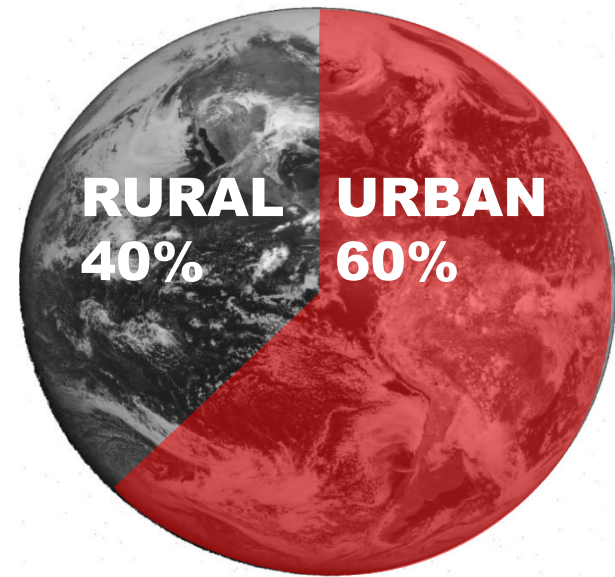
Trends in Urbanisation



1970



2000



2030

... and this trend increases.

growth

20%
0.9 Bill

55%
3.5
Bill

70%
7 Bill

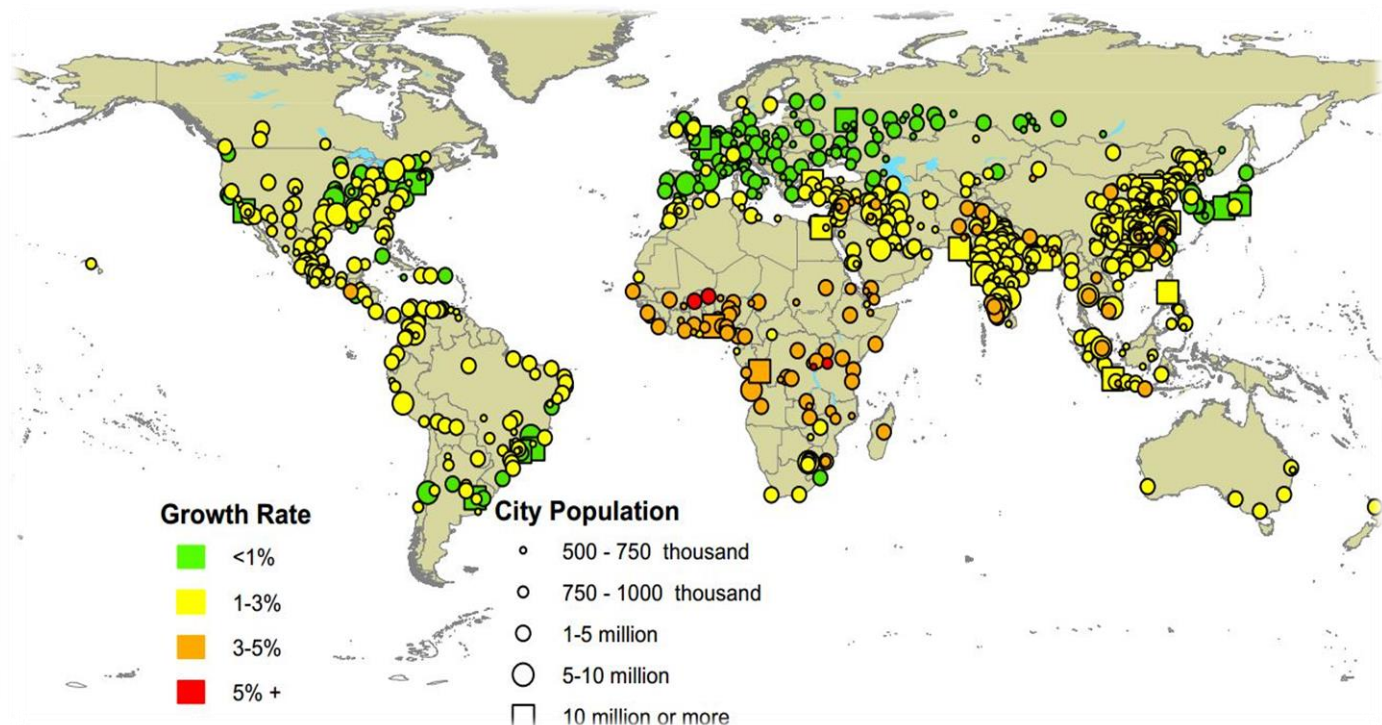
1900

2000

2050

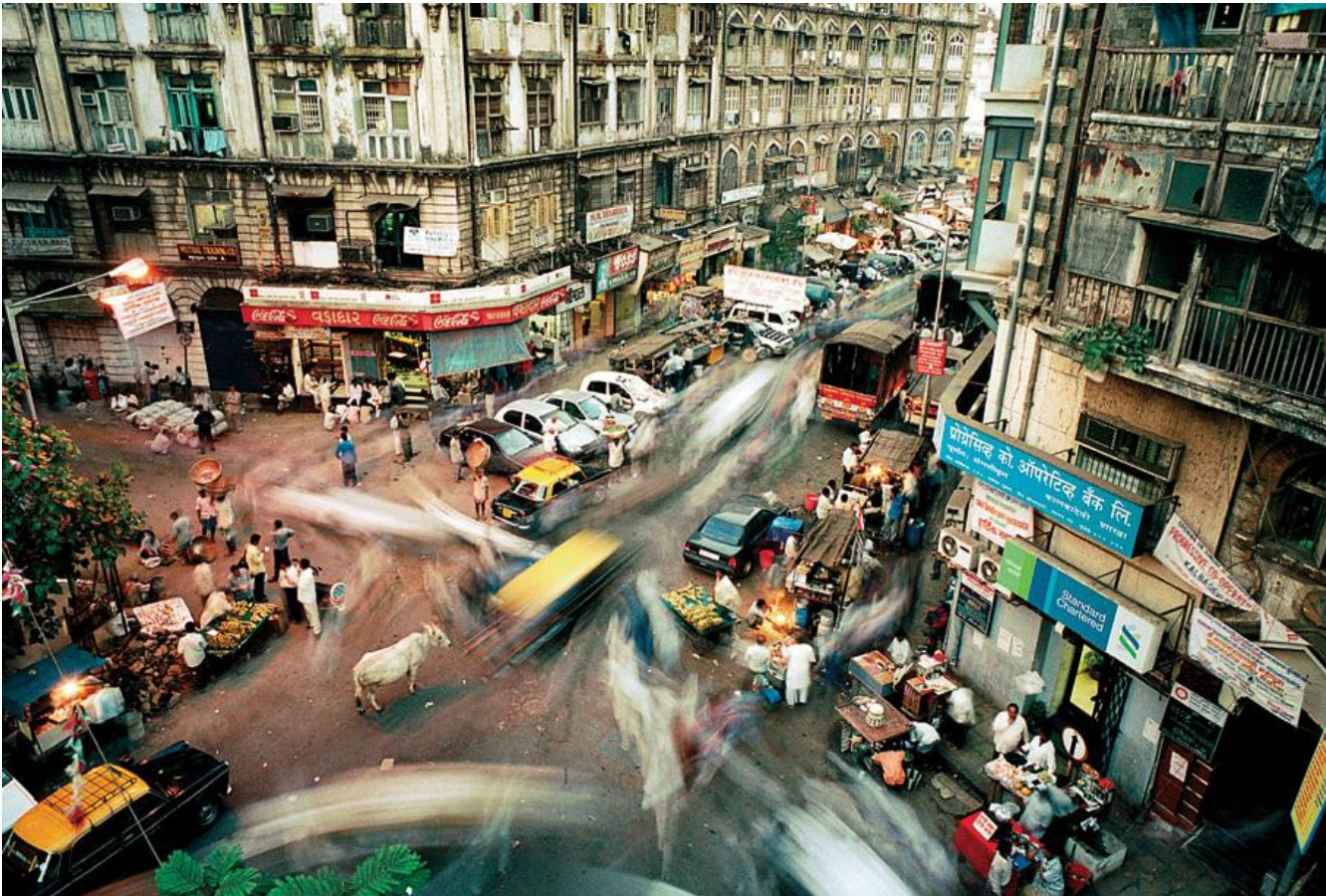
Over 90% of urbanization is taking place in developing countries

