



LEARN & ACT Teacher's Guide

# Sustainable Cities

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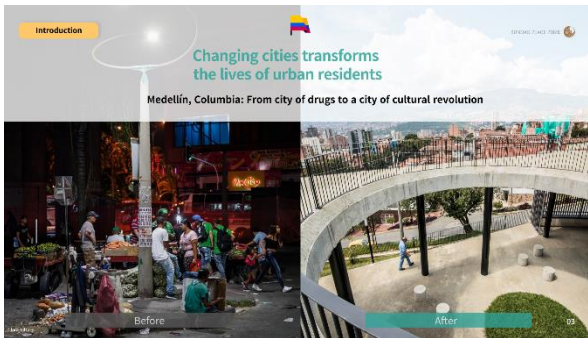


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## Introduction: Changing cities transforms the lives of urban residents



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### A. Medellín, Columbia: From city of drugs to a city of cultural revolution

Medellín, Columbia, located in the western region of Andes, was a notorious city that ranked among the highest in the world for drugs and violence. However, through “urban acupuncture,” Medellín was reborn as a cultural city that combines reggae and hip-hop. Acupuncture is a form of oriental medicine therapy in which needles are inserted in strategic points of a human body to treat pain. As the name indicates, urban acupuncture is a method of urban regeneration that saves surrounding areas by stimulating specific areas of the city.



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### B. Five strategies to bring about a change in Medellín

Medellín implemented five core strategies to transform their city. The first strategy was to supply cable cars as a method of transportation, which provided a safe means for the residents to pass through violence prone areas. Medellín placed pedestrians and bicycles at the top of the list in transportation policy and encouraged the cultural life of residents by encouraging art and music. In addition, parks in the city were created in various forms and beautiful and innovative libraries were installed in the slums. By the mid-2000s, more than a decade after the project was implemented, the crime rate fell to 1/20 from the 1990s, and residents were able to safely enjoy the benefits of education, culture, ICT, and transportation-related infrastructure.



# 1. Let's learn about sustainable cities

01. Let's learn about sustainable cities

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### What is a city?

City is a large human settlement and is usually the center of politics, economy, and social culture.



### What is a sustainable city?

Trying to resolve the problems caused by rapid urbanization and population growth

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## A. What is a city?

*City* is a large human settlement and is usually the center of politics, economy, and social culture. Urban conditions include large population and high population density, and service and high-tech industries.

## B. What is a sustainable city?

During the 20th century, cities grew rapidly worldwide, and urban population steadily increased, cities continuing to grow larger in population. However, rapid urbanization and population growth have brought many problems. The concept of sustainable cities and communities started from trying to resolve these issues. It focuses on helping the life of urban residents to be safer and more pleasant and properly dealing with various problems caused by urban life.

01. Let's learn about sustainable cities

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### Mega City vs. Metropolis



**Mega City**

Over 1 million residents



**Metropolis**

300,000 ~ 1 million residents

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## C. Mega City vs. Metropolis

① **Mega City:** over 1 million residents;

characterized by national administrative agencies, public infrastructure, and specialized high-end services; GDP usually exceeds that of most underdeveloped countries

② **Metropolis:** 300,000 ~ 1 million residents;

characterized by specialized advanced services



## 2. Global current status of cities



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### 1) Environmental pollution

#### A. 75% of global carbon emitted by 3% of the earth's surface

Cities occupy only 3% of the earth's surface but are responsible for emitting between 60~80% of all carbon gases. According to the 2021 data from the science journal *Frontiers*, 52% of global carbon emissions occur in 25 major cities around the world. 75% of carbon emissions are generated in cities, including small and medium-sized cities.

#### B. 4.2 million die prematurely from outdoor pollution every year

In 2016, 90% of urban residents breathed air that did not meet safety standards, resulting in 4.2 million deaths. More than half of the world's population is exposed to air pollution levels that is 2.5 times higher than safety guidelines.



