The need for city/urban data and monitoring systems for SDGs, New Urban Agenda and other global urban-related frameworks.

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2017 Human Planet Forum,
University of Twente, Enschede, Netherlands

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FOR A BETTER URBAN FUTURE

1858 – 2017 what has changed?

In 1858 Gaspard Felix Tournachon ('Nadar') takes the 1st aerial photographs from his hot air balloon.

In 1957 the Soviet Union launch the world's first artificial satellite, Sputnik 1.
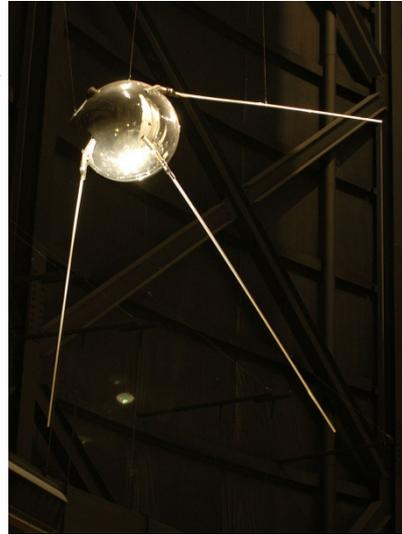
Today over 500+ operational satellites are available in space.

Locally, over 6000+ drones have been sold and play a key role in urban science and humanitarian recovery

Drones take center stage in Harvey recovery

By Mark Rockwell Sep 11, 2017

Unmanned aerial systems exacerbated some rescue problems in the Houston area in the wake of Hurricane Harvey, but they've also helped speed recovery there, according to the Federal Aviation Administration chief Michael Huerta.

"I don't think it's an exaggeration to say that the hurricane response will be looked back upon as a landmark in the evolution of drone usage in

The 2030 Agenda for Sustainable Development

The World's To-Do List by 2030

- SDGs offer a 'supremely ambitious and transformational vision' for our common future till 2030.

- 17 goals; 169 targets

Each goal is important in itself …
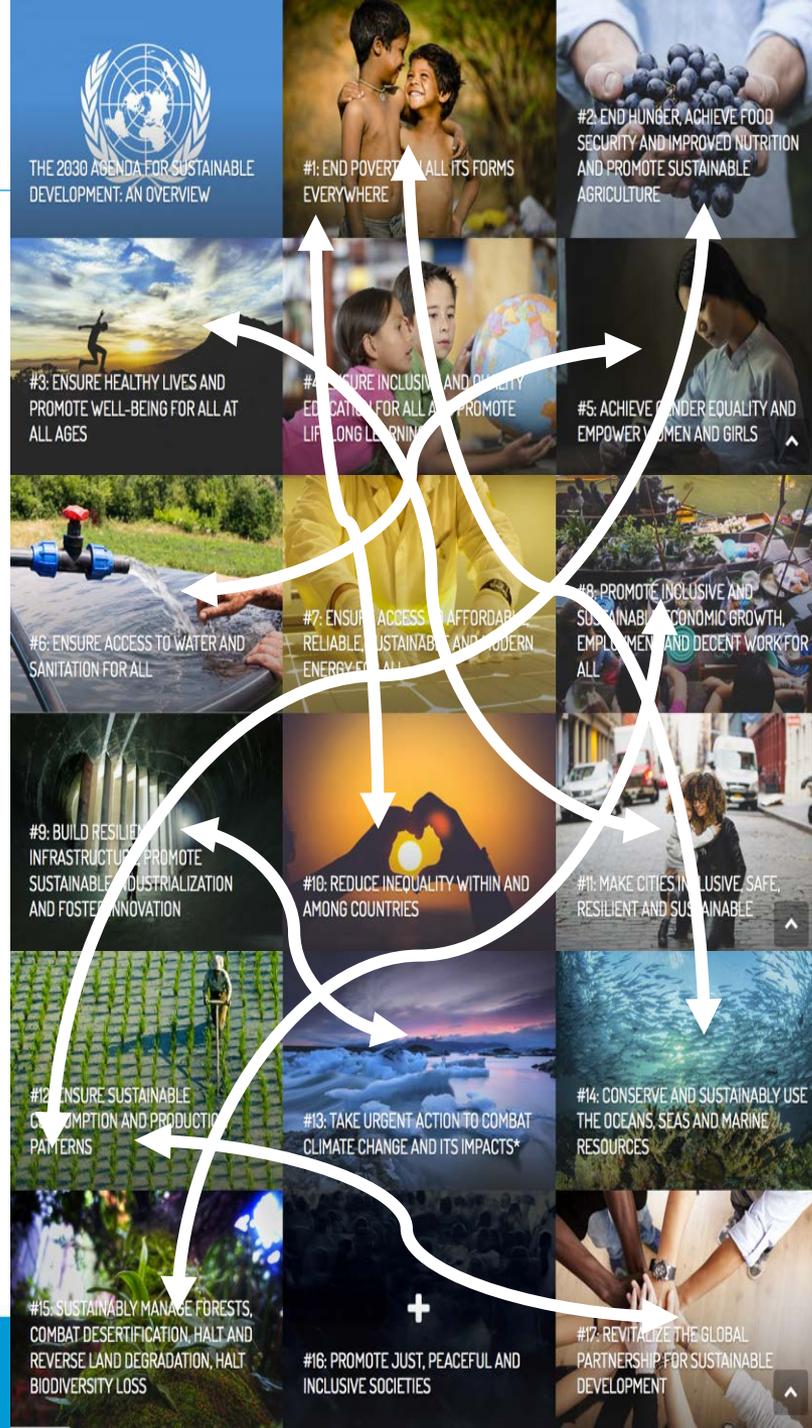
And they are all connected

The 2030 Agenda & urban data needs

City-level action encompasses many more areas than Goal 11
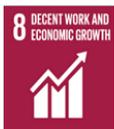
The NUA - Follow up and review

The NUA is the first internationally agreed document detailing implementation of the urban dimension of the SDGs

164. Propose a strong connection between **New Urban Agenda** and the **2030 Agenda for Sustainable Development**

167. Need to report on progress with **qualitative and quantitative data**

How is spatial urban monitoring articulated in the NUA?