The fastest urban growth takes place in small-medium sized cities (<1M) in Africa and Asia.



Challenges – the global context

Cities today occupy approximately only 2% of the total land, however:



70%
Global Waste

70%
Greenhouse Gas Emissions

over 60%
Global Energy Consumption

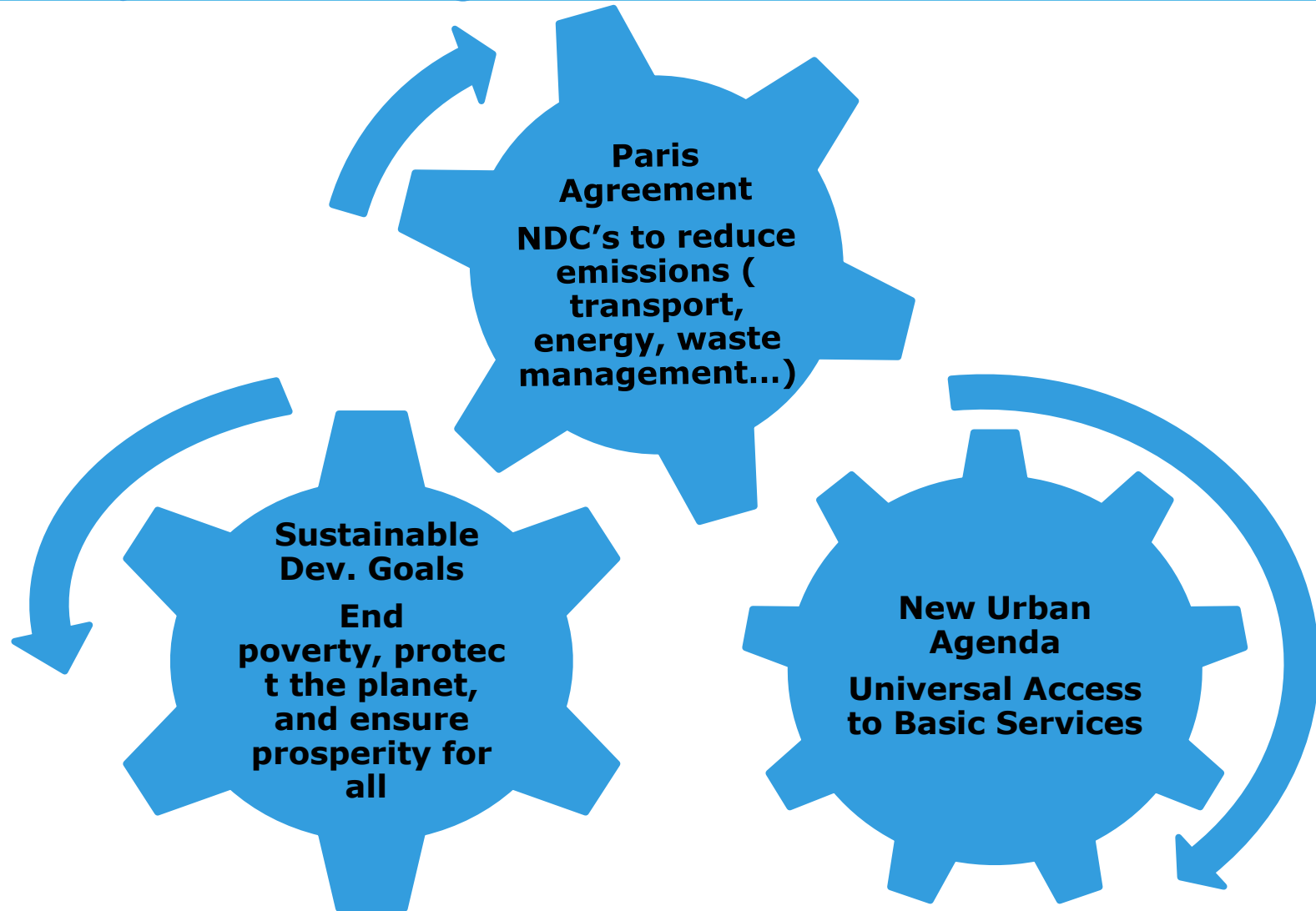
70%
Economy (GDP)

Global agreements 2015-2016



COP21 · CMP11
PARIS 2015
IN CLIMATE CHANGE CONFERENCE

The New Urban Agenda, SDGs and the Paris Agreement: Mutually Reinforcing Goals and Actions



To achieve our vision, we resolve to adopt a New Urban Agenda guided by the following **interlinked principles**

Leave no one behind...by providing equal access for all to physical and social infrastructure and basic services, ***as well as adequate and affordable housing***



We make the following transformative commitments...

...promote the **development of infrastructure that is resilient and resource efficient** and will reduce the risks and impact of disasters, ---We will also promote measures for strengthening coordination with local authorities and stakeholders.



We make the following transformative commitments...

...to support the implementation of urban planning strategies,, that facilitate access to quality basic services and public spaces for all, enhancing safety and security, favouring social and intergenerational interaction and the appreciation of diversity



We make the following transformative commitments for...

Persons in vulnerable situations, low-income groups and persons with disabilities, while enabling the *participation* and *engagement* of communities and relevant stakeholders in the planning and implementation of these policies.



We make the following transformative commitments...

