# Sustainable Cities:
## Challenges, opportunities…

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# Prof. Hans Rosling – GapMinder

https://www.youtube.com/watch?v=RoRJyndPIX0

| Date | World | | | |
|---|---|---|---|---|
| | Total | Urban | Rural | Percentage urban |
| 1800 .... | 978 | 50 | 928 | 5.1 |
| 1825 .... | 1 110 | 60 | 1 050 | 5.4 |
| 1850 .... | 1 262 | 80 | 1 182 | 6.3 |
| 1875 .... | 1 420 | 125 | 1 295 | 8.8 |
| 1900 .... | 1 650 | 220 | 1 430 | 13.3 |
| 1925 .... | 1 950 | 400 | 1 550 | 20.5 |

- over 50 percent of the world population lives in an urban environment
- 23 percent of the population lives in cities exceeding one million in population - 520 citi
- 7 percent of the population specifically lives in megacities of more than ten million – 32 r

# World Cities Report 2016

| Rank | City, Country | Population in 2016 (thousands) | City, Country | Population in 2030 (thousands) |
|---|---|---|---|---|
| 1 | Tokyo, Japan | 38 140 | Tokyo, Japan | 37 190 |
| 2 | Delhi, India | 26 454 | Delhi, India | 36 060 |
| 3 | Shanghai, China | 24 484 | Shanghai, China | 30 751 |
| 4 | Mumbai (Bombay), India | 21 357 | Mumbai (Bombay), India | 27 797 |
| 5 | São Paulo, Brazil | 21 297 | Beijing, China | 27 706 |
| 6 | Beijing, China | 21 240 | Dhaka, Bangladesh | 27 374 |
| 7 | Ciudad de México (Mexico City), Mexico | 21 157 | Karachi, Pakistan | 24 838 |
| 8 | Kinki M.M.A. (Osaka), Japan | 20 337 | Al-Qahirah (Cairo), Egypt | 24 502 |
| 9 | Al-Qahirah (Cairo), Egypt | 19 128 | Lagos, Nigeria | 24 239 |
| 10 | New York-Newark, USA | 18 604 | Ciudad de México (Mexico City), Mexico | 23 865 |
| 11 | Dhaka, Bangladesh | 18 237 | São Paulo, Brazil | 23 444 |
| 12 | Karachi, Pakistan | 17 121 | Kinshasa, Democratic Republic of the Congo | 19 996 |
| 13 | Buenos Aires, Argentina | 15 334 | Kinki M.M.A. (Osaka), Japan | 19 976 |
| 14 | Kolkata (Calcutta), India | 14 980 | New York-Newark, USA | 19 885 |
| 15 | Istanbul, Turkey | 14 365 | Kolkata (Calcutta), India | 19 092 |
| 16 | Chongqing, China | 13 744 | Guangzhou, Guangdong, China | 17 574 |
| 17 | Lagos, Nigeria | 13 661 | Chongqing, China | 17 380 |
| 18 | Manila, Philippines | 13 131 | Buenos Aires, Argentina | 16 956 |
| 19 | Guangzhou, Guangdong, China | 13 070 | Manila, Philippines | 16 756 |
| 20 | Rio de Janeiro, Brazil | 12 981 | Istanbul, Turkey | 16 694 |

# Trend in global urbanization

## Trends in urbanization and national GDP per capita – for various levels of income, 1960–2010

## Cities where population declined between 2000 and 2016

Population is likely to decline in 17% of large cities in developed regions and 8% of cities across the world from 2015 to 2025,

# Urban development

## THE GLOBAL CONTEXT

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

- 70% Economy (GDP)
- Over 60% Global Energy Consumption
- 70% Greenhouse Gas Emissions
- 70% Global Waste

# Urban problems and challenges

# Sustainable development - old but lasting concept

- Humanity has the ability to make development sustainable to ensure that **it meets the needs of the present without compromising the ability of future generations to meet their own needs**.
- The concept of sustainable development does imply limits - not absolute limits but limitations imposed by the present state of technology and social organization on environmental resources and by the ability of the biosphere to absorb the effects of human activities.