- In the Chapter on "<u>Environmentally Sustainable and Resilient Urban Development</u>"

§63   We recognize that cities and human settlements face *unprecedented threats from unsustainable consumption and production patterns*, loss of biodiversity, pressure on ecosystems, pollution, and natural and man-made disasters, and climate change and its related risks, undermining the efforts to (…) achieve sustainable development

§65   We commit to facilitate the sustainable management of natural resources in cities and human settlements in a manner that protects and improves the urban ecosystem and environmental services, reduces greenhouse gas emissions and air pollution, and promotes disaster risk reduction and management, (…) through *environmentally sound urban and territorial planning, infrastructure, and basic services*.

§72   We commit to *long-term urban and territorial planning processes and spatial development practices* that incorporate integrated water resources planning and management, considering the urban-rural continuum at the local and territorial scales, and including the participation of relevant stakeholders and communities.

Corporate Social Responsibility (CSR) and SDGs

Did you know that most businesses are aware of the SDGs and majority are planning to engage...

BUT why should they engage?

92%	72%	29%	13%
Businesses that are aware of the SDGs	Businesses that are planning to take action	Business that are setting goals aligned with the SDGs	Businesses that have identfied the tools they need
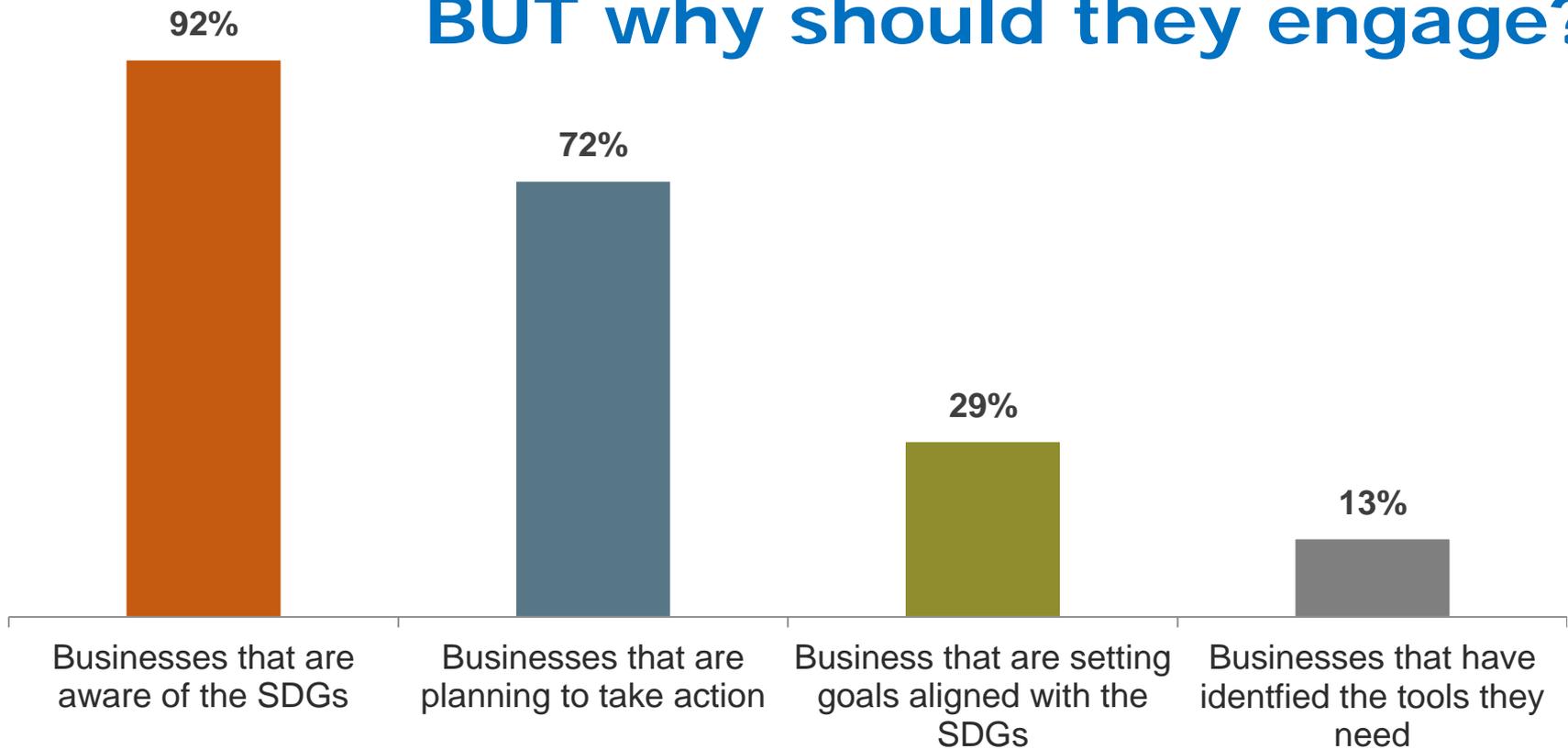
Source – *Make it your business: Engaging with the Sustainable Development Goals, PwC 2015*

