SUSTAINABLE DEVELOPMENT SOLUTIONS NETWORK
A GLOBAL INITIATIVE FOR THE UNITED NATIONS

New York November 2012

SDSN Leadership Council

# Cities
## Smart Healthy Productive

Solutions for a Global Urban Future


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*Source:* Shagun Mehrotra

# Urban Thematic Group

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**OUTLINE**

# City Solutions

## Urban Challenge
Risks under business as usual

## Three Solutions
for private, people, and public action

## Trade-offs
Tough questions to address

## Collaborators
For smarter, healthier, and productive cities

# 21st Century Challenge
## Cities

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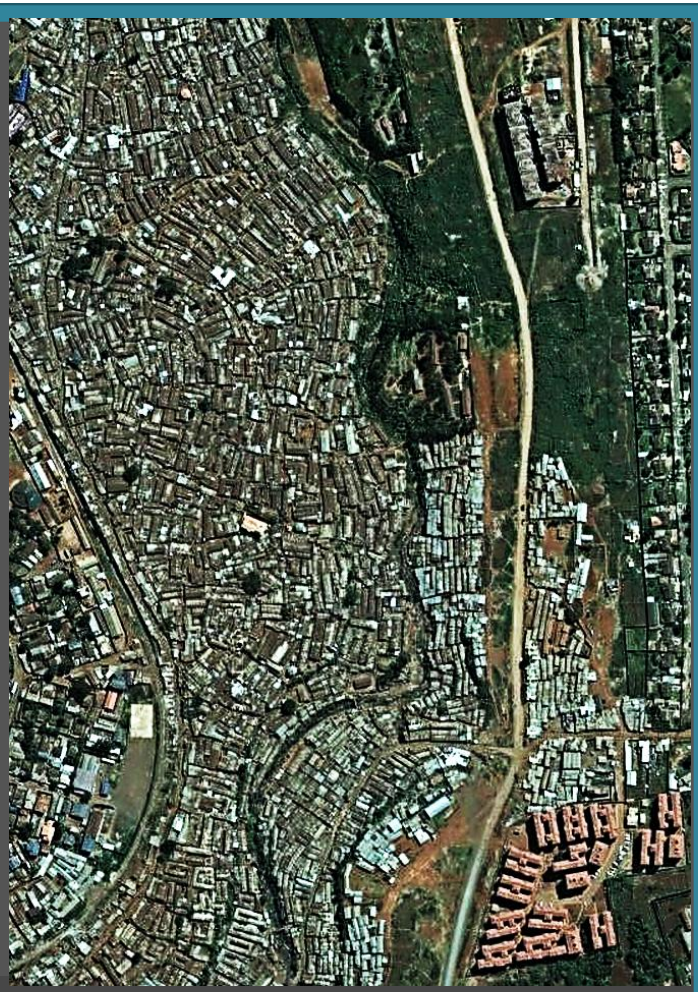
**Three billion people will be added to cities**—mainly in **slums**—by 2050 (World Population is 7 Billion, half in cities, a billion in slums)

**Two trillion dollars will be invested this year** in **infrastructure**—transport, energy, and water

**Climate Change is Reshaping Cities**—firms and people at risk

## Policy Response

Most countries and their cities are unprepared to solve this unprecedented pace and scale of urbanization (of poverty).