# UNCED (Rio 1992) – Agenda 21

- The implementation of Agenda 21 was intended to involve action at international, national, regional and local levels.
- Some national and state governments have legislated or advised that local authorities take steps to implement the plan locally, as recommended in Chapter 28 of the document.
- These programs are often known as "Local Agenda 21" (LA21)

Original Articles

**Implementing agenda 21 in local government: The Swedish experience**

Katarina Eckerberg & Björn Forsberg

Pages 333-347 | Published online: 02 May 2007

Download citation https://doi.org/10.1080/13549839808725569

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# 20 years later – Rio+20 Conference

**The Future We Want“ -**

- Renewal of commitment to sustainable development and to ensuring the promotion of an economically, socially and environmentally sustainable future for our planet and for present and future generations.
- A chapter on sustainable urban development and settlements:

  „We emphasize the importance of increasing the number of metropolitan regions, cities and towns that are implementing policies for sustainable urban planning…. We note that sustainable urban planning benefits from the involvement of multiple stakeholders as well as from full use of information

**Sustainable Development Goals –** goals, targets, indicators

# UN Milennium Development Goals (MDGs)

## Global development agenda 2000-2015

**Target 7.A:**
**Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources**

- Forests are a safety net, especially for the poor, but they continue to disappear at an alarming rate.
- An increase in afforestation, a slight decrease in deforestation and the natural expansion of forests have reduced the net loss of forest from an average of 8.3 million hectares annually in the 1990s to an average of 5.2 million hectares annually between 2000 and 2010.
- Between 1990 and 2012, global emissions of carbon dioxide increased by over 50 per cent.
- Ozone-depleting substances have been virtually eliminated, and the ozone layer is expected to recover by the middle of this century.

**Target 7.B:**
**Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss**

- Protected ecosystems covered 15.2 per cent of land and 8.4 per cent of coastal marine areas worldwide by 2014.

**Target 7.C:**
**Halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation**

- The world has met the target of halving the proportion of people without access to improved sources of water, five years ahead of schedule.
- Between 1990 and 2015, 2.6 billion people gained access to improved drinking water sources.
- Worldwide 2.1 billion people have gained access to improved sanitation. Despite progress, 2.4 billion are still using unimproved sanitation facilities, including 946 million people who are still practicing open defecation.

**Target 7.D:**
**Achieve, by 2020, a significant improvement in the lives of at least 100 million slum dwellers**

# The Millennium Development Goals Report 2014

UNITED NATIONS

## TARGET 7.D

By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers

## Although the MDG target has been met, the number of people living in slum conditions is growing

Slums are characterized by the absence of basic services, such as improved drinking water and adequate sanitation, along with insecure tenure, non-durable housing and overcrowding. Between 2000 and 2012, more than 200 million slum dwellers gained access to either improved water, improved sanitation, durable housing or less crowded housing conditions. By 2012, nearly 33 per cent of urban residents in developing regions still lived in slums. Twelve years earlier, in 2000, practically 40 per cent of urban residents in developing regions had been in that situation.

Despite these advances, the number of slum dwellers has continued to grow, due, in part, to the fast pace of urbanization. The number of urban residents living in slum conditions was estimated at 863 million in 2012, compared to 760 million in 2000, and 650 million in 1990. The proportion of people living in slum conditions in urban areas was particularly high in sub-Saharan Africa (62 per cent) and, to a lesser extent, in Southern Asia (35 per cent), compared to 24 per cent in Latin America and the Caribbean, and 13 per cent in North Africa. More efforts are needed to improve the lives of the urban poor across the developing world, and to reverse the trend whereby the number of people living in

**Urban population living in slums in developing countries, 1990–2012 (Millions and Percentage)**

# 2030 Agenda for Sustainable Development

- This Agenda is a plan of action for people, planet and prosperity
- As humanity embarks on this collective journey, no one will be left behind