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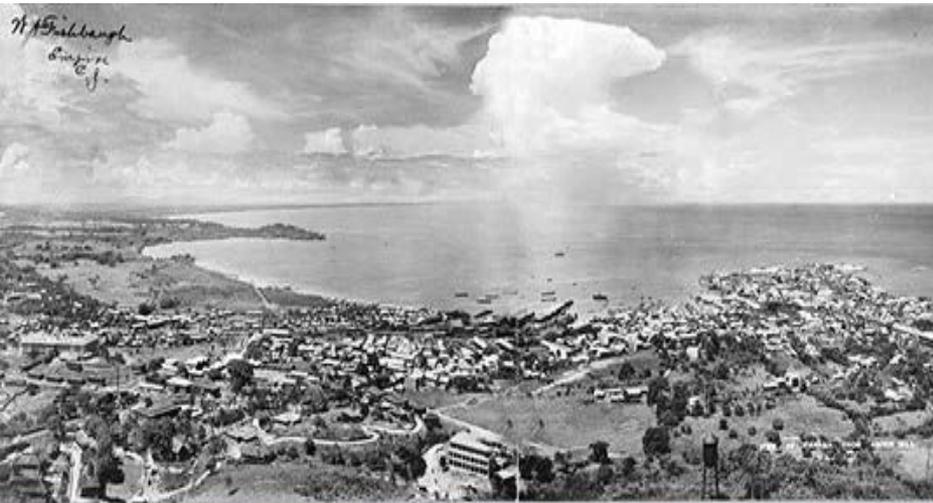
Images via: Skyscraper City, Brian Gratwicke   Credit: *Over Hong Kong* (2007), Kaysan Bartlett
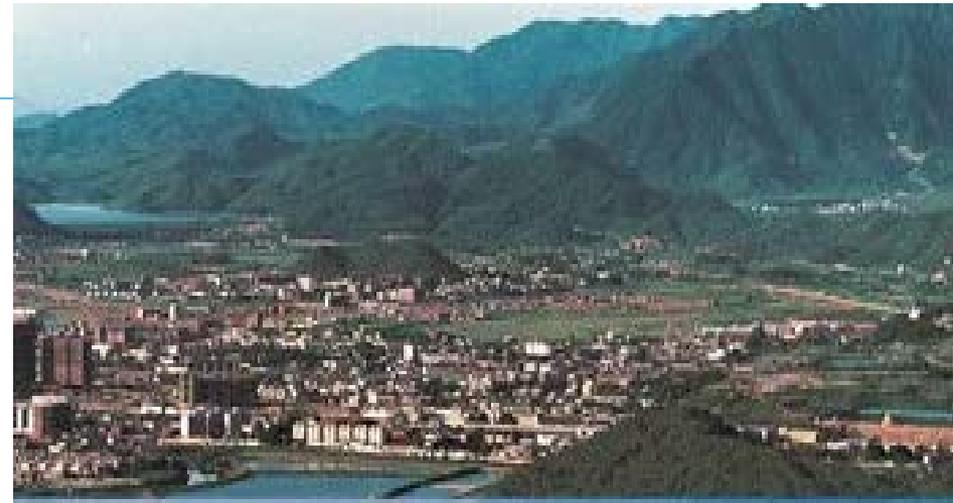
The outward and upward growth of Panama City, Panama, 1930 – 2009 (left) and Shenzhen, China, 1982 – 2007 (right).

Over 50% of the global population now lives in cities and it is expected that 70% of humanity will be urban by 2050.

As cities **lose density** and **intensify sprawl**, they lock themselves into unsustainable land use patterns.

Less Developed Countries
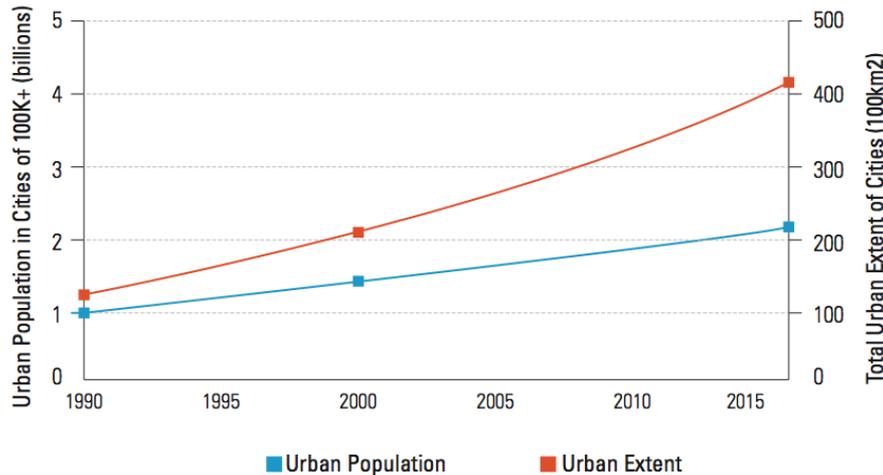
More Developed Countries
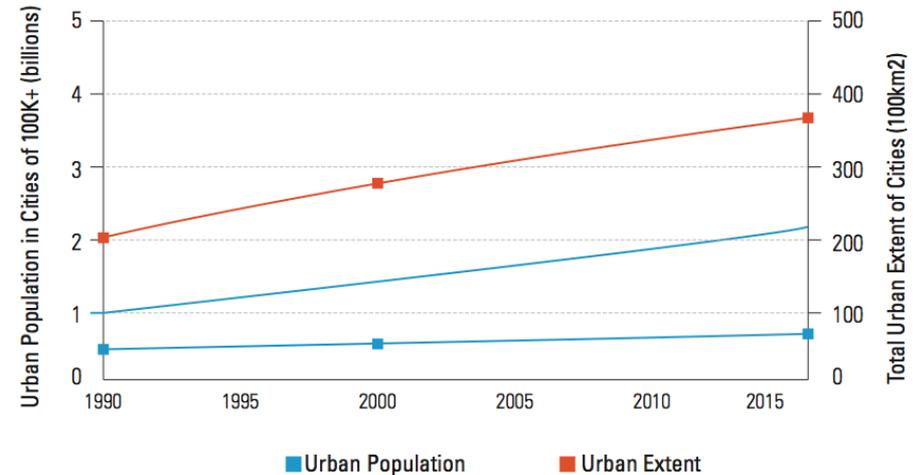
In Nairobi slums………

- The overall mortality burden per capita is 205 YLL/1,000 person years.
- Children under the age of five years have more than four times the mortality burden of the rest of the population, mostly due to pneumonia and diarrhoeal diseases.
- Among the population aged five years and above, HIV/AIDS and tuberculosis account for about 50% of the mortality burden.