**Kibera, Nairobi**
*Source:* Google Earth, 2012

# Global Urban Population

## Three Billion People

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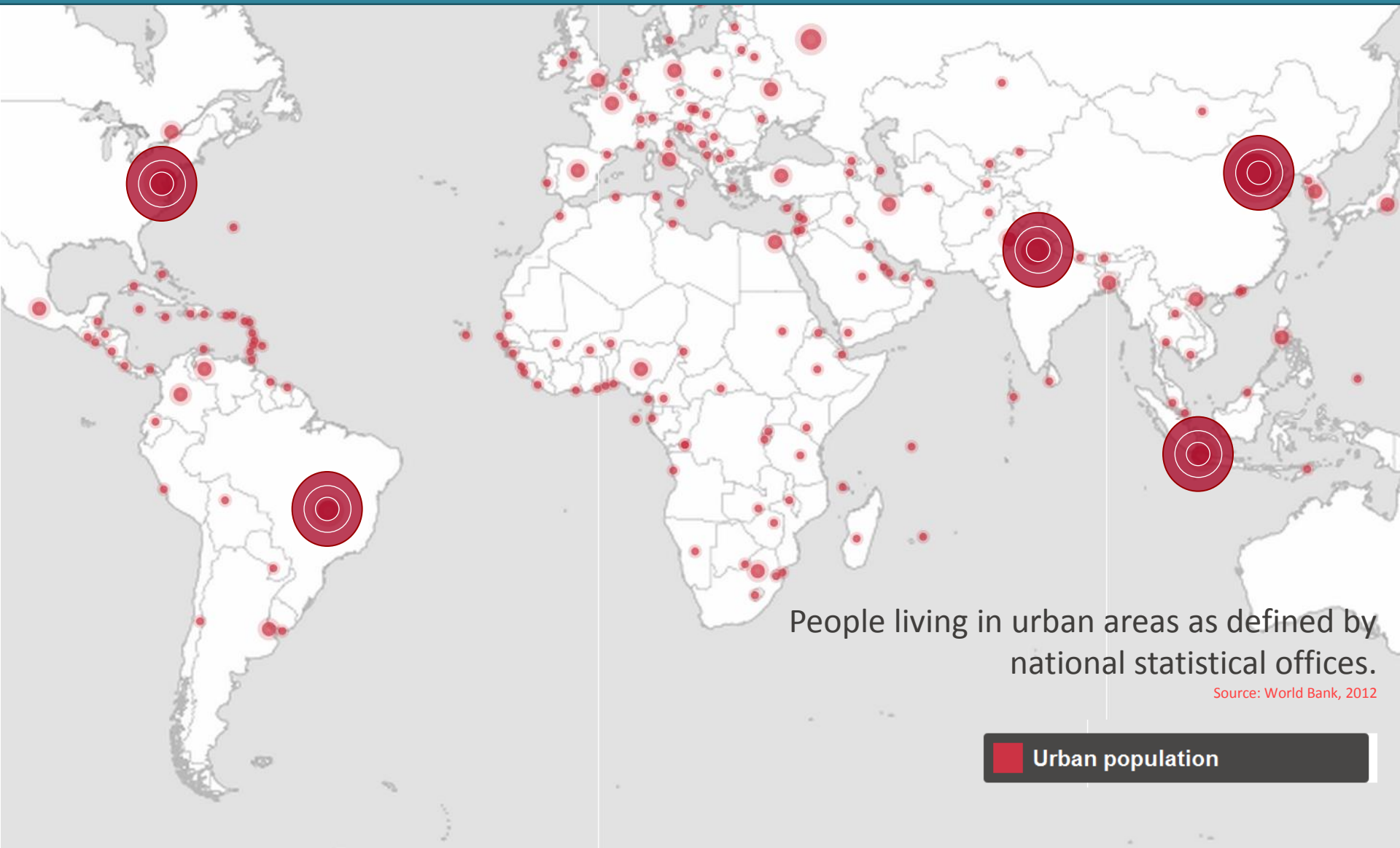

