RISE OF THE URBAN PLANET

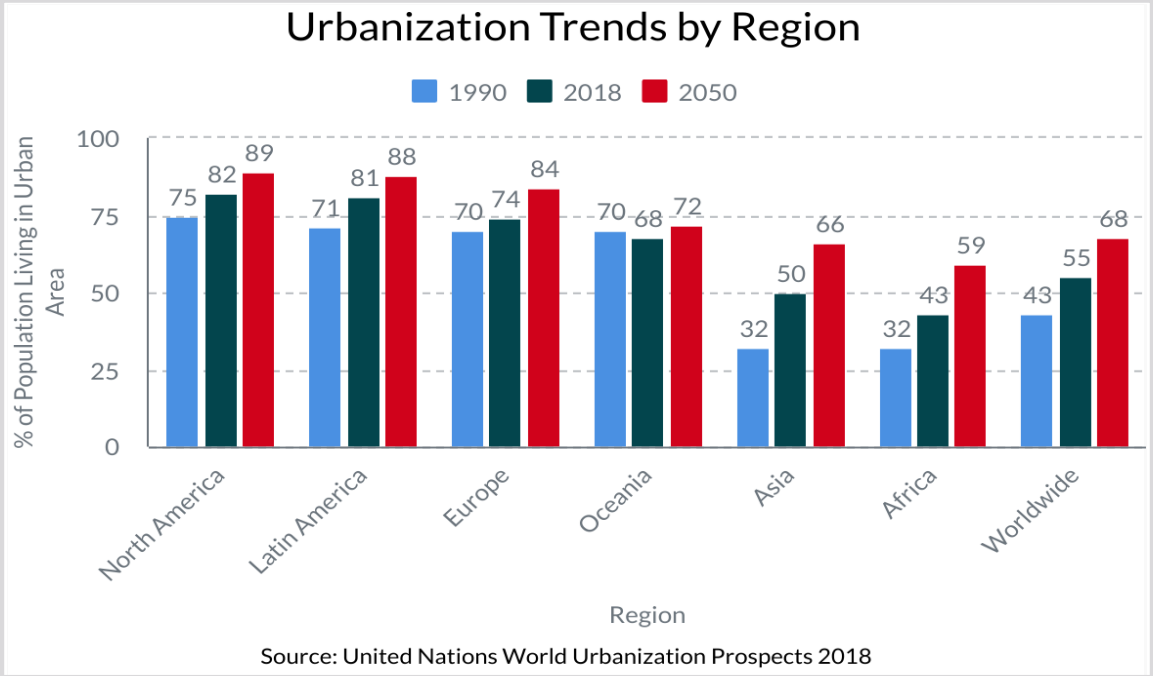
background reading | urbanization unit

EARTH matters
Studies For Our Global Future

"A great city is not to be confounded with a populous one."– **Aristotle**

Urbanization is one of the most remarkable social and economic trends to affect the globe in the last century. The greatest human migrations throughout the world have been from rural to urban settings – people in search of better opportunities for themselves and their families. In 1900, a mere 13 percent of the world's population lived in urban areas. Today, that proportion is 55 percent and rising steadily.[1] Cities have expanded outward to absorb growing populations, but often without proper planning to allow for the well-being of urban residents and the environment. This has led to uncontrolled urban sprawl in many **developed countries** and the expansion of unhealthy slums in less developed countries.

Since the beginning of great ancient civilizations, people have been attracted to cities as centers of culture, education, government and commerce. There are economic and social reasons behind the growth in cities. The Industrial Revolution caused a shift from agriculturally-based societies to industrial-based economies. Instead of making a living in the fields and farms, people headed to the cities and worked in factories and businesses. Cities became a draw for job opportunities and a more secure future, and urban populations boomed. Over the past 40 years, the world's population has grown by more than 3 billion people, most of whom have migrated to urban areas for a better quality of life.