Reference: "The burden of disease profile of residents of Nairobi's slums: Results from a Demographic Surveillance System: Catherine Kyobutungi`, Abdhalah Kasiira Ziraba, Alex Ezeh and Yazoumé Yé 2008"

In summary, urban areas today are:

- Home to 56% of human settlements
- Consume 75% of the earth's natural resources
- Produce 60% of global GHG emissions
- Produce 50% of global waste
- Produce 80% of Global GDP

We need to include people, locations and study city conditions to ensure that no one – and **no place – is left behind**

Data needs to be disaggregated along key dimensions: age, sex, disabilities status, social groups, income levels, migratory status, locations
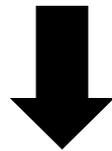
Impacts the quality of decision-making

Selected indicators of different towns & city sizes in some countries

	Employment Rate	Self-Employ. Rate	Net School enrol. Primary	Net School enrol. Second.	Literacy Rate	Girl/Boy ratio - Primary	Girl/Boy - Secondary	Improved sanitation	Improved Water Supply	Electricity	Gas/elec/Coal as cooking fuel
MALI											
Rural	*60.9*	*33.5*	*41.0*	*15.4*	*28.0*	*0.77*	*0.38*	*75.2*	*24.5*	*8.8*	*11.9*
Urban	*50.1*	*44.4*	*75.0*	*42.1*	*63.0*	*0.95*	*0.62*	*97.0*	*63.9*	*65.8*	*43.7*
XXS	50.1	28.6	58.4	12.9	31.0	0.47	0.09	96.3	52.8	26.9	4.8
XS	56.7	34.1	50.8	14.6	27.2	0.59	0.29	94.2	51.9	13.9	3.9
S	52.8	41.8	52.1	28.0	45.4	0.87	0.46	86.9	55.3	37.6	20.7
M	47.5	45.5	68.5	42.1	56.1	0.93	0.54	89.7	69.4	49.5	21.7
L	44.8	41.5	72.8	43.8	66.6	0.93	0.63	92.8	61.6	50.9	24.5
XL	50.6	44.3	74.7	42.6	62.6	0.93	0.56	97.7	50.5	52.8	15.9
XXL	50.9	45.3	78.4	43.3	65.4	0.98	0.68	99.0	70.3	79.1	63.8
SWAZILAND											
Rural	*22.5*	*27.4*	*77.9*	*32.9*	*94.9*	*0.93*	*1.04*	*74.3*	*49.6*	*21.2*	*15.3*
Urban	*51.3*	*20.2*	*66.9*	*40.8*	*97.7*	*1.03*	*1.14*	*88.5*	*86.9*	*64.9*	*87.1*
XXS	51.6	13.6	67.7	41.6	96.8	1.03	1.11	79.9	85.5	71.9	74.8
XS	60.1	11.2	64.7	41.5	95.8	1.05	1.03	86.1	93.1	58.6	88.6
M	50.7	22.7	58.3	33.6	98.2	1.03	1.19	91.3	86.2	62.2	93.1
L	50.3	23.2	70.1	43.3	98.1	1.02	1.15	91.3	87.1	63.9	89.6

Combinations of data including Official statistics, Big Data and Earth Observations technologies offer new opportunities for SDG/NUA monitoring ..
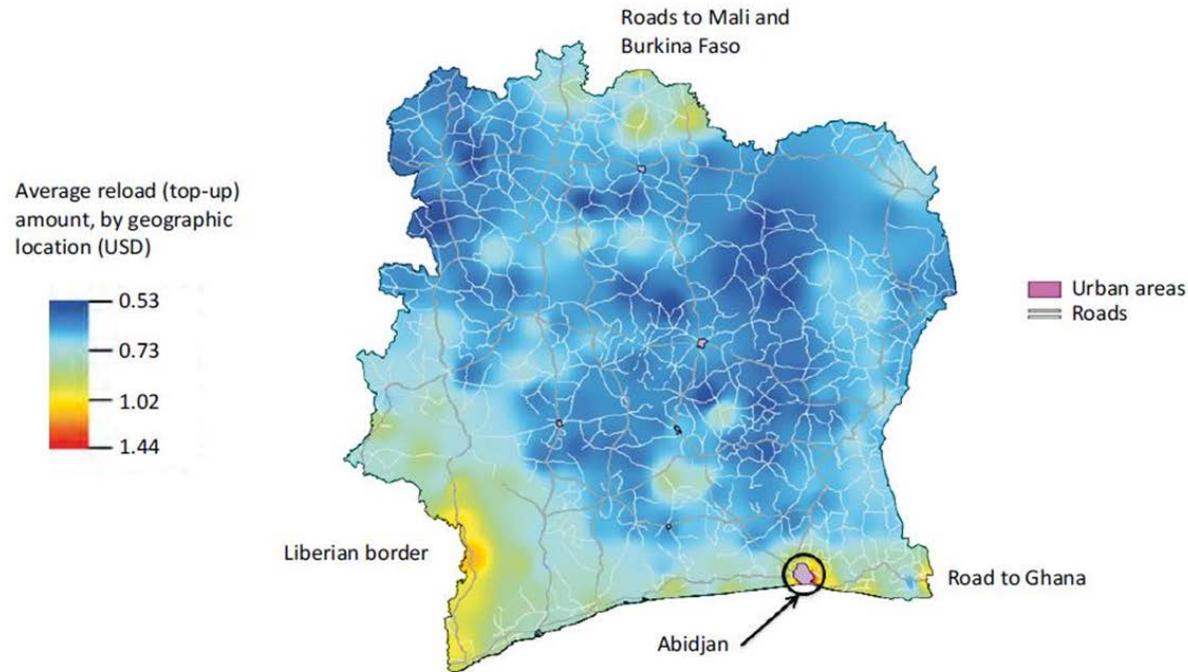
Timely and disaggregated data helps to accelerate SDG implementation by targeting resources where they are most needed

SDG – Goal 11

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

10 Targets

11.1 Housing and Slums
11.2 Sustainable Transport
11.3 Partecipatory Planning
11.4 Cultural Heritage
11.5 Disaster Reduction
11.6 Air Quality and Waste Managment
11.7 Public spaces
11.a Rural-urban and regional planning
11.b Mitigation of Climate Change, Resilience
11.c LDCs support – buildings