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### 2) Lack of infrastructure

#### A. Shortage of jobs

Many come to the city to find work. However, cities no longer offer abundant jobs. Restructuring and economic downturn following the 2008 financial crisis, an increase in the proportion of employment in informal jobs, and job losses due to technological innovation (artificial intelligence and robots) are further shrinking the job market. Many countries are making efforts to create more jobs, but the outcome is not very successful. Young people flock to cities in search of jobs, but instead they suffer from unemployment and poverty, which is becoming a social problem.



## B. Shortage in housing, rising prices

The cost of housing continues to increase around the world since 2000, and in developed countries, the rise is steeper in larger cities with bigger populations. Young adults with lower financial capability and individuals with low-income levels tend to move away from the city due to higher housing costs and housing shortages.

## C. Worsening traffic congestion

Traffic congestion in cities has worsened over the years as more people ride vehicles to and from work and to travel for other economic activities. Building sufficient infrastructure related to transportation such as roads and railroads can help to manage this problem, which is a challenge in most developing countries.



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## 3) Creation of slums in cities

### A. What is a slum?

A *slum* is a contiguous settlement where the inhabitants are characterized as having inadequate housing and basic services, as defined by the United Nations.

### B. Increase in slum housing in developing countries

Statistics show that in the next few decades, 95% of city expansion will occur in developing countries. Slum housing is also increasing along with the deepening social and economic inequality within cities.

### C. One billion slum dwellers worldwide

The number of people living in slums has exceeded 1 billion worldwide and continues to grow (UN, 2018). They are mainly located in Eastern and South-Eastern Asia (370 million), Sub-Saharan Africa (238 million), and Central and Southeastern Asia (226 million).

### 3. Why are cities not sustainable?

03. Why are cities not sustainable?



#### Rapid urbanization



- STEP1.**  
Unplanned house-building
- STEP2.**  
Electricity, water, roads, and other necessary infrastructure are supplied

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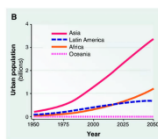
#### A. Unplanned growth of cities in developing countries

Rapid industrialization after mid-20th century contributed to urbanization and called people in to cities. A developed country plans for urbanization of a region, supplying infrastructure, building housing and commercial areas before inviting residents into the city. In contrast, in developing countries, cities are formed without any planning. Residents first move into an area and build houses to live in, after which electricity, water, roads, and other necessary infrastructure are supplied. This unplanned expansion and building of a city take a much longer period of time, and the process becomes much more complicated.

03. Why are cities not sustainable?



#### Urban population growth



Urban population doubled since 1975



Three out of four people live in cities

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#### B. Urban population doubled since 1975

Since 1975, the degree of urban concentration has more than doubled compared to before, and the number of large cities with a population of more than 5 million has tripled.

#### C. Three out of four people live in cities

According to a report from the Joint Research Centre of the European Commission in 2019, 5.5 billion people, or 3/4 of the world's population, live in cities (JRC categorizes a region with a population greater than 5,000 as a city). The UNDP projects that this number will rise to 6.5 billion by 2050 (UN projects 5 billion). This trend of urban population growth is expected to continue in the future.



## 4. Goal of the international community for sustainable cities

### 04. Goal of the international community for sustainable cities



#### UN Sustainable Development Goal #11 'Sustainable Cities and Communities'

##### Significance of sustainable cities and communities

To make every city and human settlement inclusive, safe, resilient and sustainable

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### A. UN Sustainable Development Goal #11 Sustainable Cities and Communities

*Sustainable Development Goals* (SDGs) are 17 global goals adopted by the United Nations General Assembly in 2015 and are intended to be achieved by 2030.

### B. Significance of sustainable cities and communities

The UN goal of *sustainable cities and communities* focuses on the problems of various pollutions, lack of infrastructure, and formation of slums that arise from rapid urbanization and population increase. This goal is meaningful in its efforts to make every city and human settlement inclusive, safe, resilient and sustainable by resolving these issues.