Source: United Nations World Urbanization Prospects 2018

Too big, too fast

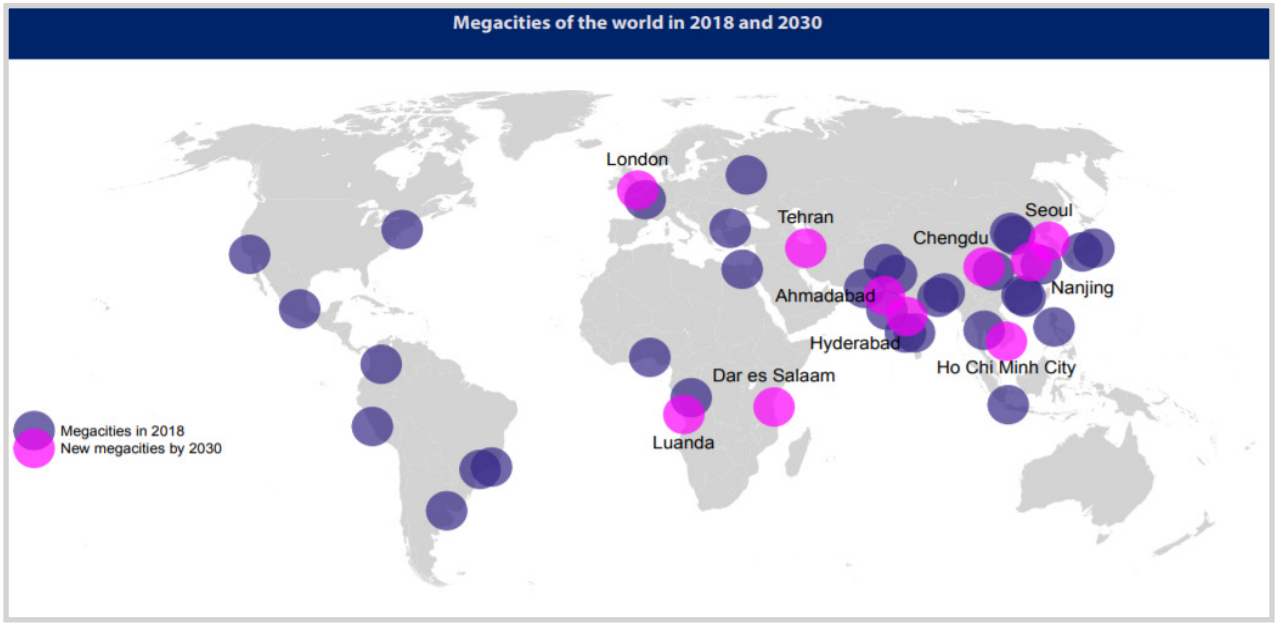
Depending on cities' ages and locations, there is much variation in wealth and infrastructure. Many of the newer urban areas, located in Latin America, Asia and Africa, have an entirely different look, feel and outlook than their older European or North American counterparts. How fast an area grew, or is growing, is a key component.

When a city grows at a manageable rate, which is often considered roughly 1 percent annually, its infrastructure can keep pace with an increasing population and its demands. Necessities such as roads and public transportation, sewage and water treatment facilities, clinics, schools and housing have time to be planned and built alongside the increase in human numbers. The risk of fast urban growth, especially in an economically strained country, is that the necessary infrastructure often cannot expand fast enough to keep up with residents' needs. Without infrastructures in place to provide basic needs, residents can be forced to create their own provisions with whatever is available.

Urbanization appears to be accelerating. In the last decade of the 20th century, cities were growing by an average of 57 million people per year; from 2010 to 2015, that average rose to 77 million additional urban dwellers annually.[2] North America is the most urbanized region of the world (82 percent of people live in urban areas), followed by Latin America and the Caribbean (81 percent) and Europe (75 percent). Yet, Asia and Africa have the highest rate of urbanization. Asia currently has more than 2 billion people living in cities (50 percent of the population) and that's expected to grow to 66 percent of the population by 2050.[3] Although only 40 percent of Africa's population is currently urban, that number is expected to rise to 59 percent by mid-century.

The emergence of megacities

The urban shift over time has led to the emergence of the **megacity** – a city with a population of 10 million or more. New York City and Tokyo were the first known megacities, both reaching an **urban agglomeration** of over 10 million by the 1950s. But today they are far from alone in their size. In 2018 there were 33 megacities across the planet – from Sao Paulo, Brazil to Lagos, Nigeria and London, England to Shanghai, China – and all major global regions except Oceania are marked with megacities. By 2030, the United Nations expects that there will be 43 such cities.[4]



Source: United Nations, Department of Economic and Social Affairs, Population Division (2018). The World's Cities in 2018 - Data Booklet (ST/ESA/ SER.A/417)

Most of the cities that have reached the 10 million marker in recent years are located in Asia and Africa. In 2018, China was home to six megacities, while India had five. Nine of the ten projected new megacities by 2030 are located in either Asia or Africa.[5] These regions are also home to the fastest growing megacities. The population

of Kinshasa, capital of the Democratic Republic of the Congo, has doubled roughly every five years since 1950.[6] A combination of factors has led to this growth including migration from rural areas, high fertility rates and widening of the city's boundaries. The population is outpacing almost all support structures in the city where the threat of food shortages, traffic congestion and insufficient education facilities have become a stark reality.

Kibera, a neighborhood in Nairobi, Kenya.