-----promote national, subnational and local policies that address *all forms of discrimination and violence including preventing arbitrary forced evictions*

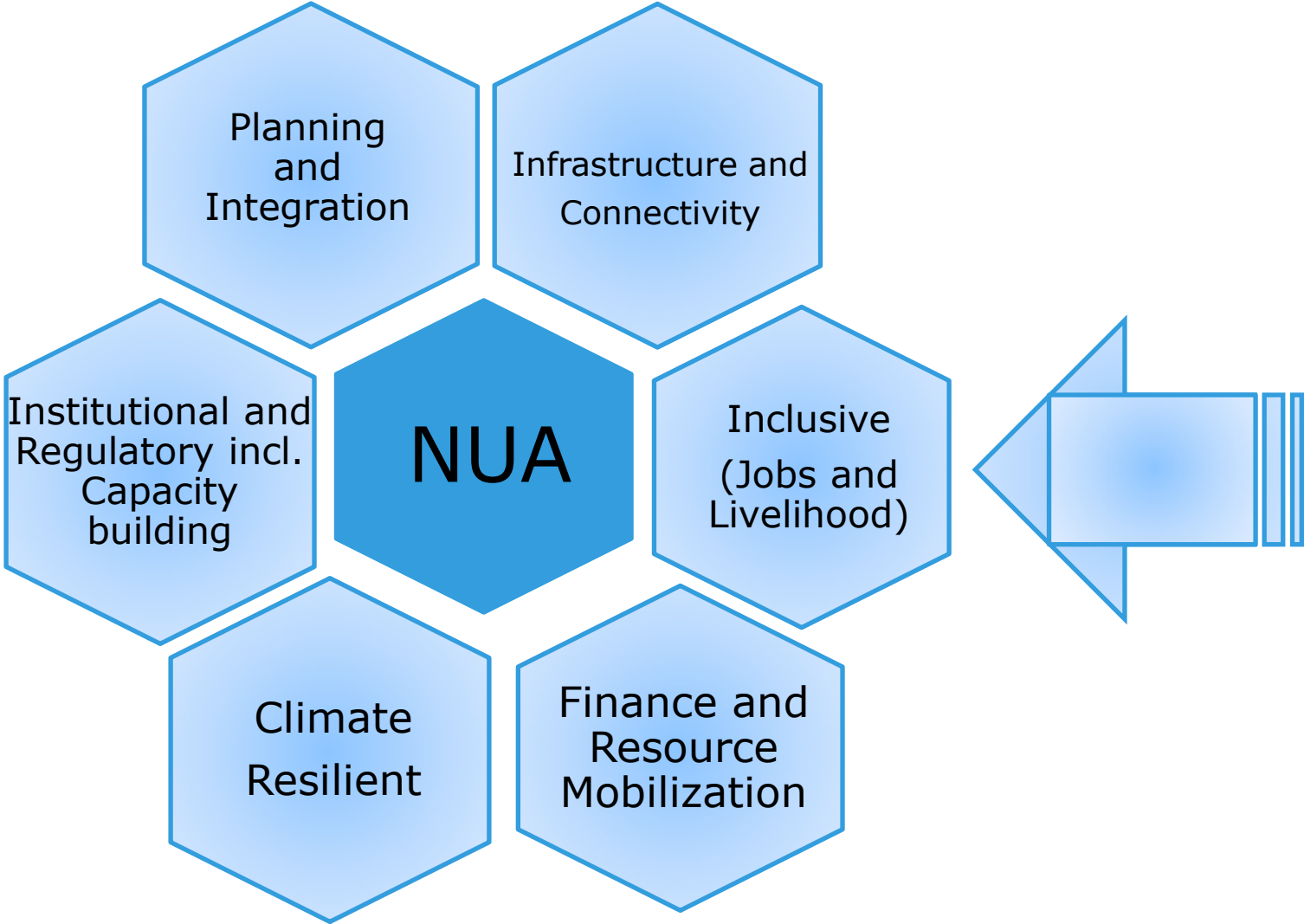


We make the following transformative commitments...

We will ensure coherence between goals and measures of sectoral policies, -----, **in order to strengthen integrated approaches to urbanization and implement integrated urban and territorial planning strategies that factor them in.**



Key Messages of NUA



The role of urbanization in development

1 Agenda

17 Goals

169 Targets

240 Indicators

For the first time in the Development Framework, Urbanization is considered formally as a source of wealth and prosperity.

Goal 11

Make cities and human settlements inclusive, safe, resilient and sustainable.