# Global Slums

## One Billion People

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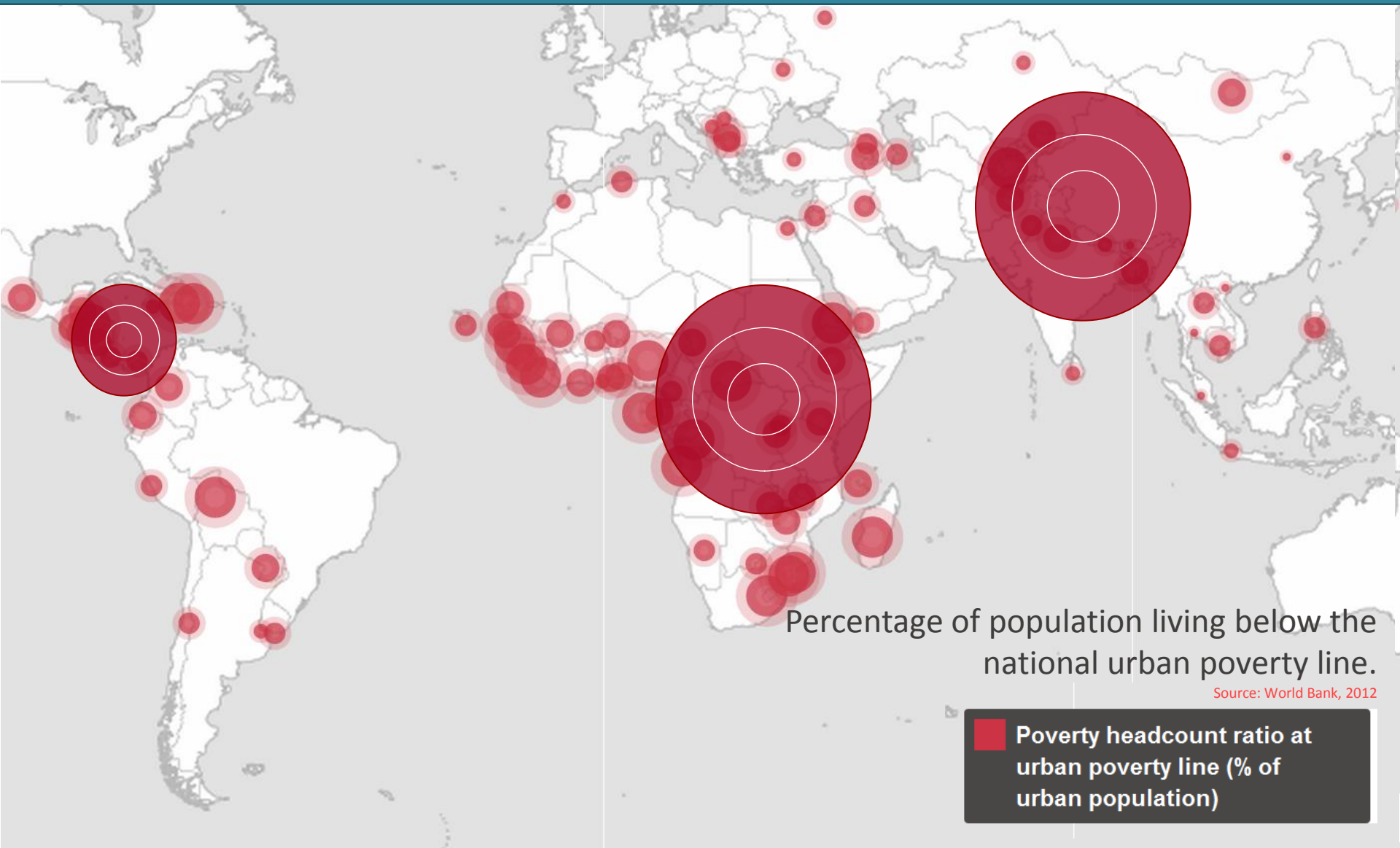

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# Mega-Infrastructure

## IBM's Intelligent Operations Center

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### Planning and management

Long-term insights based on comprehensive data analysis, followed up through efficient daily management, help a city stay vital and safe for its citizens and businesses. Learn more about planning and management solutions for smarter cities.

**Public safety**
- Learn more
- Explore solutions

**Smarter buildings and urban planning**
- Learn more
- Explore solutions

**Government and agency administration**
- Learn more
- Explore solutions

### Infrastructure

Fundamental services—such as roadways, mass transit and utilities—make a city desirable and livable, but the key to keeping them viable is readiness for constant change. Learn more about infrastructure solutions for smarter cities.