### 04. Goal of the international community for sustainable cities



#### SDGs 11. Targets

11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums

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

11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries

11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations

11.6 By 2030, reduce adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management

11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities

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### C. SDGs 11. Targets

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## 5. The most important tasks in making sustainable cities

04. Goal of the international community for sustainable cities

SDG 11



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### A. Reducing greenhouse gas emissions

The health of city residents is greatly threatened by water pollution (caused by global warming and sewage and wastewater), air pollution (caused by transportation and industrial activities), and reduction of green and public spaces (caused by reckless urban development). The problem is more serious in developing countries. These environment issues of cities make people ill, causing premature death for many of them. It is important for cities to make efforts to reduce greenhouse gas emissions, and some of the various methods include using renewable energy, recycling resources, using public transportation, and providing access to green and public spaces for everyone.

### B. Building smart cities to help solve problems

A *smart city* is a form of a city that uses information and communication technology (ICT) and other modern technology to solve urban problems and improve everyone's lives. Urban infrastructure including roads, ports, water supply systems, electricity, and school are efficiently managed by establishing a smart platform that applies the latest ICT such as IoT (Internet of Things) and big data analytics. It also aims to solve various issues related to transportation and energy use in cities by collecting and utilizing public data as well as to create new values.

### C. Creating a city of equality

Economic inequality increases with further progress in urbanization, and based on the amount of wealth owned, a city may or may not be a very pleasant and convenient place to live. Inequality is a very important issue that is directly related to security issues and urban stability. It would be important for policymakers to build safe infrastructure that is accessible to all and promote inclusive policies to help those in poverty.



## 6. International efforts to make sustainable cities

### 06. International efforts to make sustainable cities



A. UN-Habitat: toward an improved quality of life for all in an urbanizing world

- 1) To resolve **space inequality**
- 2) To strengthen **joint prosperity** of cities and neighboring regions



UN-HABITAT



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### A. UN-Habitat: toward an improved quality of life for all in an urbanizing world

*UN-Habitat* is an international organization launched at the first UN Conferences on Human Settlement and Sustainable Urban Development (Habitat I) that was held in order to cope with urbanization and the surge in urban population that started in the 1970s. Its focus is on researching the impact of urbanization on human life and coming up with fundamental measures to solve issues related to urbanization and come up with ways to assist in sustainable urbanization. Its efforts include resolving poverty in cities and space inequality, strengthening joint prosperity in cities and climate action, as well as crisis prevention and crisis response.

### 06. International efforts to make sustainable cities



B. Coalition for Clean Air provides a way to overcome air pollution

- To improve **air quality and protect public health** in the state
- Launched the **Smog Check Program**



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### B. Coalition for Clean Air provides a way to overcome air pollution

Established in 1971, the *Coalition for Clean Air* is an organization in the U.S. state of California that aims to improve air quality and protect public health in the state. It focuses on the fact that greenhouse gas emissions from traffic issues account for 39% of the total amount in California and recommends various solutions. Recently, they sponsored and passed a legislation to reduce greenhouse gases emitted by vehicles. Large trucks account for only 2% of vehicles on the road, but they emit 50% of the cancer-causing diesel, particulate matter, and ozone. They launched a vehicle inspection and maintenance program called the Smog Check Program, which requires the large trucks to check excess emissions so they can be properly repaired or retired, which contributed greatly to reducing air pollution in the state.



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### C. Objectif Paris Propre (Cleaner Paris Project)

In Paris, France, improving cleanliness has been a top priority since 2014, and the *Objectif Paris Propre* has been carried out since 2017. The city of Paris is implementing various policies to modernize cleaning services, strengthen means for cleanliness, and induce citizen participation. Some of the efforts include a civil complaints app called “Dans Ma Rue (In My Street)” that individuals can use to easily and quickly report complaints related to cleanliness to public officials, appointing citizens as Clean Ambassadors to communicate with the city government and educating the youth to raise awareness about the importance of city cleanliness. About 100 additional cleaning workers were hired and 48 street cleaning vehicles were added in this effort.

## 7. Brainstorm ways to make sustainable cities



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How can we contribute to making sustainable cities and communities?