Post 2015 process
- Transforming our world: the 2030 Agenda for Sustainable Development
- United Nations Sustainable Development Summit, 25-27 Sep 2015
- Intergovernmental negotiations

Open Working Group on Sustainable Development Goals
Intergovernmental Committee of Experts on Sustainable Development Financing
UN System
Rio+20
SIDS 2014 Conference
SG reports to the 2nd Committee - 70th session
ECOSOC
Participating States

## Transforming our world: the 2030 Agenda for Sustainable Development

**Preamble**

This Agenda is a plan of action for people, planet and prosperity. It also seeks to strengthen universal peace in larger freedom. We recognise that eradicating poverty in all its forms and dimensions, including extreme poverty, is the greatest global challenge and an indispensable requirement for sustainable development. All countries and all stakeholders, acting in collaborative partnership, will implement this plan. We are resolved to free the human race from the tyranny of poverty and want and to heal and secure our planet. We are determined to take the bold and transformative steps which are urgently needed to shift the world onto a sustainable and resilient path. As we embark on this collective journey, we pledge that no one will be left behind. The 17 Sustainable Development Goals and 169 targets which we are announcing today demonstrate the scale and ambition of this new universal Agenda. They seek to build on the Millennium Development Goals and complete what these did not

**DOWNLOAD**

- A/69/L.85 - Draft outcome document of the United Nations summit for the adoption of the post-2015 development agenda
  [Arabic] [Chinese] [English] [French] [Russian] [Spanish]
- Transforming our world: the 2030 Agenda for Sustainable Development (advance unedited version)
- Letter from the Co-Facilitators of the intergovernmental negotiations on the post-2015 development agenda (dated

# UN endorsed SDGs

Welcome to the United Nations.

Espa

SUSTAINABLE DEVELOPMENT GOALS

Search SDG Site

A-Z

Home | About | Campaigns | Goals | Take Action | Partnerships | News And Media | Learn More

## About the Sustainable Development Goals

The Sustainable Development Goals are the blueprint to achieve a better and more sustainable future for all. They address the global challenges we face, including those related t
poverty, inequality, climate, environmental degradation, prosperity, and peace and justice. The Goals interconnect and in order to leave no one behind, it is important that we achie
each Goal and target by 2030. Click on any specific Goal below to learn more about each issue.

# SDGs

Home
About 2015
Secretary-General
Goals
Take action
Key Dates
Media
Watch and Lis
1 NO POVERTY
2 ZERO HUNGER
3 GOOD HEALTH AND WELL-BEING
4 QUALITY EDUCATION
5 GENDER EQUALITY
6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY
8 DECENT WORK AND ECONOMIC GROWTH
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
10 REDUCED INEQUALITIES
11 SUSTAINABLE CITIES AND COMMUNITIES
12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION
14 LIFE BELOW WATER
15 LIFE ON LAND
16 PEACE, JUSTICE AND STRONG INSTITUTIONS
17 PARTNERSHIPS FOR THE GOALS
SUSTAINABLE DEVELOPMENT GOALS

# SDG 11: Make cities sustainable

SDG 11 includes:

- 7 Targets
- 28 indicators

# SDG 11, Target 11.1 (housing and services)

| | |
|---|---|
| 11.1 by 2030, ensure access for all to adequate, safe and affordable housing and basic services, and upgrade slums | 4. Percentage of eligible population covered by national social protection programs |
| | 26. [Consultations with a licensed provider in a health facility or the community per person, per year] – to be developed |
| | 45. Percentage of population using safely managed water services, by urban/rural (modified MDG Indicator) |
| | 46. Percentage of population using basic sanitation services, by urban/rural (modified MDG Indicator) |
| | 50. Share of the population using modern cooking solutions, by urban/rural |
| | 51. Share of the population using reliable electricity, by urban/rural |
| | 66. Percentage of urban population living in slums or informal settlements (MDG Indicator) |

# SDG 11, Target 11.2 (transportation)

| | |
|---|---|
| 11.2 by 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons | 25. Road traffic deaths per 100,000 population |
| | 58. Access to all-weather road (% access within [x] km distance to road) |
| | 67. Percentage of people within 0.5km of public transit running at least every 20 minutes |

The Sustainable Development Goals Report
2018

**Annual exposure to ambient fine particulate matter (PM2.5) in urban areas, population weighted (micrograms per cubic metre)**

Note: The vertical line represents the World Health Organization air quality guidelines value for particulate matter (PM 2.5) of 10 micrograms or less per cubic metre.