**Energy and water**
- Learn more
- Explore solutions

**Environmental**
- Learn more
- Explore solutions

**Transportation**
- Learn more
- Explore solutions

### Human

Smarter cities use systems to their a supporting the ne through social pro and education. Le human services s cities.

**Social programs**
- Learn more
- Explore solutions

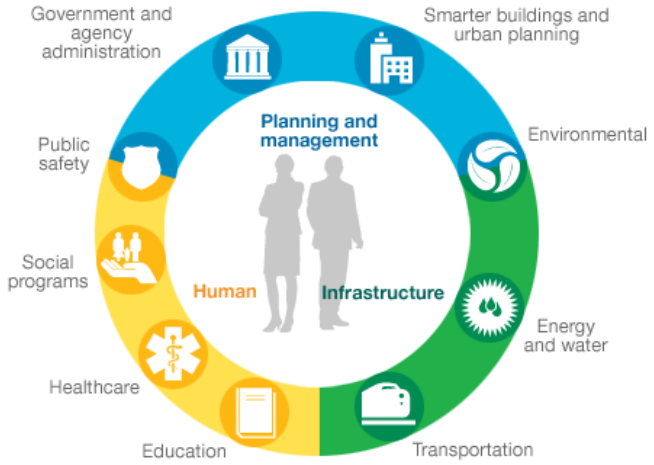
**Healthcare**
- Learn more
- Explore solutions

**Education**
- Learn more
- Explore solutions

**Smarter Cities**
*Source:* IBM, 2012

## Infrastructure. Operations. People.

What makes a city? The answer, of course, is all three. A city is an interconnected system of systems. A dynamic work in progress, with progress as its watchword. A tripod that relies on strong support for and among each of its pillars, to become a smarter city for all.




## Private Solutions

**SMART CITIES**—Big data driven technology solutions for city as mega-infrastructure system.

IBM

*Source:* IBM, 2012

More Private Solutions
**Siemens**
Sustainable Cities
**Ericsson**
Connected City

# Smart Cities

## IBM's Intelligent Operations Center

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## Private Solutions

**SMART CITIES**—city-wide data coordination for systemic approach to city solutions.

### Project Idea

Building on private innovations such as Rio's city-wide operations center to offer solutions for:

- Slums in Asian and African cities?
- Climate change adaptation and mitigation in three water stressed cities– Santiago, Chile, Mumbai, India and Cairo, Egypt?

RIO PREFEITURA

*Source:* Rio Prefectura, 2012

# Slum Solutions

## SDI's Slum Enumeration

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**Slum Dwellers International** is a network of community-based organizations of the urban poor in 33 countries in Africa, Asia, and Latin America since 1996

**Data and development plans**—Work with communities to map slums and survey households to integrate slums into city-wide development plans.

John Snow's 1854 Map of London Cholera Epidemic
*Source:* UCLA School of Public Health

## People Solutions

**Healthy cities through people led plans**, crowd sourced, high-precision, low-cost—like John Snow's Cholera 1854 maps, by non-experts.