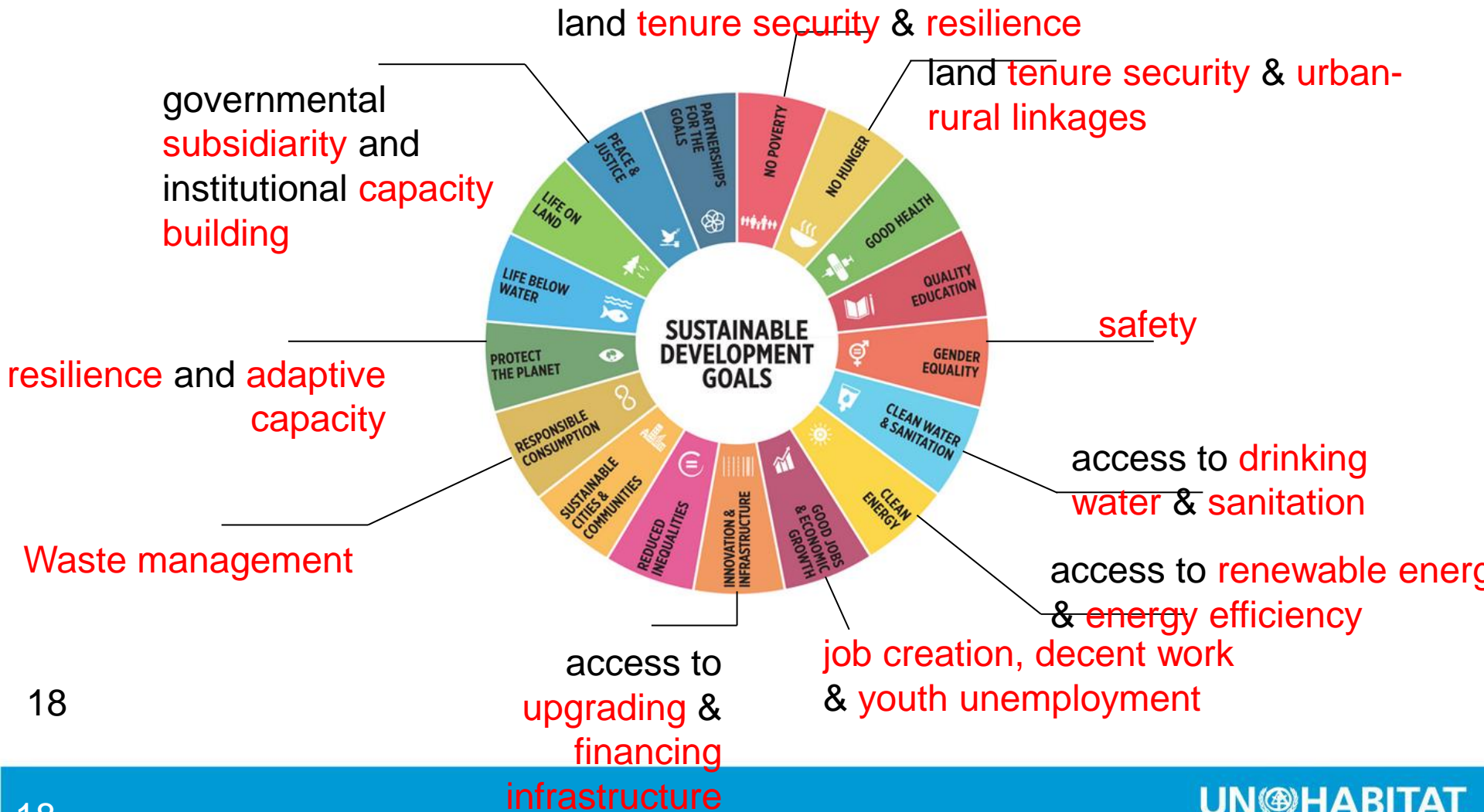


SDG 11: Targets

- Housing and basic services; upgrade slums
- Sustainable transport systems for all
- Enhance inclusive and sustainable urbanization
- Protect and safeguard the world's cultural and natural heritage
- Significantly reduce the deaths and losses caused by disasters
- Reduce the adverse per capita environmental impact of cities
- Safe, inclusive and accessible, green and public spaces



SDG and its Linkages



India's Urban Reality...

Today about **31%** of India lives in Cities; expected to rise to over **40% by 2030.**

Second Largest Urban System in the World
11% of World Population is Indian

By 2030, **Urban India** will contribute to **75% of India's GDP** up from 63% in 2014

Seventy and Young India

More than 62% of the population is in the working age group demanding faster and transparent services and world class Infrastructure

The President's address - Joint Session of Parliament -2014

“My government is conscious of the fact that our *urban infrastructure is under severe stress*.

Soon, *50 % of our population would be residing in urban areas*.

Taking urbanization as an opportunity rather than a challenge, the government will build *100 cities* focused on specialized domains and equipped with world class amenities.

Integrated infrastructure will be rolled out in model towns to focus on *cleanliness and sanitation*. By the time the nation completes 75 years of its independence, every family will have a *water connection, toilet facilities, 24x7 electricity supply and access*.”

Paradigm Shift: Several New Firsts

1

Taking urbanization as an opportunity rather than a challenge

2

Citizen centric approach to align the development agenda of the cities with people priorities and needs

3

Cooperative federalism- Freedom to States/ULBs to design and implement

4

Focus on infrastructure that leads to delivery of services to citizens

5

Renewed focus on integrated planning through convergence and qualitative improvements.

Paradigm Shift: Several New Firsts

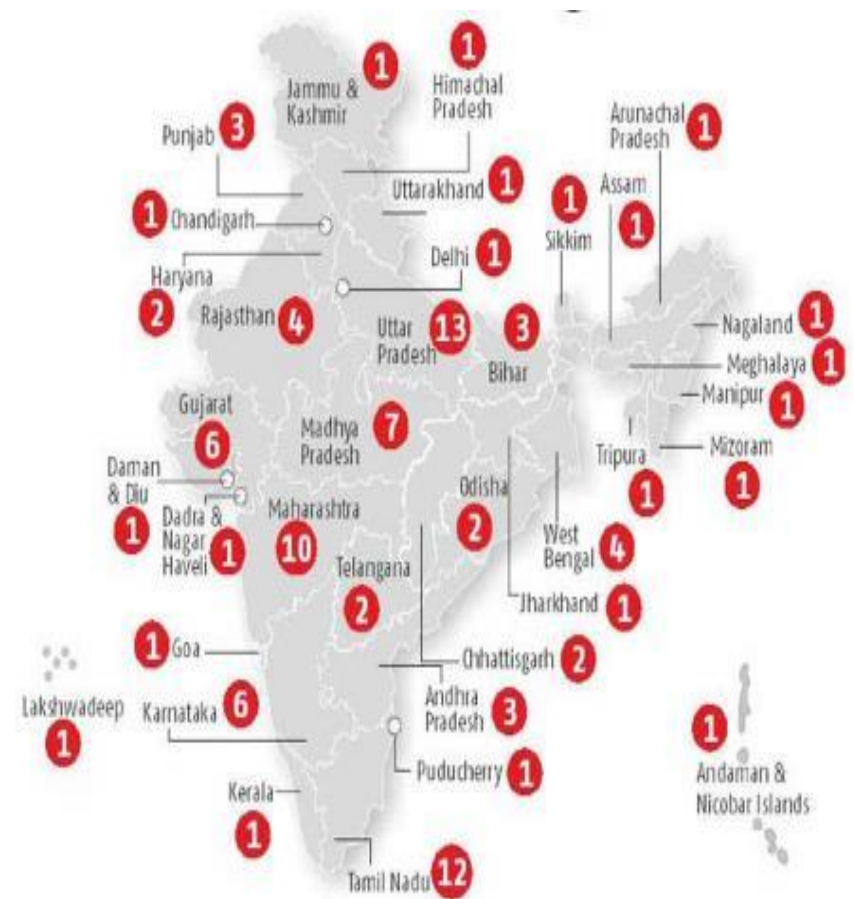
- 6 Commitment to environment sustainability
- 7 Focus on inclusive growth
- 8 Technology to enhance efficiency of services delivery
- 9 Shift from project based approach to outcome based approach

INDIA'S URBAN FLAGSHIP MISSIONS

Mission	Objective	Strategy
Development of 100 smart cities (Smart Cities Mission)		Employ smart solutions to make operations smart and provide 'more with less'.
	Ensure that every household has access to a tap with assured supply of water and a sewerage connection	
Housing for All (20 million by 2022)		Reduce supply and demand gap and improving the living condition of the urban poor
	Ensure improvements in hygiene, waste management and sanitation levels across the country	
Heritage City Development and Augmentation Yojana (12 cities)		Focus on water supply, sanitation, landscaping and tourist conveniences
	Accelerate rural development with urban services.	

Complementary Missions : One Goal

- Missions are inter-linked and complementary missions
- Addresses gaps in core physical infrastructure, and to become 'Smart' will adopt smart applications – top-up on AMRUT
- Not prescriptive approach. Encourages States/ ULBs to strive for improvement



What is Smart?

