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Here and Now: We Must Change

REPORTS ON URBAN growth worldwide converge in a unified direction, as was reflected by the “2018 Revision of World Urbanization Prospects” from the United Nations Department of Economic and Social Affairs (UN DESA). According to UN DESA, from 1950 to 2050, the global urban population will experience remarkable growth, soaring from 1.5 billion to nearly 10 billion individuals. Between 2000 and 2050, around three billion people will reside in the world’s cities. This rapid transition will reshape our once predominantly rural world into one that is 68% urbanized (<https://www.un.org/en/desa/2018-revision-world-urbanization-prospects/>).

These urban areas contribute substantially to greenhouse gas emissions, as is strongly highlighted by the Intergovernmental Panel on Climate Change (IPCC). In its 2022 report, “Climate Change 2022: Mitigating Climate Change,” the IPCC’s Working Group III elucidated the diverse mechanisms through which urban activities account for approximately 70% of global greenhouse gas emissions (<https://www.ipcc.ch/report/sixth-assessment-report-working-group-3/>).

In addition, in its 2021 report titled “Empowering Cities for a Net Zero Future,” the International Energy Agency (IEA) emphasized that urban areas are responsible for more than two-thirds of motorized mobility and at least 75% of housing and commercial buildings. These factors have been identified as the primary sources of carbon dioxide (CO₂) emissions and the subsequent decline in air quality (<https://www.iea.org/reports/empowering-cities-for-a-net-zero-future/>).

To meet these challenges, it is imperative to rethink urban planning, mobility, and lifestyle in cities. Measures to promote sustainable transportation, such as efficient public transportation, cycling infrastructure, and pedestrian zones, can help reduce mobility-related emissions. Additionally, greater energy efficiency in residential and public buildings and the adoption of renewable energy sources are essential to meet the challenges of urbanization.

The Urbanization Challenge and Environmental Impact

Climate change, day after day, month after month, year after year, continues unabated, fueled by the habits of our urban lives that we refuse to change. In the name of what? Our happiness? Our prosperity? None of these things. This is what we've always known, and we want nothing to change. Other human civilizations have disappeared because of famine and war, unable to adapt to new situations. And what about us, today, in this twenty-first century of city, technology, and modernity? Where are we heading? Are we all aware of the situation's severity for our children and grandchildren, to whom we are leaving such a mess? Yes, urban life is the heart of the problem, but it is also the solution, if we enable it to be. Never in the history of humanity has survival been so compromised by lifestyle.

To understand, there is a history to establish: I was born in 1959 with 316 ppm of CO₂ in the atmosphere, and 64 years later, in April 2023, the threshold of 425 ppm of CO₂ in the atmosphere was exceeded, seriously threatening our future (as shown in Figure 1.1). This goes hand in hand with the constant rise in temperature and natural disasters.

IPCC – Cities Alliance

Over the same period, the average temperature rose from 26.44°C (79.6°F) to 27.28°C (81.1°F). Why is this 0.84°C (1.5°F) increase too much? Although this rise may seem minimal at first glance, it is an average increase on a global scale, affecting vast and complex climate systems. Historically, temperature variations of this magnitude have taken thousands of years to manifest themselves, so such a pronounced change in less than a century is unprecedented and alarming.

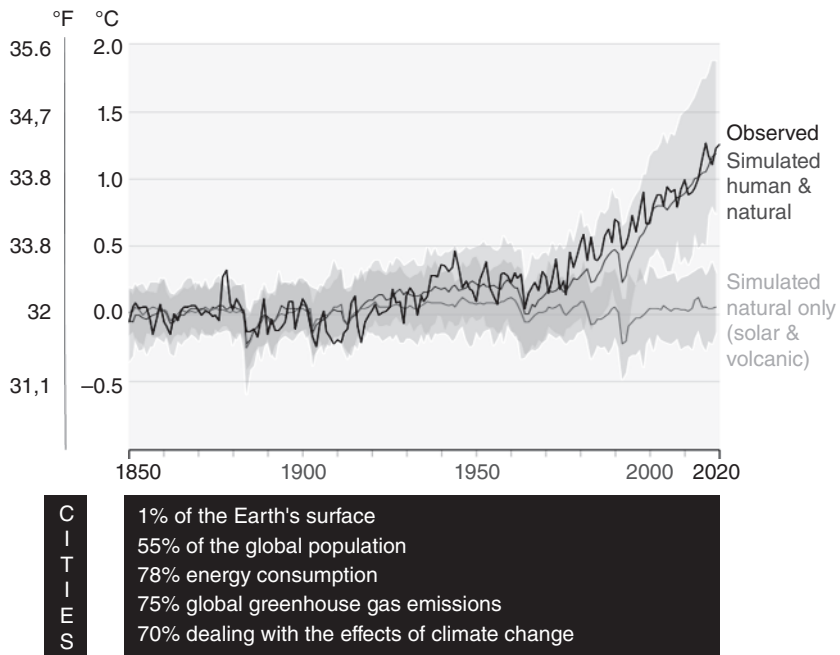


Figure 1.1 The impact of urbanization and climate change is global.