11 SUSTAINABLE CITIES AND COMMUNITIES
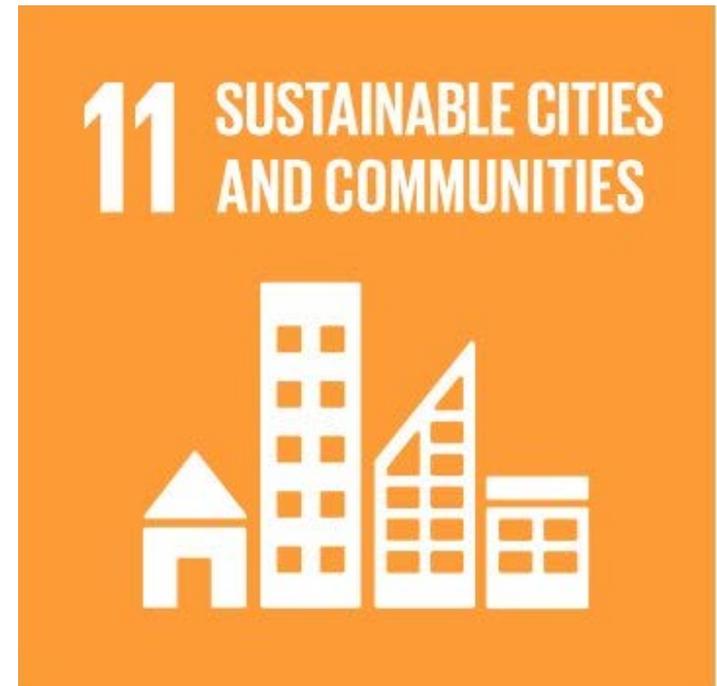
Make cities and human settlements inclusive, safe, resilient and sustainable

UN-Habitat designated custodian Agency for indicators:

6 Indicators

Slums and housing
Public transport
Land consumption
Civil society participation
Solid waste
Public space

4 Indicators

National Urban Policies*
Construction Industry

Selected spatial indicators

11.1.1: **Proportion of urban population living in slums, informal settlements or inadequate housing**

Main features:
- City population
- Slums
- Informal settlements
- Inadequate housing
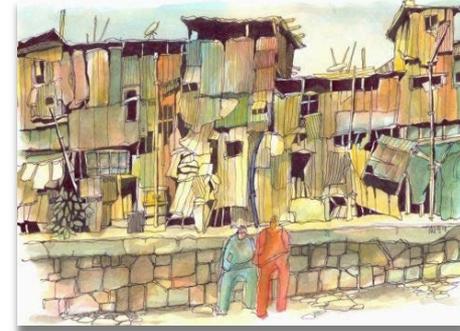
The diagram below summarizes the recommendations.
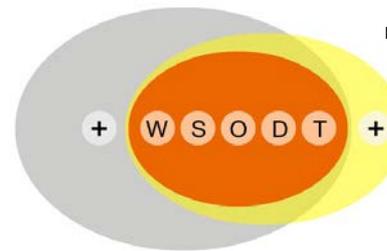
This diagram aims to show that slums, informal settlements and inadequate housing are all part of a continuum of the Right to Adequate Housing experience. Informal settlements and inadequate housing can also be slums if they lack one of the five slum deprivations in addition to affordability and lacking the building and planning permit. By adding the two additional indicators for inadequate housing and for informal settlements, the target becomes more universal and applicable to all regions in the world. At the same, time progress can be tracked and different response mechanisms assessed and developed.

+ W S O D T +

- SLUMS
- INFORMAL SETTLEMENTS
- INADEQUATE HOUSING

This indicator considers three components to be follows:

Slum households (SH): $= 100\left[\dfrac{Number\ of\ people\ living\ in\ slum}{City\ population}\right]$

Informal settlements households (ISH): $= 100\left[\dfrac{No.\ of\ people\ living\ in\ informal\ settlements\ households}{City\ population}\right]$

Inadequate housing households (IHH): $= 100\left[\dfrac{No.\ of\ people\ living\ in\ inadequate\ housing}{City\ population}\right]$

Selected spatial Indicators

11.2.1: Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities

Main features:
- ❑ Public transport stops
- ❑ City population
- ❑ Built-up area

The method to estimate the proportion of the population that has convenient access to public transport is based on four steps:

1. Spatial analysis to delimit the built-up area of the urban agglomeration
2. Inventory of the public transport stops in the city or the service area;
3. Estimation of urban area with access to public transport;
4. Estimation of the proportion of the population with convenient access out of the total population of the city.
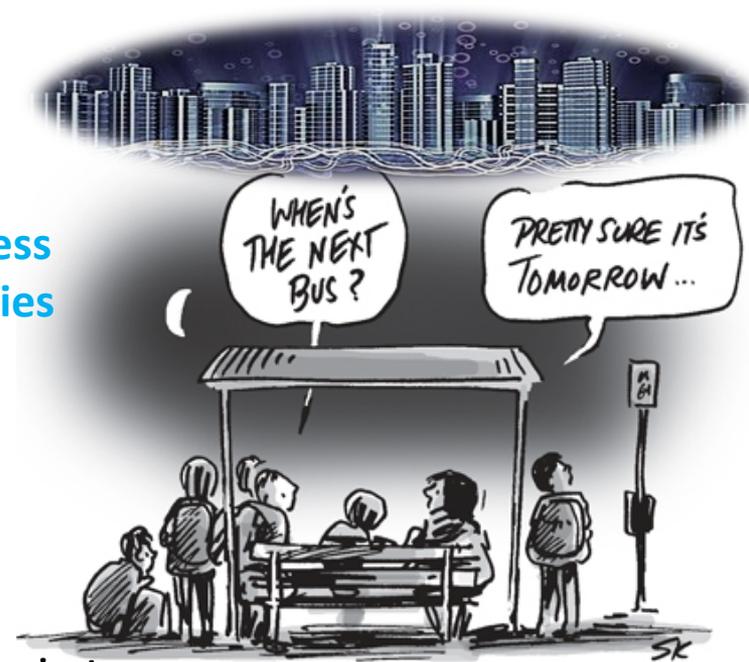
$$\% \: with \: access \: to \: Public \: transport$$

$$= 100x \frac{population \: with \: convenient \: access \: to \: Public \: transport}{City \: Population}$$