City-wide Slum Enumeration
Mbale, Uganda
*Source:* SDI, 2012

# Healthy Cities

## SDI's Slum Enumeration

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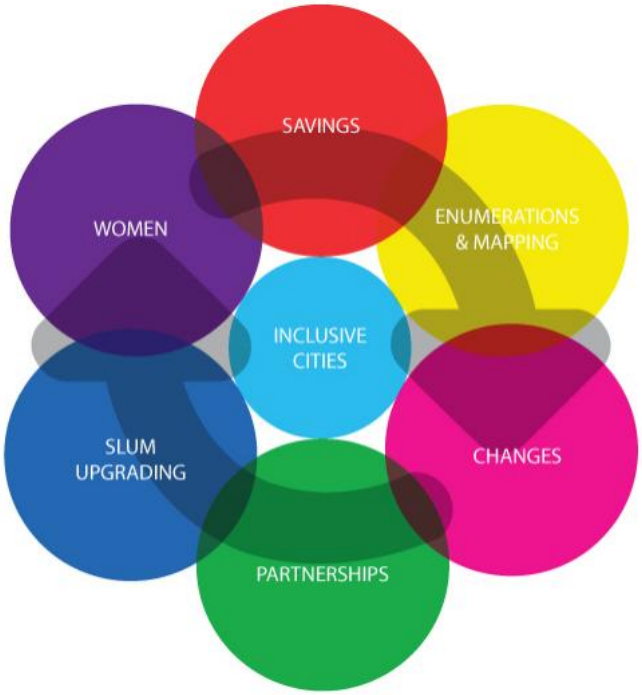


**SDI Methodology**
*Source:* UCLA School of Public Health

### Project Idea

**Slum Solution Lab**
Engage in three mega-slums—one each in Latin America, Africa, and South Asia to extend basic services to the urban poor

Community led development plans
*Source:* SDI, 2012

## People Solutions

**Healthier City** SDI emphasizes inclusive urban growth through urban poor led solutions for city development.

# Climate Change & Cities

## Knowledge for Action

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**Cities generate up to 70% of global GHG emissions** and are extremely vulnerable to climate change impacts

**Past climate research overlooked cities despite unique factors**

**ARC3 100+ lead and contributing authors from over 50 cities collaborated**

**BOTH**
Adaptation and mitigation specialists

**INTERDISCIPLINARY**
Climate scientists, geographers, planners, engineers, policy experts

Climate change and water stress in African slums, Kampala

## Research Solutions

**Institutionalize <u>on-going city-centered scientific assessment</u>** of the state-of-knowledge for urban decision-makers and help build capacity for action

## Project Idea

**Ecosystem-based Urban Adaptation**
Utilizes biodiversity and ecosystem services for climate change adaptation targeting the urban poor

# Productive Cities

## Knowledge for Green Jobs

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### Vulnerability
Framework for vulnerability assessment applied to four diverse cities: Buenos Aires, Delhi, Lagos, New York City.

### Climate Hazards
City-specific hazard assessment using observed and projected data on temperature, precipitation, and sea level rise.

### Energy
How climate change affects urban energy systems, especially surge in peak load demand, and mechanisms to mitigate and adapt.

### Water and Wastewater
Linking climate change with water systems in the cities across the globe with a focus on formal and informal water supply and sanitation services.

### Transportation
How urban transportation systems are impacted by and impact climate change. Assessment of regulatory and market mechanisms for mitigation and instruments for adaptation.

### Health
Impacts of climate change on human health in citiesand adaptation measures.

### Land Use
Analysis of how land use zoning and population density interacts with urban planning and management to mitigate and adapt to climate change.

### Governance
How city governments may strengthen science-based policy-making, effective leadership, efficient financing, jurisdictional coordination, planning, and citizen participation.

**SECTION 1**

**DEFINING RISK FRAMEWORK**
- Vulnerabilities and agency assessed
- Climate hazards assessed using City-specific existing data
- Science base for city decision-makers

**SECTION 2**

**URBAN SECTORS**
- Risks
- Adaptation
- Mitigation
- Policy alternatives

**CASE STUDIES**
- Variety of examples to illustrate organizational strategies from range of socio-economic and physical city conditions

**SECTION 3**

**CROSS-CUTTING ISSUES**
- Complex interactions among city sectors, systems, and land use
- Implication for city governance to combat climate change

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# Tough Trade-offs

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1. **Municipal finance and austerity** in small, medium, and large cities
2. **Quality basic services**—energy, water, transport—and housing for poor
3. **Climate change** risks and responses in big and small cities
4. **Youth employment** in predominantly informal private labor markets—education, skills, migration
5. **New technology and institutions** for accountability

## SDSN Reality-check

### Integrated Solutions in Rio and Jakarta

- Slum development
- Mega-Infrastructure—Energy, Water, Transport
- Ecosystem-based Urban Adaptation
- Climate change observed impact pathways
- Private, people, public

## Policy Response

Tools to solve this unprecedented pace and scale of urbanization (of poverty) with infrastructure resilient to changing climates.