'Cities Decide' their own Smart Journey



VISION OF THE WINNING PROPOSALS

Ludhiana

Asia's largest hub for bicycle manufacturing envisions to be the **most bicycle friendly city** in the country

Pune

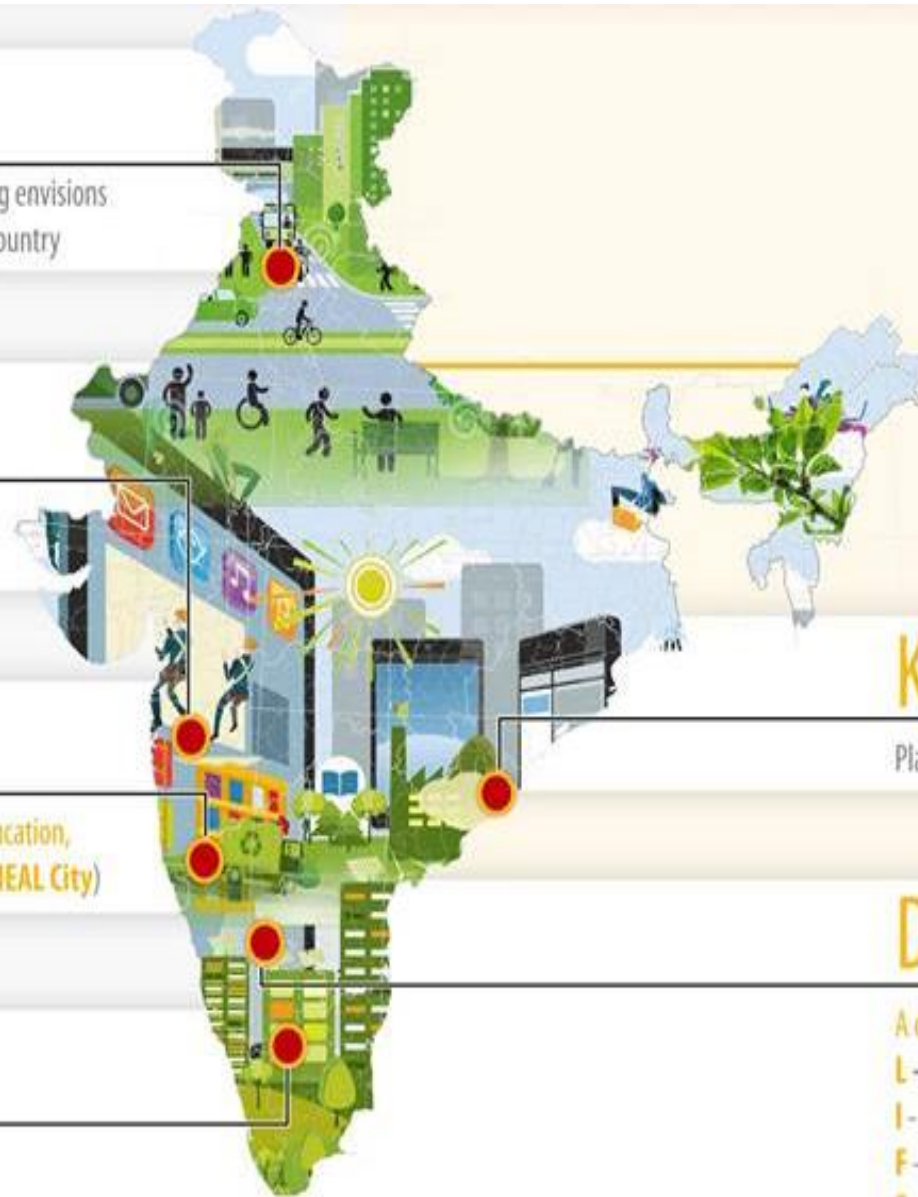
Aims to be **future proof** by improving core infrastructure

Belagavi

Wants to be the destination for **health, education, ancillary industries, and logistics sectors (HEAL City)**

Coimbatore

Proposing **rejuvenation** of 8 lakes and creating lakefronts



SMART SOLUTIONS
Smart Infrastructure
Information & Communication Technology
Smart Transportation
Smart Business
Smart Environment
Smart Living

Kakinada

Plans to be **pensioner's paradise**

Devanagere

A city where **L.I.F.E** nestles
L - Live in safety and convenience
I - Inclusive living
F - Futuristic
E - Edutainment, environmental friendly

Smart City Mission: The Layered Approach

Improving Living Conditions

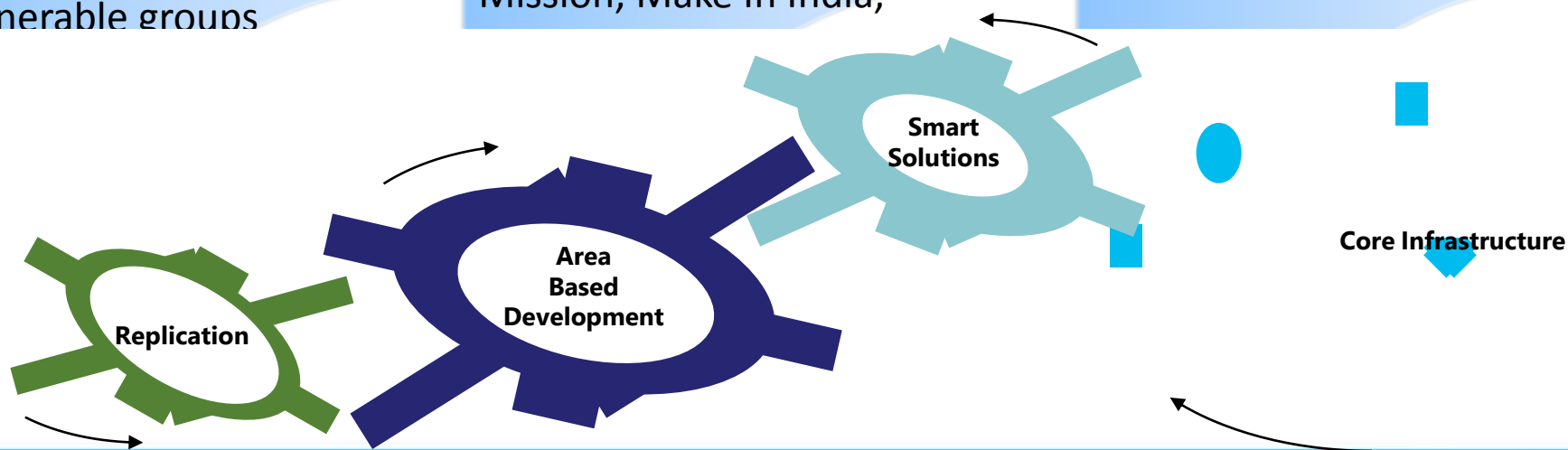
- Develop the vision for the city
- Creating jobs and Strengthening Urban Economy
- Addressing the needs of vulnerable groups

Managing City's Physical Form

- Divide the city into 'Areas' and select one Area to develop
- Convergence with all relevant missions such as Digital India, Solar Cities Mission, Make In India,

Incorporating Smart Layers

- Usage of information technology to improve services and infrastructure.
- Citizen centric and efficient electronic governance forms



VISION, STRATEGY, GOALS & PROJECTS LINKAGE - BHUBANESWAR

CITY PROFILE

World Heritage Migration Natural Heritage
 City Multiplicity of Agencies Strategic Location Leapfrog Development
 No Sewerage Treatment Plant Sustainable Finance e-governance Water Resources
 Informal Settlement

SWOT ANALYSIS

Golden Tourism Triangle
 Regional Economy
 Cultural Tradition Urban Sprawl Multi-hazard Risks Private Vehicle Ownership
 Urban History Digital Divide Leakage of Tourist traffic
 Social Equity Sustainable Finance Lack of City Core

CITIZEN ENGAGEMENT

Good Governance Public Transportation
 Parking LED Cycle Tracks Women Safety Car-free days
 Smart Waste Management Waste Water Management Green City
 Affordable Housing Solar Toilets Wi-Fi Digitalization