Selected spatial Indicators

11.3.1: Ratio of land consumption rate to population growth rate

Main features:
- City population
- Built-up area

The method to estimate land use efficiency is based on two stages:

1. Estimate the population growth rate

$$PGR = \frac{LN(Pop_{t+n}/Pop_t)}{(y)}$$

Where

Pop_t Total population within the city in the past/initial year

Pop_{t+n} Total population within the city in the current/final year

y   The number of years between the two measurement periods

2. Estimate the land use consumption rate

$$LCR = \frac{LN(Urb_{t+n}/Urb_t)}{(y)}$$

Where

Urb_t Total areal extent of the urban agglomeration in km² for past/initial year

Urb_{t+n} Total areal extent of the urban agglomeration in km² for current year

y   The number of years between the two measurement periods

Ratio of land consumption rate to population growth rate (LCRPGR) is estimated as follows:

$$LCRPGR = \left(\frac{Land\ Consumption\ rate}{Annual\ Population\ growth\ rate} \right)$$

Selected spatial Indicators

11.7.1: **Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities**

Main features:
- Built-up area
- Open public space
- Street space

The method to estimate area of public space is based on three stages:

1. Spatial analysis to delimit the built-up area of the urban agglomeration.
2. Computation of total area of open public space.
3. Estimation of land allocated to streets.

Share of the built up area of the city that is open space in public use (%)

$$= \frac{\textit{Total surface of open public space} + \textit{Total surface of land allocated to sreets}}{\textit{Total surface of built up area of the urban agglomeration}}$$

Selected Non-spatial Indicators

11.a.1: Proportion of population living in cities that implement urban and regional development plans integrating population projections and resources, by size of city

Main features:
- Population living in cities
- Urban and regional development plans

Computation will be based on:

- Policy analysis evaluation that can be supported by adopted policies, conventions, laws, government programs, and other initiatives that comprise a national/regional urban policy.
- The policy analysis evaluation will consider the following tools:. *baseline spatial data mapping, benchmarking, surveys, scorecard, performance monitoring and reporting, gap and content analysis*
- Four categories of assessment will be used for each qualifier.

  Category 1: 0 per cent
  Category 2: 1-25 per cent
  Category 3: 26-50 per cent
  Category 4: 51-75 per cent
  Category 5: 76-100 per cent

Some challenges ahead

Reporting for Goal 11 –

- How to manage spatial data needs ?

- How to deal with countries with many cities/urban centers?

- Variations in understanding of indicators at various levels

- Technological needs for monitoring

- **Defining what a city or urban area or human settlements is?**

- Partnerships arrangements

- Different reporting levels

Several indicators require to be collected locally:

11.2	11.3	11.4
Public Transport	Land Consumption	Cultural heritage

11.6	11.7
Solid waste and air quality	Public Space

National level reporting and how to deal with the countries that have so many cities/urban centers

a) Monitor and report on all urban centers
b) Monitor a representative sample of these
c) ?

Using the National Sample of Cities approach

Modelled after the Global Sample of Cities, the National Sample of Cities can be used to harmonize urban data and indicators using an agreed number of cities that are statistically representative of the country's urban human settlements

Basic criteria

- ❑ Number of cities
- ❑ Population
- ❑ Size of the city
- ❑ Geographic location
- ❑ City functionality
- ❑ Economic and political importance

Global Sample of Cities

Based on 200 cities, it represents 5% of the Universe of 4,231 cities of over 100,000 inhabitants in 2010 and 70% of the world urban population

Using the National Sample of Cities approach

ADVANTAGES

- Integrated and systematic approach of the city

- Integrate cities of all sizes, functions and types as part of a national system of cities

- Assist in the aggregation of locally produced city indicators

- Platform for a unified methodology for SDGs reporting

- Calculate national averages

- Facilitate a systematic disaggregation of information at national, sub-national and city levels

- Create baseline data and information for selected cities of the national sample

- Establish benchmarks and national targets to enable for comparisons

# For global monitoring purposes: where does a city or urban or rural area <u>start and stop</u>?

- To track city development and prosperity in any country, it is necessary to delimit cities <u>within meaningful geographical boundaries.</u>

- Almost all cities have continuous built-up area, and many also have nearby residential and industrial suburbs, many large cities, especially in developed countries, have an extensive daily commuting zone closely related to the urban core. The urban core and the commuting zone combine to form the metropolitan area.

- In addition, these characteristics/attributes help to define cities:
  - Built-up Area of the Whole City
  - Residential Area
  - Non-Residential Area
  - Area within the City Wall
  - Population Density of the Whole City
  - Population Density of the Residential Area
  - Number of Dwellings
  - Average number of Inhabitants per Dwelling
  - Legal boundaries

For <u>city leaders</u>, what policy messages can they draw from all the piecemeal and scattered data?
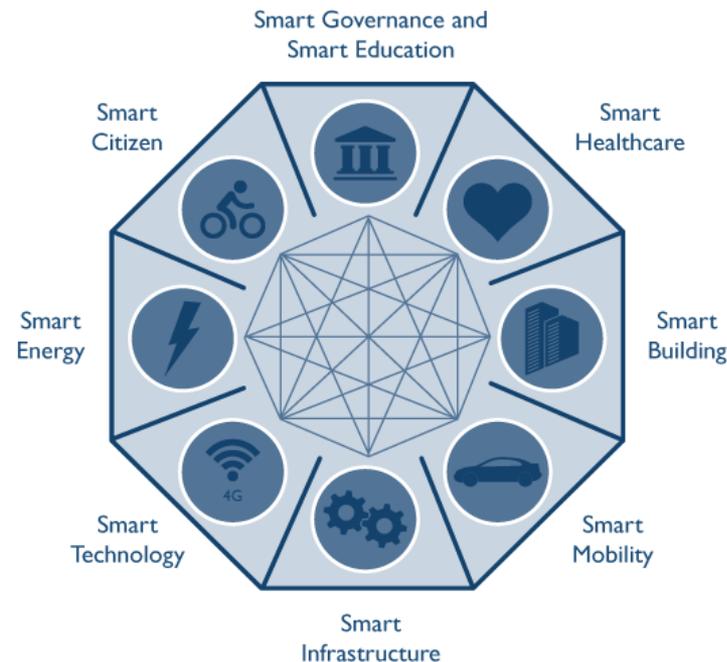
The City Prosperity Initiative

In **2012**, UN-Habitat created a tool to measure the prosperity and sustainability of cities. **The City Prosperity Initiative** (CPI) is a global initiative meant to assist decision makers to design effective policy interventions.