Living on the edge

With cities able to sufficiently support only a certain number of residents, many are pushed to the edges. In less developed countries, where most of the world's population growth occurs, cities are increasingly overwhelmed with the arrival of new residents. Without a social infrastructure and financial support, people are forced to live in **slums**, extremely dense areas teeming with people that reside in shacks with no running water or sanitation. According to the 2019 United Nations Sustainable Development Goals Report, more than 20 percent of the urban population (about 1 billion people) lived in slums in 2019.[7] In some cities, such as Mumbai, India (population 21 million), over 40 percent of residents live in slums, creating huge public health and environmental problems.

People forced to live in slums survive with practically no sanitation, water, employment or security, and one-seventh of the world's population lives under these conditions. The lack of running water and sanitation, plus malnutrition and inadequate housing, leads to deadly conditions in the slums of many cities in Africa, Asia, and Latin America. The spread of tuberculosis, HIV/AIDS and other infectious diseases in areas where so many people live in such close physical proximity is a critical public health issue for urban areas throughout the developing world. When combined with high unemployment rates and inadequate schools, these public health issues create a poor quality of life for many of the city's residents.

Growing out

While slums tend to grow within a city's limit, there is a different sort of urban growth that spreads outward and greatly increases the size of urban areas. This is often referred to as suburban or **urban sprawl**. **Suburbs**, communities that grow outside of city and where low-density housing is spread out over the surrounding countryside, have been around since ancient Rome, but it wasn't until modern transportation (buses, cars and trains) that they began to thrive.

As the population of cities in developed countries grew in the 1900s, so did living costs, pollution, congestion and often crime. The lure of owning a single-family home with a front yard and a car became an ideal for many city-dwellers, especially in the United States, where the post-World War II media presented suburban living as "The American Dream." The emergence of transportation routes to the city from the suburbs made it even more convenient for people to live outside the city and work in the city. Soon after new residential areas had established their foothold in city peripheries, commercial development followed. People were not only living, but

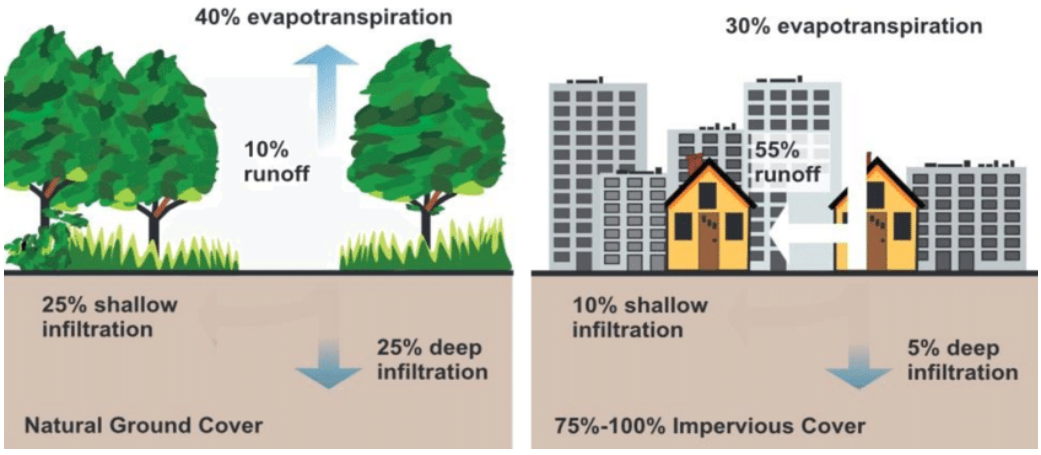
also shopping and working outside of the city. In the U.S., an area the size of two New York Cities was paved over each year between 1982 and 1992. In fact, over one-third of the country's developed land has been converted from farmland in just the past 30 years.[8]

Urban sprawl tends to be a feature of cities in wealthier countries. As people become richer, they consume more space, just as they consume more energy and more goods and services. Even so, cities are growing outward worldwide, even in less developed countries where urban sprawl is a fact of life. The land occupied by cities has grown at an even higher rate than cities' populations. It is projected that by 2030, the urban population in **developing countries** will double, while the land area of cities will triple.[9]

Urban and suburban sprawl jeopardize the **sustainability** of cities. In many places, urban sprawl encourages new development that cause significant loss of prime farmland. Sprawling metropolitan areas require more energy, metal, concrete and asphalt than do compact cities because homes, offices and utilities are set farther apart. This necessitates more transportation costs for roads, more infrastructure to connect communities to utilities and more dependence on cars.

Urban growth and the environment

Converting farmland and other green spaces for urban development can have long-lasting impacts on the environment. More roads, parking lots and other paved areas dominating the landscape can spell trouble for the local climate and waterways. These **impervious surfaces** prevent water drainage, causing **urban runoff**. Rainwater washes traffic pollution (along with residues, gasoline and garbage) into rivers and streams. This runoff eventually reaches the oceans, affecting fish and marine wildlife.