5 INTEGRATED STRATEGIC PILLARS

10 STRATEGIC DIRECTIONS







VISION ELEMENTS

30 CITY GOALS

CATALYST PROJECTS



Summary OF Strategies

Bhubaneswar	Pune	Jaipur	Kochi	Ahmedabad	Vishakhapatnam
<p>Responsive Governance TOD Based Planning & Design</p> <p>Fiscal Sustainability</p> <p>Infrastructure</p> <p>Socio - economic Development</p> 	<p>Future – Proof Urban Infrastructure</p> <p>Leverage multiple source of funds</p> <p>Transform Pune into the most liveable city in India</p> <p>Focus on employment opportunities</p> <p>City attractiveness through river front</p>  <p>अद्वितीय & Unique</p>	<p>PAN CITY</p> <ul style="list-style-type: none"> • Sustainable Mobility • Intermodal connectivity • Smart SWM <p>Area Based Development</p> <ul style="list-style-type: none"> • Smart Heritage • Tourist Precinct • Smart Mobility • Smart & sustainable infrastructure 	<p>Transport</p> <p>Heritage and Tourism</p> <p>Society and Governance</p> <p>Create a cohesive society by ensuring quality of life and universal access to smart urban services.</p> <p>Economy</p>  <p>Smart City Kochi</p>	<p>Slum Free City</p> <p>Safer & Sustainable Transport System</p> <p>Urban Resilience</p> <p>Sustainable and Planned City Growth</p> <p>Connected City</p>  <p>Smart City Ahmedabad</p>	<p>A Healthy and Livable City</p> <p>A Resilient City</p> <p>A Vibrant City</p>  <p>Smart City Vishakhapatnam</p>

Broad Areas of Interventions Identified

1. Preserving Natural, Built and Cultural Heritage

- Rehabilitation and renewal of ecologically sensitive features such as urban greens, Lake Restoration / Riverfront Development,
- Preservation and adaptive reuse of heritage assets

2. Adopting Sustainable Growth Strategies

- Renewed focus on improving the open space structures
- Focus on adequate provision of good quality water, minimized water losses, systemic efficiencies are optimized through smart application
- Retrofit of old industrial units/ Transforming civic centers and markets/
Upgradation of markets/ Market Redevelopment
- Development of Railway station areas/Old Bus stops

Broad Areas of Interventions Identified

3. Developing Sustainable Transportation Solutions

- Strong focus on NMT modes such as walking and bicycling
- Smart parking and smart bus shelters including WiFi Hotspots
- Development of Railway station areas/Old Bus stops
- Smart traffic management systems; electric/hybrid buses, pedestrian networks and ICT applications for bus route, travel planning etc.

4. Making Governance Citizen Friendly and Cost-effective

- Smart Cards for enabling payment across all modes of transport including metro, city buses, para-transit, and common service centres and kiosks/retail points.
- Convergence with the Skill India/Make in India Missions for appropriate skill training
- Augmentation of hospital facilities, development of new health facilities, and upgrading health infrastructure
- Universal design in all public facilities and public spaces like walkways, public plazas, green spaces etc. accessible to children, women, the elderly and the differently abled.

Broad Areas of Interventions Identified

5. Improving Disaster Preparedness and Climate Change Resilience

- Integrated command centre for overall disaster management and mitigation system in the city
- Solar Rooftop Systems, LED lighting,
- Rainwater Harvesting, dual piping systems and air- quality monitoring
- Solid Waste Management including maintenance and tracking
- Street lights with air pollution sensors, panic button for quick emergency response, Wi-Fi access point and CCTV camera Smart Parking

Focus areas-ABD

Focus Areas	Number of Cities
Open Space Management/Parks/Plaza	23
Rainwater Harvesting	24
Lake Restoration/Riverfront Development	19
CCTV & Surveillance	20
Traffic Management	18
WiFi Hotspots	17



Focus areas-Pan City

Focus Areas	Number of Cities
Centralised command and control	24
Smart Parking	21
Public transit & traffic Mgt	19
Maintenance & tracking	16
Solid Waste Management	13
Common Card Payment & Ops	14



Smart Poles, Kolkatta



Central Control Room, Surat



Solar Rooftops, Pune



Smart City Mobile App, Vadodara



LED Street Lights, Vizag



Water Meters, Chennai



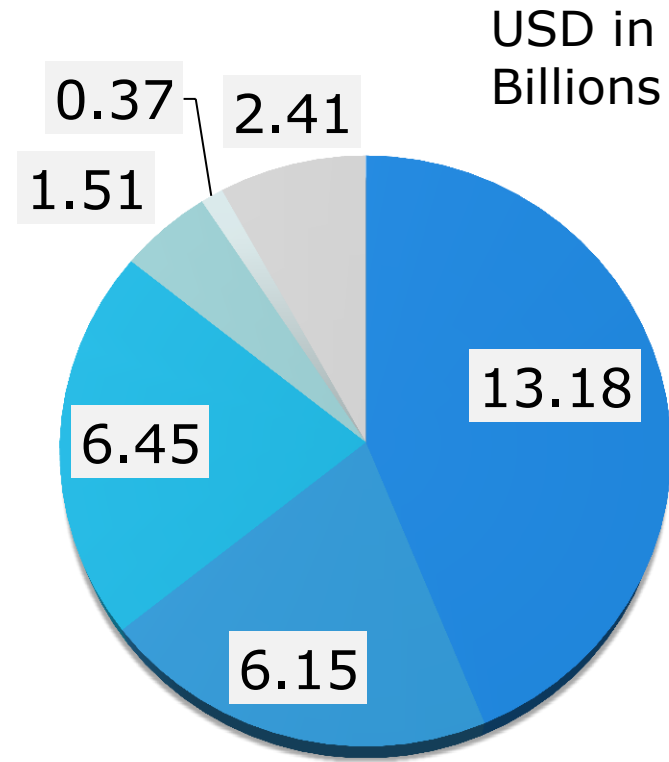
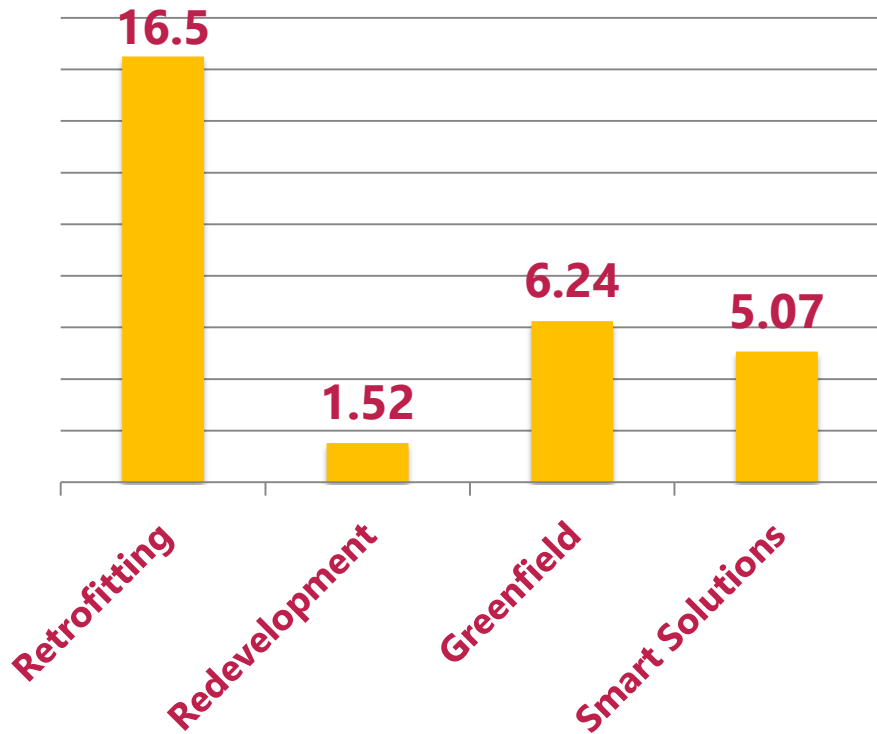
Smart Meters, Belagavi