Source: GIEC (2021), AR6 WG1 SPM / Public domain

This rapid rise in temperature is disrupting natural ecosystems, many of which do not have time to adapt. This poses a direct threat to biodiversity, leading to the loss of species that cannot adapt or migrate quickly enough to cope with the changes. At the same time, global warming is intensifying ice melt and causing sea levels to rise, putting coastal regions and small islands at risk.

According to the 2022 IPCC report, several of the extreme heat phenomena observed over the last decade would have been improbable without human influence on the climate system. Any further rise in the global average temperature—even by just a few tenths of a degree—will further increase the intensity and frequency of these extreme events. Coral reefs, for example, have already reached the limit of their ability to adapt and could disappear if the $+1.5^{\circ}\text{C}$ (approximately 2.7°F) threshold is exceeded. What's more, the rise in temperature has knock-on effects, with some of the climate change's impacts, in turn, accelerating the warming process.

The twentieth century way of life is no longer possible if we still want livable cities. If we remain city-dwellers who do not care about the air, water, and atmosphere, these elements will slip permanently out of our grasp, resulting in disaster. With the construction of major metropolises, the depletion of natural resources, the almost permanent pollution of cities, water stress, and systemic effects are threatening quality of life, endangering health, and, beyond that, compromising the entire circle of life.

Let's look at what was happening in North America in the spring of 2023. In Canada, the west of the country was engulfed in a multitude of devastating fires. Alberta had 62 blazes, and British Columbia experienced 76. The country's center in the Saskatchewan province was not spared, with 24 fires mercilessly ravaging the region. Quebec was also threatened by flames and smoke. As of October 2023, the country has experienced 424 fires, a figure that has far exceeded the average for the same season over the previous 10 years.

Because of its unique geographical position, Canada has been feeling the effects of global warming more acutely than the rest of the world. The consequences have been devastating, with extremely violent weather phenomena, the scale and frequency of which have been exacerbated by climate upheaval. Let's examine how this has affected cities. Carried by swirling winds, smoke from the fires raging in the east of the country spread across the landmass. The smoke reached Montreal, infiltrating its busy streets, and plunged the capital, Ottawa, into a dark fog. The authorities warned the public of a "very high risk" to their health due to poor air quality. Citizens were advised to limit their outdoor physical activities, while the horizon remained smoggy for almost a week.

The orange haze that enveloped the major Canadian cities stretched for hundreds of kilometers, even crossing the border to reach the United States and New York's legendary metropolis. Manhattan's majestic skyline was reduced to a distant shadow, obscured by thick fog. The bustling streets of the city that never sleeps were tinged with a strange glow, reflecting the bad air quality. The familiar masks of the COVID-19 pandemic returned. Doors and windows were closed in the hopes of preserving a healthy, livable interior. The young, old, and frail were advised to stay indoors. Outdoor activities were curtailed, leaving

the streets deserted and the parks silent, deprived of the joyful bustle that usually animates them.

When a yellowish glow enveloped New York City in June 2023, it was an apocalyptic-like moment. The atmosphere was permeated by the acrid smell of burning wood. The clouds of smoke that rose into the air, curling around buildings and deserted streets, created a landscape worthy of a dark science fiction film. It was as if the streets were plunged into the shadows of a dystopian future, evoking images from the movie *Blade Runner*.

Urbanity: A Double-Edged Sword

The movie *Blade Runner* was based on Philip K. Dick's 1989 novel, *Do Androids Dream of Electric Sheep?* The plot evoked a feeling of powerlessness, fueled by humanity's suicidal behavior brought on by the devastation following a nuclear war. Among the few survivors struggling to survive on Earth in ruins, there is an urgent need to build empathetic relationships and find meaning in existence despite everything. At the heart of this exploration is the fundamental question of the human essence and how to live our humanity to its fullest.

Along the same lines, we wonder, with concern, what all these devastating forest fires will lead to. We are reminded of how our city lives will be affected by disturbances of this kind, now all too present and visible.

Global Impact on Health

Let's look at what spring 2023 in Asia was like, when cherry trees are usually blooming in Japanese cities and we marvel at the beauty of the *sakura*. Alas, it was no better halfway around the world from Canada and New York City.

In Asia, too, climate change is having devastating effects. The IPCC's Sixth Assessment Report (AR6) by Working Group I examined the future occurrences of events such as rainstorms, droughts, and heatwaves in the context of 1.5°C (2.7°F), 2°C (3.6°F), and 4°C (7.2°F) warming scenarios (see Figure 1.2). Extreme weather is becoming both more frequent and more intense due to climate change.