CITY PROSPERITY INITIATIVE

THE 6 DIMENSIONS OF URBAN PROSPERITY

- Urban Governance and Legislation

- Urban Planning and Design

- Urban Economy and Municipal Finance

- Infrastructure Development

- Social Cohesion and Equity

- Urban Ecology and Environment

Why the CPI is proposed as the ideal Global Monitoring Framework for the New Urban Agenda and SDGs

- Cities and countries that join the CPI will be able to identify, quantify, and evaluate the progress on these agendas, **avoiding duplication** and systematizing the monitoring and reporting process

- The CPI is a tool for coordination, **implementation and monitoring** of Sustainable Development Goals and New Urban Agenda at **local level**

- The CPI **integrates most of the urban Sustainable Development Goals** (SDGs) indicators

Connecting SDGs and the New Urban Agenda

A strong connection between the **New Urban Agenda** and the **SDGs** indicators was established with a **common monitoring framework**

11.a National Urban Policy
11.b Disaster risk reduction
11.3 Land consumption
**11.7** Open space

8.1.1 City Product per Capita
10.1.1 Growth Rate 40%
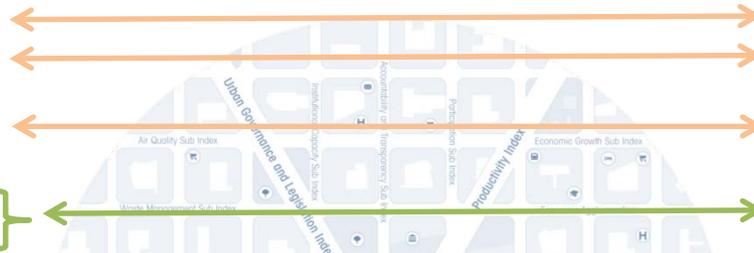
1. **National Urban Policies**
2. **Urban Legislation and Systems of Governance**
3. **Territorial Planning and Urban Design**
4. **Municipal Finance**

Connecting SDGs and the New Urban Agenda

11 SUSTAINABLE CITIES AND COMMUNITIES
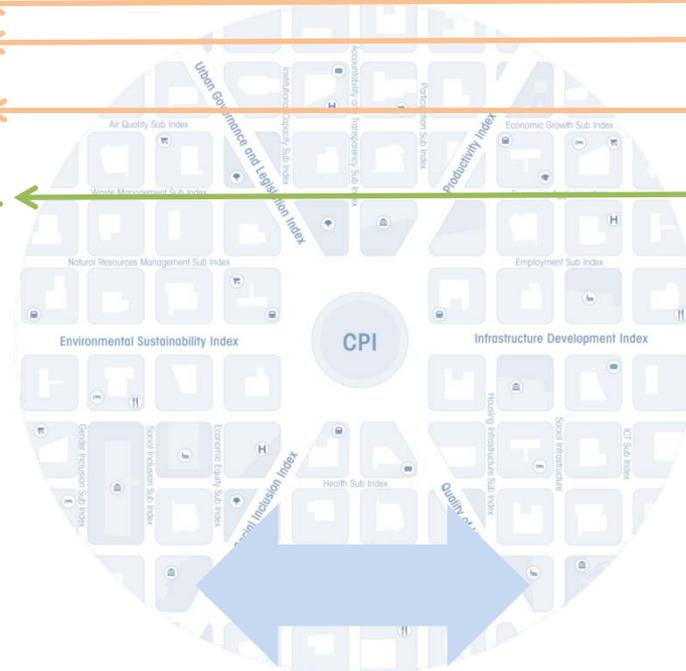
GOAL 11 TARGETS	CPI SUB-DIMENSIONS	CPI DIMENSIONS	SDG WITH URBAN BASED TARGETS
11.1 Adequate, safe and affordable housing	1. Economic Strength	PRODUCTIVITY	8.1.1 City product per capita
	2. Employment		8.2.1 Growth rate per employment
11.2 Accessible and sustainable transport systems for all	3. Economic Agglomeration		8.3.1 Informal employment
			8.5.2 Unemployment rate
11.3 Inclusive and sustainable urbanization	4. Housing Infrastructure	INFRASTRUCTURE	9.2.1 Manifacturing employment
	5. ICT		3.6.1 Traffic fatalities
	6. Urban Mobility		6.1.1 Access to improved water
11.4 Safeguard the world's cultural and natural heritage	7. Public Space	QUALITY OF LIFE	6.2.1 Access to improved sanitation
	8. Safety and Security		7.1.1 Access to electricity
11.5 Reduce the number of people affected by disasters	9. Land Use		9.c.1 Mobile network coverage
			17.8.1 Internet access
11.6 Reduce the environmental impact of cities	10. Economic Equity	EQUITY AND SOCIAL INCLUSION	15.1.2 Forest (green areas) as a percentage of total land area
	11. Social Inclusion		16.1.1 Homicide rate
11.7 Provide universal access to safe public spaces	12. Gender Inclusion		16.1.3 Population subjected to violence
	13. Air Quality	ENVIRONMENTAL SUSTAINABILITY	1.1.1 Poverty rate
11.a Support links between urban, peri-urban and rural areas	14. Waste Management		5.5.1 Women in local government
	15. Energy		8.5.1 Gender wage gap
			8.6.1 Youth unemployment
11.b Increase integrated policies and plans towards mitigation and adaptation to climate change	16. Institutional Capacity	GOVERNANCE AND LEGISLATION	10.1.1 Growth rate 40%
	17. Municipal Finance		3.9.1 Population exposed to outdoor air pollution
11.c Building sustainable and resilient buildings utilizing	18. Governance of Urbanization		6.3.1 Waste water treatment