Source: U.S. EPA

Because of impervious surfaces like pavement and rooftops, city blocks produce more than five times the runoff than a woodland area of the same size.

The coverage of asphalt and concrete also turns cities into **urban heat islands**. With fewer trees to absorb carbon dioxide (CO_2) and pollutants, cities have higher air and surface temperatures and are more prone to smog. The annual mean air temperature of a city with 1 million people or more can be 1.8–5.4°F (1–3°C) warmer than its surroundings. In the evening, the difference can be as high as 22°F (12°C).[10] Heat islands can affect communities

by increasing summertime peak energy demand, air conditioning costs, air pollution and greenhouse gas emissions, heat-related illness and mortality, and water quality.

As hubs of industrialization and transportation, cities are responsible for more than 70 percent of CO_2 emissions worldwide.[11] They are also bearing the brunt of some of the visible effects of climate change. Many of the world's largest cities are located in low-lying coastal areas which are especially vulnerable to climate events that can cause flooding and widespread disruption of basic services. Even inland cities, like Mexico City, are affected by a changing climate. In Mexico's historic capital, increasing heat and drought have caused water evaporation. This has forced utilities to drill deeper for water. As a result, parts of the city are sinking due to **land subsidence** (the land caving in) with many buildings now deemed unsafe.

The changing global climate is also contributing to rapid urbanization, as more **climate refugees** move to cities after farmlands and grazing lands wither from drought. Mongolia is a case in point. Long a herding and nomadic society, Mongolia has experienced rapid changes due to climate change. Over the past 70 years, the average temperature has increased by nearly 4°F, creating new weather patterns. Drier summers and unusually cold spells in the winter killed livestock and pushed refugees to the capital, Ulaanbaatar, where 20 percent of the country's population has moved in the past 30 years.[12] Today, half of Ulaanbaatar's residents are migrant families living in tent districts on the edge of the city, where they are unable to access many of the city's services (running water, electricity, sewage). They also lack heating in a city where winter temperatures can drop to -30°F.

Economically divided cities

In Ulaanbaatar and many other burgeoning cities, population growth has contributed to social inequalities. In cities of the developing world, the wealthier residents live in the city center in gleaming skyscrapers or on manicured residential streets, while the poor inhabit shantytowns on cities' edges. Developed cities, too, have their stark wealth gaps. Manhattan is an island of extremes, where the top 5 percent of households earned 88 times the bottom 20 percent.[13] In 2019, more than 1 billion urban households around the globe lacked decent housing and this number is only expected to grow.[14]

Rio De Janiero, Brazil.

The urban poor are also beset with high unemployment rates, inadequate schools and public health crises. In less developed countries, unsanitary conditions in city slums can lead to the rapid spread of infectious diseases. Consider the outbreak of the Zika virus in Brazil in 2016. Much of the media attention focused on the athletes and tourists traveling to Rio de Janeiro for the Olympics that summer. Yet they were at much less risk of contracting the virus than Rio's urban poor. Living in crowded conditions with few municipal services provided ample opportunities for the mosquitoes carrying the disease to breed and spread in the slums. Not so for those in less crowded areas with window screens, air conditioning and regular spraying of insecticides. The COVID-19 pandemic also highlighted urban inequality. Many of those in poor living conditions lacked basic resources like running water and soap. Most residents rely on informal employment such as street vending or

minibus driving, making it impossible to survive without putting themselves at risk by defying social distancing and lockdown orders.[15]

A new urban agenda

The challenges to the environment and social justice posed by rapid urbanization around the globe has world leaders considering how our cities can be forces for positive change. The United Nations is advocating for a "new urban agenda" that would promote cities that are "environmentally sustainable, resilient, socially inclusive, safe, violence-free and economically productive." This is in keeping with the **United Nations Sustainable Development Goals (SDGs)** for 2030.[16]

A sprawling suburban community outside of Austin, TX.

Environmentalism and urbanization are not incompatible. Dense urban areas have a much smaller ecological footprint – many people live in apartments or smaller, connected houses rather than ranch-style homes in sprawling neighborhoods. Multi-family dwellings are more energy efficient and require fewer resources per person. Cities are also walkable and have public transportation options than can make cars less of a necessity. And above all, densely populated areas make it possible to protect other open spaces to serve as wildlife habitat, farmland, conservation areas, or oxygen-producing forests, as long as sprawl doesn't take over.

But right now, cities are not livable for all residents. Changing this fact means investments in major services such as safe housing, transportation networks, water and sanitation connectivity, electricity, health, education, green spaces and culture. The way we build and manage urban spaces will play a role in the future of humanity. Cities have long been engines of innovation, production and economic opportunity. Going forward, they also have the potential to be a scene of sustainability.

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