Convergence

- DeitY – IT connectivity, Electronic delivery of services, citizens engagement (MyGov)
- Police –City's eyes and ears
- MNRE- Waste to energy, solar, green buildings
- Ministry of Power – smart metering
- HUPA – Affordable housing, slum development
- Department of Land Resources – digitization of land records, GIS mapping
- Ministry of Transport

Others as per Smart City Proposals that come in.

Investments in 90 selected Cities

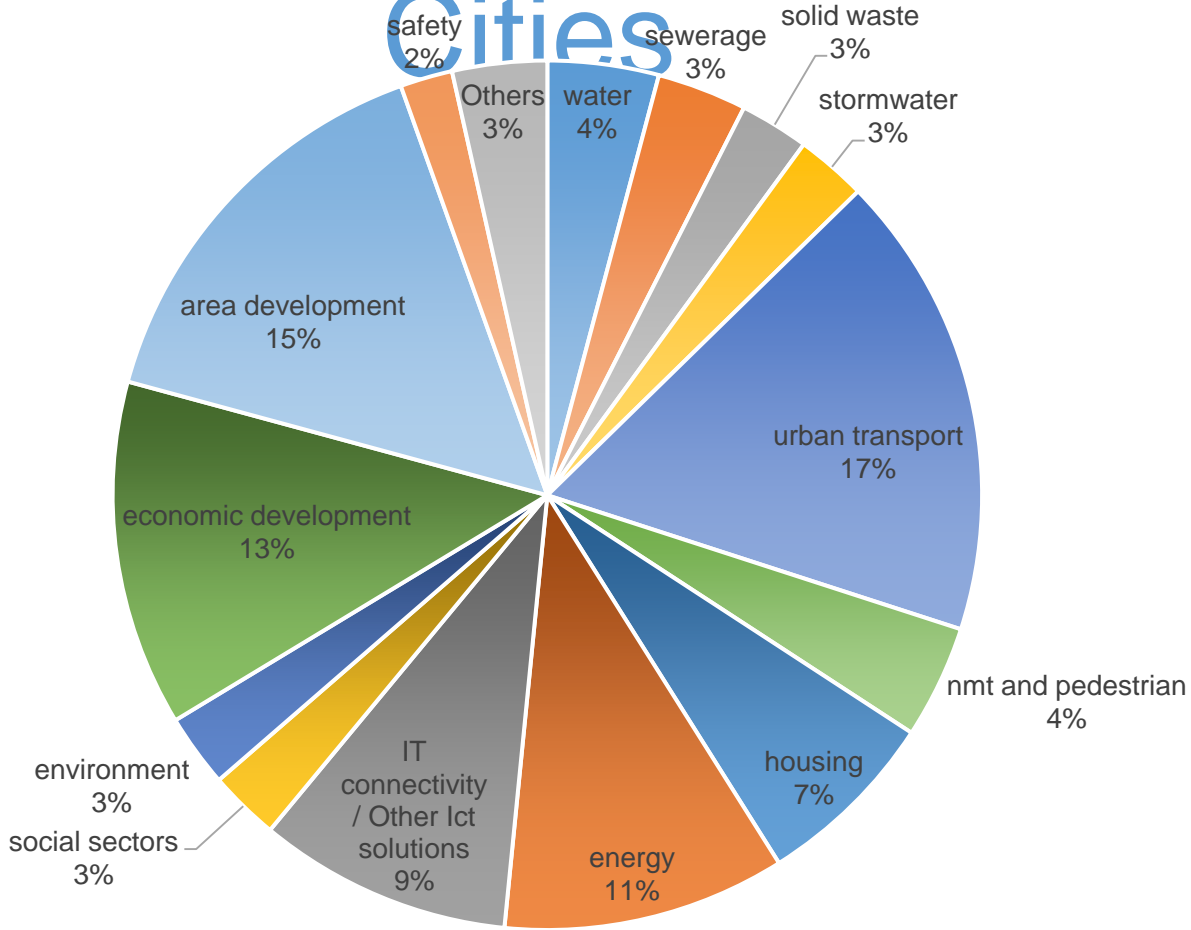


Over **USD 30 Billion** Planned Expenditure for 90 Smart Cities

- Government
- Private
- Own Source
- Convergence
- Loans/Debt
- Others

Sector wise Investments in 90

Cities



Investments Sources

Possible sources – Other than Government Grants

- Municipal Bonds
- Public Private Partnerships
- Line of Credit
- Loans
- Value Capture Financing
- Improvements in own source revenues

Implementation Framework - Special Purpose Vehicle (SPV)

A limited company under Companies Act, 2013

State/UT & ULBs with 50:50 equity shareholding

(private sector participation permissible with State/ULB as major stakeholders)

New forms of procurement - enter into JVs and PPPs

Responsible for City level Implementations

(plan, appraise, approve, release funds, evaluate)

Access to finance from External sources



De-risking Investments

- Complete flexibility for SPV to plan, appraise, approve, release funds, implement, manage, operate, monitor and evaluate the Smart City development projects – on time implementation
- SPV given autonomy to raise funds on its own from the Banks or financial institutions
- SPV can enter into contracts, partnerships and service delivery arrangements (e.g. hybrid PPPs)
- Relative independence of SPV from red-tape

De-risking Investments

- State support:
The States/ULBs shall ensure that a dedicated and substantial revenue stream is made available to the SPV to make it self sustainable and creditworthy –
For instance one of the States has proposed 20% contribution from budgetary allocations of all parasternal bodies to the SPV
- Cities have also committed to improve their internal revenues and debt service capacities
- Predictability and consistency: Commercial agreements with other State/parastatals.