SDG WITH URBAN BASED TARGETS:
- 3.9.1 Population exposed to outdoor air pollution
- 6.3.1 Waste water treatment
- 7.2.1 Share of renewable energy
- 12.5.1 Solid waste recycling share

- 9.a.1 Investement capacity
- 16.6.1 Local expenditure efficiency
- 17.17.1 Public-private partenrship

HABITAT III
QUITO - OCTOBER 2016

A Global Initiative

Already more than 300 cities around the world joined the CPI

Europe
Amsterdam-Utrecht
Athens
Barcelona
Berlin
Brusels
Budapest
Copenhagen
Dublin
Helsinki
Lisbon
London
Madrid
Manchester
Milan
Oslo
Paris
Prague
Stockholm
Vienna
Warsaw
Zurich

Asia and Oceania
Abha
Almaty
Bangkok
Hong Kong
Jakarta
Karachi
Kathmandu
Manila
Melbourne
Osaka
Sydney
Tokyo
Yerevan
Ulaanbaatar

America
Buenos Aires
Ciudad Obregon
Fortaleza
Guadalajara
Guayaquil
Guatemala City
Lima
Medellin
Mexico City
Montreal
New York
Panama City
Quito
Sao Paulo
Toronto

Africa
Accra
Addis Abeba
Cape Town
Dar es Salaam
Harare
Kampala
Lagos
Lusaka
Mekelle
Nairobi

A FRAMEWORK THAT PROMOTES INTEGRATION

CPI in four Cities

- DAMMAM
- LIMA
- ZAPOPAN
- PANAMA
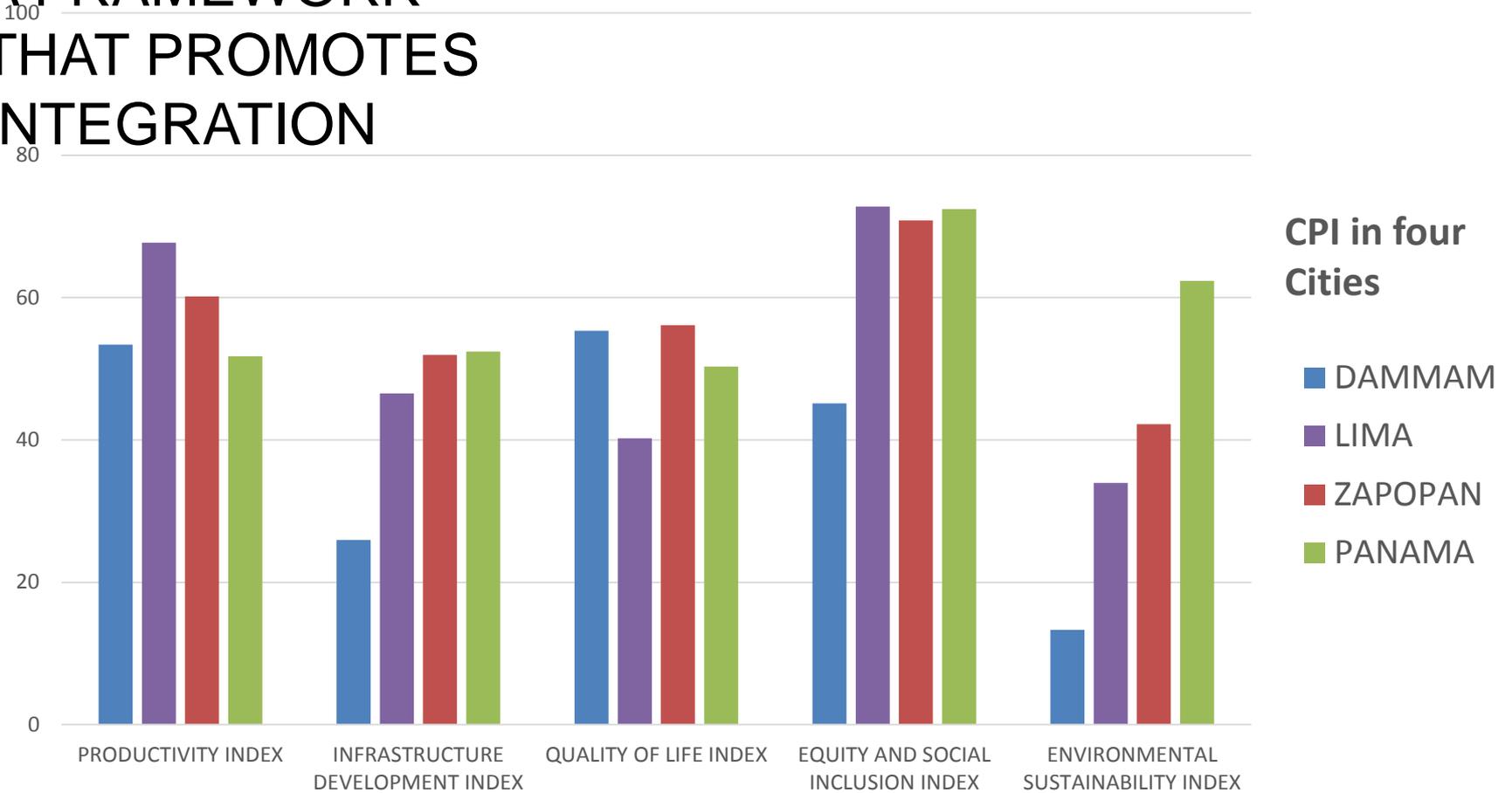
- **Cities will continue growing and expanding. But what type of expansion and quality of life will they offer?**

- **Cities are also facing many challenges that need local and international engagements– crime, climate change, etc.**

- **A standalone Goal on cities in SDGs is a clear acknowledgment of the need to pay attention to challenges faced by cities.**

- **All partners have a role– let us identify our roles and connect our roles**

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Thank you