# UN-HABITAT (UN Human Settlement Programme)

- UN-Habitat is the United Nations programme working towards a better urban future.
- Its mission is to promote socially and environmentally sustainable human settlements development and the achievement of adequate shelter for all
  - Habitat I - first UN Conference on Human Settlements (Vancouver, 1976)
  - Habitat II - Second UN Conference on Human Settlements (Istanbul,
  - Habitat III, - third UN Conference on Housing and Sustainable Urban Development (Quito, 2016)

- challenges remain - continuing increase in the number of slum dwellers in the world, negative impact of environmental degradation including climate change, and the need to reduce disaster risks and build resilience to disasters in urban settlements (Quito Declaration)

# New Urban Agenda

- Habitat III Conference (Quito, 2016) successfully concluded with the adoption of the New Urban Agenda
- Global policy plan for urban development for next 20 years

What is NEW there?

- NUA prescribes conditions for a shift towards more sustainable patterns of urbanization
- Seeks to achieve inclusive, people-centred, and sustainable global development
- policies must be implementable and relevant to the local context.
- They must be participatory and collaborative.
- They must be inclusive and recognize the rights of minorities and vulnerable groups.

# New Urban Agenda - evaluation

How do we recognize that the NUA is successful?

(https://www.youtube.com/watch?v=D4hFRfI4n6g)

# New Urban Agenda

- NUA should seek to realize Goal 11 of the SDGs
- The UN Member States submitted national reports that articulated national experiences in managing urban issues

Republic of Zambia

# National Report on the Third United Nations Conference on Housing and Sustainable Urban Development

## HABITAT III

June, 2015

**Figure 30:** Housing and Sanitary Conditions in Lusaka's S

Source: ZUHSPS, 2012

# Sustainability assessment at a local level in the Czech Republic

- A very unique system of self-assessment by a set of indicators
- In 1988 WHO initiated the international Healthy Cities Project – now almost 1500 Healthy Cities, Towns and Regions have joined the Project in many countries throughout Europe
- over 130 Czech cities and regions monitor theri quality of life according to WHO and LA21 methodology
- 10 themes (governance, environment, sustainable consumption, health, economy, education, culture, transport, social conditions, global responsibility)
- 188 indicators (data availabity, sustainability relevance)
- More: https://www.healthycities.cz/

# Czech Healthy Cities

https://www.healthycities.cz/en/news/healthy-cities-welcomed-4-new-mer

nszm

Google translate

Healthy Cities
OF THE CZECH REPUBLIC

BASIC INFO | CONTACTS | search | czech

HCCZ members

- HCCZ Newsletter
- Good Practice
- Other HCCZ materials
- PhotoGallery
- VideoGallery

## Czech Healthy Cities welcomed 4 new members in the first half of 2018

Czech Healthy Cities National Network continues to attract new members. This year, **4** municipalities became new members of the Association: **Statutory City of Ostrava, Prague Municipal Districts of Dolni Mecholupy and Prague–Brezineves, municipality of Zasova**. Halfway through 2018, the Association has a total of **130 members** with regional outreach to over **2109 cities and towns**, which are home to 5,390 million inhabitants (**51 % of the population of the Czech Republic**). We warmly welcome all new members and believe that we will exchange experience mutually, and that both new and existing members will be keen to cooperate actively and share experience. Czech Healthy Cities provide ample scope for this purpose and opportunities for meeting, joint consultations, the use of resources for members' projects and specific activities, and examples of good practice. The overview of all Czech Healthy Cities members is available HERE.