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# Collaborators

## Smart, Healthy, Productive

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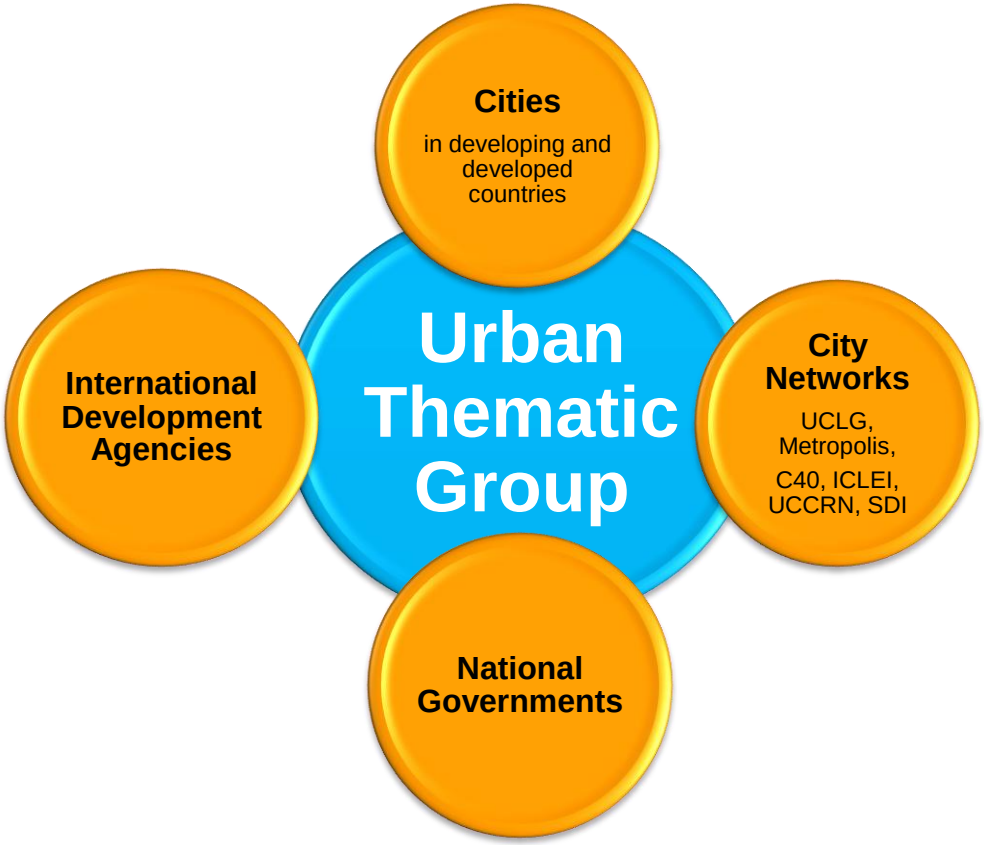


## Potential Collaborators

**Mayors**
Shanghai
Gauteng Province, Johannesburg

**Federal Ministers**
Housing, Bahrain, Manama
Environment Secretary, Mexico City

**Universities**
Harvard University, Boston
Indian Institute for Human Settlements, Bangalore
National Institute for Environmental Studies, Bangkok

**Development Banks**
IDB, Washington DC
WB, AfDB, ADB

**NGO**
Slum Dwellers International, Mumbai

**Private Sector**
Ericsson, Stockholm
IBM, Siemens

**Foundations**
Rockefeller, New York
WRI, Washington DC

**Urban Gurus**

## Network Success

Our experience reveals that research networks organized to achieve specific tasks are productive.

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# Thank You

## Explore Global Urban Solutions

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## Cities

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