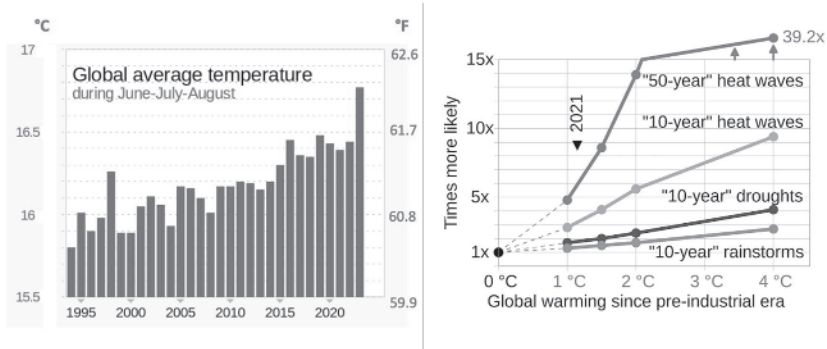


Figure 1.2 The increase in global average temperature since 1995 (June-July-August) and meteorological forecasting.

Source: Wikimedia CC

RCraig09 based on the Sixth Assessment Report of the Intergovernmental Panel on Climate Change / Summary for Policymakers

These scientific forecasts have been confirmed, as evidenced by an extreme heatwave that swept across Asia in 2023, setting record temperatures in several countries.

Stifling heat also gripped the region, leaving little respite for its inhabitants. In Japan, temperatures broke records from the very start of spring, very early in March, causing the cherry trees to flower early.

In fact, March 2023 was the hottest in the country’s history. The previous year, Japan had already registered 200 record temperatures, resulting in 71,000 people being hospitalized for heat-related illnesses, particularly children and the elderly.

In Thailand, Bangkok reached a record heat of 54°C (129.2°F), prompting authorities to advise residents to avoid outdoor activities and be forewarned about heatstroke. Several Thai provinces also experienced temperatures over 40°C (104°F). This extreme heat has led to an increase in electricity consumption, with record demand being exceeded. The heatwave is also spreading to India, Bangladesh, and China. Six Indian cities have already recorded temperatures over 44°C (111°F), resulting in tragic deaths. Children suffered from headaches and fainting spells, leading to the closing of many schools. The intense heat increased electricity demand, leading to power cuts and shortages.

COVID-19 revealed the weaknesses of urban care policies, and the impact of climate variations associated with El Niño concerns public health. Extreme heat waves associated with El Niño can present harmful consequences to city dwellers' health. For example, during an intense heatwave, people may be exposed to high temperatures for long periods, increasing the risk of heat-related illnesses such as exhaustion, heat stroke, and respiratory problems. The most vulnerable populations, such as young children, the elderly, and people with pre-existing health problems, are particularly affected. Flooding can also encourage the spread of water-borne diseases in urban areas. When drinking water supply systems are contaminated as wastewater is mixed with drinking water, the population is exposed to an increased risk of contracting gastrointestinal infections such as diarrhea, cholera, and leptospirosis (a bacterial disease caused by contaminated water).

Global Economic Impact

In 2023, the Pacific Ocean warming climatic phenomenon called El Niño Southern Oscillation, also known as “El Niño,” has been looming, with its cohort of significant new impacts on the global climate, including in urban areas. This is produced by abnormal variations in the Pacific Ocean’s surface temperatures, and one of the most visible manifestations of El Niño in cities is the rise in temperature.

El Niño episodes are often associated with extreme heat waves, during which temperature records are regularly broken. This can lead to additional health problems, peaks in energy consumption for air conditioning, and increased pressure on water resources. But as a complex phenomenon, it can also influence rainfall patterns in cities: some areas may experience more intense drought, with consequences for water supply, urban agriculture, and water resources, while other areas may be subject to heavier rainfall, leading to flooding, landslides, and damage to urban infrastructure.

Since El Niño is a warming phenomenon, global temperatures are set to rise over the next few years. According to the World Meteorological Organization, “There is a 93% chance that at least one year between 2023 and 2026 will be the warmest on record, and a 50% chance that global temperatures will temporarily rise by 1.5°C

(approximately 2.7°F) above the pre-industrial average.” The effects of this climatic phenomenon could be felt for a long time to come.

A study conducted at Dartmouth College entitled “Persistent effect of El Niño on global economic growth” by assistant professor of geography Justin Mankin and researcher Christopher Callahan and published by *Sciences* in May 2023, highlights the considerable economic costs associated with the coming El Niño phenomenon, estimating a global cost of around \$3.4 trillion over the next five years (<https://home.dartmouth.edu/news/2023/05/years-after-el-nino-global-economy-loses-trillions/>). The results underline the importance of assessing this climate phenomenon’s economic impact. These researchers have found that El Niño events on a similar scale to those observed in the past could lead to economic losses of around \$699 billion for the U.S. economy. Pacific Rim countries such as Peru and Indonesia suffered a 10% drop in economic output in the years following the 1982 and 1998 El Niño events. This study highlights the need to measure the overall impact of El Niño on national economies.