Litoměřice

Ústí nad Labem

Ostrava

# Rankings

PEOPLE
SOCIAL
Measures social performance including quality of life
The People sub-Index rates health (life expectancy and obesity), education (literacy and universities), income inequality, work-life balance, the dependency ratio, crime, housing and living costs. These indicators can be broadly thought of as capturing "quality of life".
PLANET
ENVIRONMENTAL
Captures 'green' factors like energy, pollution & emissions
The Planet sub-Index ranks cities on energy consumption and renewable energy share, green space within cities, recycling and composting rates, greenhouse gas emissions, natural catastrophe risk, drinking water, sanitation and air pollution. These indicators can broadly be thought of as capturing "green factors".
PROFIT
ECONOMIC
Assesses business environment & economic health
The Profit sub-Index examines performance from a business perspective, combining measures of transport infrastructure (rail, air and traffic congestion), ease of doing business, tourism, GDP per capita, the city's importance in global economic networks, connectivity in terms of mobile and broadband access and employment rates. These indicators can broadly be thought of as capturing "economic health".

ARCADIS
SUSTAINABLE CITIES INDEX 2016
Putting people at the heart of city sustainability

| INDICATOR NAME | INDICATOR DESCRIPTION | MAIN SOURCE | SUB-INDEX |
|---|---|---|---|
| Education | Literacy rate | World Bank | People |
| | University rankings | QS | |
| | Share of population with tertiary education | Barro & Lee, various national sources | |
| Health | Life expectancy | World Bank | People |
| | Obesity rate | World Health Organization | |
| Demographics | Dependency ratio | World Bank | People |
| Income Inequality | Gini coefficient | World Bank | People |
| Affordability | Consumer price index | UBS Prices and Earnings | People |
| | Property prices | UBS Prices and Earnings | |
| Work-life balance | Average annual hours worked | OECD, UBS Prices and Earnings | People |
| Crime | Homicide rate | UN Office on Drugs and Crime | People |
| Environmental risks | Natural catastrophe exposure | The International Disaster Database | Planet |
| Green spaces | Green space as % of city area | Siemens Green City Index | Planet |
| Energy | Energy use | Energy Information Administration (EIA) | Planet |
| | Renewables share | Energy Information Administration (EIA) | |
| | Energy consumption per $ GDP | Energy Information Administration (EIA) | |
| Air pollution | Mean level of pollutants | World Health Organization | Planet |
| Greenhouse gas emissions | Emissions in metric tonnes (per capita) | CDP Cities open data | Planet |
| Waste management | Solid waste management (landfill vs recycling) | World Bank | Planet |
| | Share of wastewater treated | OECD & FAO Aquastat | |
| Drinking water and sanitation | Access to drinking water (% of households) | World Health Organization | Planet |
| | Access to improved sanitation (% of households) | World Health Organization | |
| Transport infrastructure | Congestion | TomTom Traffic Index | Profit |
| | Rail infrastructure | Metrobits World | |
| | Airport satisfaction | Skytrax World Airport Awards 2015 | |
| Economic development | GDP per capita | Brookings Global Monitor | Profit |
| Ease of doing business | Ease of Doing Business Index | World Bank | Profit |
| Tourism | International visitors per year, absolute & per capita | Euromonitor International | Profit |
| Connectivity | Mobile connectivity | United Nations Statistics Division | Profit |
| | Broadband connectivity | United Nations Statistics Division | |
| | Importance in global networks | Geography Department, Loughborough University | |
| Employment | Number of people employed, % of city population | Brookings Global Monitor | Profit |

# 1 Zurich
# 2 Singapore
# 3 Stockholm

# Some conclusions…

- QoL in cities – main policy issue for the next decade and century
- Many concepts – sustainable, smart, digital, green…
- Policies and other instruments are in place (at both global and local levels)
- Assessment metrics (data, indicators, indices) are also available
- Implementation !

# Thank you for attention!

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