- 
- **Integrated command and control center (IC&CC)**
 - 5 cities already started implementation
 - 30 cities would go live by 2018
 - **Smart Roads and Street Re-design**
 - 10 Cities started implementation
 - 40 cities would complete implementation by 2018
 - **Heritage & redevelopment including riverfront and lakefront development projects**
 - 38 projects across 15 cities have already started tendering
 - 60 projects to be completed by 2018
 - **Solar Roof Top Projects**
 - Solar components of all 60 Smart Cities to be operational by 2018

Key Challenges

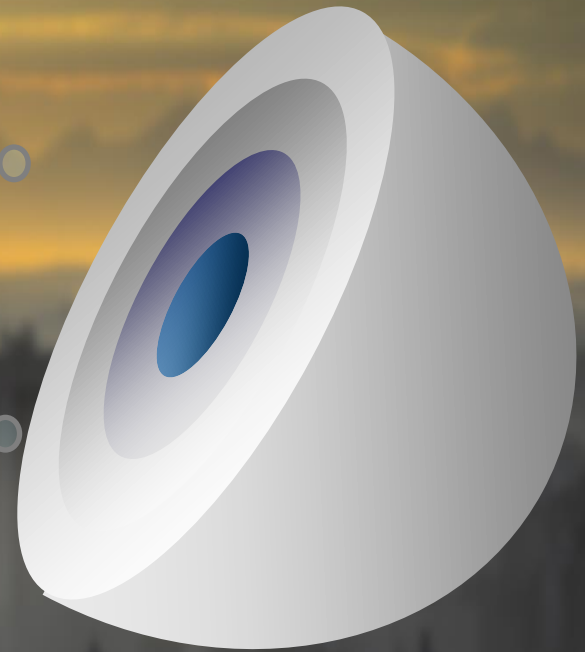
Unifying Pillars of Governance including developing institutions to stimulate capacity building and attract talent to grow businesses

From 'Project' based to 'Area' based approach

Convergence of Resources

Citizen Consultations

Monitoring the Outcomes



Key Levers of Change



1. Putting in place integrated urban policies consistent with the principle of co-operative federalism

2. Harnessing the rural-urban continuum

3. Promoting inclusive urban development

4. . Recognize and actively promote the centrality of sustainability in urban policy

New Urban Agenda

15ci, 96, 136
14b, 44, 98
49,72,95,96
5, 13b, 45, 58,62, 86
9, 14c, 22,23, 51, 70, 143

Sustainable Development Goals

Goal 8, 10, 11.a, 11.3
Goal 9.1, 11.a 11.3
Goal 11.a
Goal 1.4, 1.b,3,4,11.3
Goal 3.9, 6, 7,11.6,12.4,13.2,17.14

Paris Agreement

2, 8.1
8.1,10.1

Key Levers of Change



5. Empowering Municipalities and other local level institutions

6.. Strengthening Housing Finance System

7. Provision and financing of urban infrastructure and basic services

8. Access to social justice and gender equity

9. Robust Urban Information System

New Urban Agenda

47, 91, 147

56,107,140

29, 91, 139

5, 13c,
32,39,157,
159, 160

36, 92, 156

Sustainable Development Goals

Goal 11.3,
11.a, 16.6,
16.7

Goal 8.10,
11.1

Goal 1.4,
11, 17.3

Goal 5,
11.7

Goal 11,
12.8,16.10

Paris Agreement

11.1

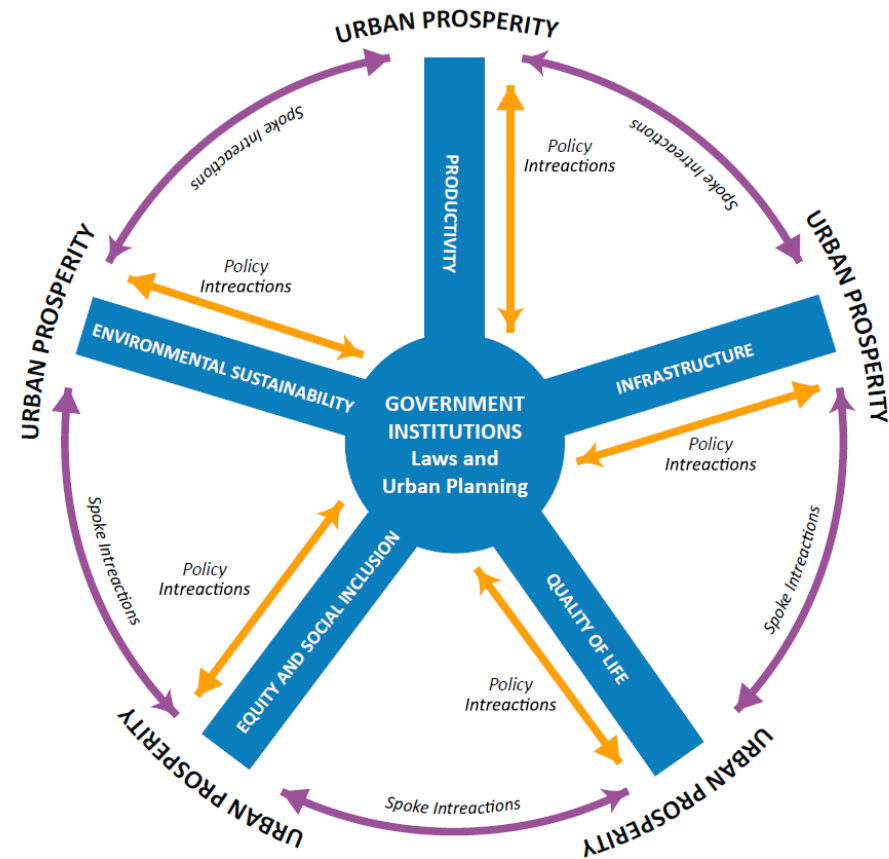
8.1

1, 2

12.7



Area of Action – Method



Good urbanization comes *by choice, not by chance*

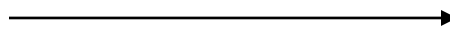


Thank You

“Business as usual” vs. Sustainable Urban Dev.



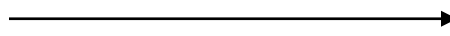
Urban Sprawl



Compactness



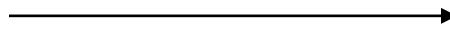
Segregation



Integration



Congestion



Connectivity

Key Messages linking SDGs-COP21-H3

1. If effectively steered, urbanization is a **transformative process**, which can help overcome some of the major global challenges, including climate change mitigation and adaptation.
2. Compact, walkable and connected cities can also **reduce the capital and operating costs** needed to provide basic urban infrastructure and services.
3. Actively engaging with local authorities will help Parties to achieve ambitious **Intended Nationally Determined Contributions**.
4. **Revival of confidence** in the role of urban planning and design in shaping sustainable development
5. **Recognition of the need** for **compact, integrated** and **connected** cities that are socially **inclusive** and climate **resilient**.
6. **Implementation** requires **integrated** policies, plans and designs that link planning, legislation and finance
7. An **evidence-based** implementation of the **New Urban Agenda** offers a chance to explore the implications of the **Global Goals** and **Paris Agreement** through an urban lens

Key Challenges

*New Governance and
Administration
Mechanisms*

Integrated Spatial
Planning Approach

Improving
Municipal Own
Sources

Creating jobs and
Strengthening
Urban Economy

City Urban
Observatories

Bridging the
divided city and
fostering inclusion