Given the predicted increase in the frequency and intensity of El Niño events due to global warming, based on the study by Mankin and Callahan, global economic losses could exceed \$84 trillion this century. It is important to note that economic productivity does not recover immediately after El Niño’s passages, but the effects remain for a prolonged period following the event itself.

The study also highlights that the impact and damage resulting from landslides and floods are generally not covered by household and business insurance in the United States, exposing local communities to significant financial risks. According to Trevor Burgess, CEO of Neptune Flood, one of the nation’s largest private flood insurance companies, in California, for example, only 2% of homeowners are insured against flooding, further increasing economic vulnerability to these events.

The economic consequences of the El Niño phenomena also include significant damage to infrastructure during floods, which, in turn, disrupts food supply chains. In addition, floods and droughts cause considerable losses in the agricultural sectors, with repercussions for food security and the agricultural economy.

These results highlight the need to take into account the economic impact of El Niño in planning for and adapting to climate change. It is therefore essential to implement measures to mitigate the risks and improve the resilience of communities and infrastructures to these extreme climatic events.

We are facing the dramatic consequences of climate change, which is amplifying extreme weather phenomena. Climate change is having a systemic impact on our cities, forcing us to think deeply about how we live and how we behave as human beings. As the main drivers of climate change, our human activities have contributed to exacerbating the environmental problems we face today.

The consequences of climate change for cities are manifold. Extreme weather events are becoming more frequent and more intense. Urban infrastructures, water supply systems, public transportation networks, and buildings are all vulnerable to these disruptions.

The systemic impact of climate change on our cities is forcing us to think deeply about our lifestyles and behavior. Our human activities are primarily responsible for the environmental problems we face today. This is leading us to question the way we live and consume. Our energy consumption habits, our dependence on fossil fuels, and our development model based on intensive economic growth have all contributed to the increase in greenhouse gas emissions and environmental degradation.

So I'm going to tell you why the 15-minute city is a new, life-changing chapter in our history before it's too late.

A Sustainable Future via the 15-Minute City

Lifestyle change will not be easy, but it is imperative if we are to meet the challenges of climate change and ensure a sustainable future for our cities. This requires collective awareness, ambitious policies, environmental education, and individual efforts to adopt more environmentally friendly behaviors.

Proximity plays an essential role in lifestyle change and city transformation. The concept of the "15-minute city" and "30-minute territory" is at the heart of this new urban lifestyle, which is now enjoying worldwide success.

The 15-minute city represents an urban model in which the essential needs of residents are accessible on foot or by bicycle within a short perimeter in high-density areas. Similarly, the 30-minute territory extends this concept to less densely populated areas where commutes can take a little longer.

These approaches aim to bring living, working, education, leisure, services and nature closer together, thereby reducing dependence on motorized transportation.

Another crucial aspect of this approach is the promotion of soft and sustainable mobility. By shortening distances, improving infrastructure for pedestrians and cyclists, and strengthening public transportation, residents are encouraged to favor more environmentally friendly travel means. This reduces greenhouse gas emissions, traffic congestion, and, in turn, the health problems associated with air pollution. As well as reducing traveling times, the aim is to improve quality of life, strengthen social cohesion, and encourage community. In this way, we are helping to protect the environment by limiting the pressure on natural resources and encouraging a more efficient use of urban space.

By adopting these urban models, we are responding to the challenges posed by climate change and building more sustainable, livable, and resilient cities. However, this requires strong political will, appropriate urban planning, and active community involvement.

This urban model is based on several key principles. First, it promotes functional diversity by encouraging the harmonious cohabitation of different city uses. This means that neighborhoods offer a mix of housing, shops, offices, green spaces, and services, reducing the distances traveled and making daily life easier for residents.

Second, the 15-minute city and the 30-minute territory promote urban densification by encouraging the construction of compact, well-connected neighborhoods. This reduces distances and optimizes the use of space, avoids urban sprawl, and preserves the surrounding natural and agricultural areas.

The 15-minute city and the 30-minute territory have become a global success story, offering an attractive alternative to dispersed, car-based urban living and dependence on distant resources. They invite us to rethink the way we live; to value proximity, community, and sustainability; and to create livable cities for current and future generations.

Having established the urgency of our current urban challenges, we turn our attention to the factors that have brought us to this point. The next chapter delves into the historical and spatial complexities that have defined our urban environments, offering insights into how and why our cities have developed the way they have.

