UNDP

United Nations Development Programme

Yale Model United Nations China III

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Letter from the Dais

Dear Delegates,

I am so honored to officially welcome you to Yale Model United Nations China! My name is Joseph Or (柯天霖), and I'm so excited to welcome all of you to the United Nations Development Programme (UNDP). I'm originally from Southern California and am a current first-year student at Yale, pursuing Political Science and Energy Studies. I am currently on the pre-law track, but I've also explored pre-med, business, and entrepreneurship, so I'm always happy to talk about anything college- or career-related. At Yale, I serve as a Senior Consultant for the Global Strategy Consulting Group and am involved with Design for America, Renewable Future Alliance, and the Business Team for Asian Recipes at Yale. In my free time, I enjoy long-distance running, hiking, rating restaurants and cafés on Beli (top 0.2% diner…), and taking weekend trips with my friends!

The United Nations Development Programme (UNDP) works to address issues of poverty, economic growth, climate change, and inclusive institutional capacity-building. Through implementing flagship initiatives like the Global Disaster Risk Reduction Programme, providing technical assistance, and supporting governments with data-driven policy, the UNDP plays a key role in advancing the Sustainable Development Goals (SDGs): a set of 17 interconnected global goals created by the U.N. to protect both our people and the planet. In this committee, you will tackle two of the most pressing problems facing urban metropolises: rapid urbanization and the modernization of transportation systems. I look forward to watching you all challenge yourselves as you debate and collaborate to create solutions rooted in social equity and visions of sustainable growth.

I encourage delegates to take risks, lead inclusively, and engage in thoughtful research to develop innovative solutions and communicate their ideas clearly, concisely, and effectively. Remember that the purpose of Model UN is to bring together debate and diplomacy to create a meaningful environment for both learning and fun! I was actively involved with Model United Nations throughout high school and competed in several UNDPs, so I hope this experience will be just as rewarding and memorable. I hope you all leave this committee with new perspectives and a deeper understanding of world issues. As you prepare to serve as a delegate in the UNDP, my email is always open for any questions, comments, or concerns (joseph.or@yale.edu). See you all in Shenzhen!

Sincerely,
Joseph Or
Chair of the United Nations Development Programme (UNDP)

Committee History

The United Nations Development Programme (UNDP) is a central body of the United Nations committed to advancing global sustainable development. Established in 1965, its original function was to provide technical expertise and help states build basic infrastructure. However, at the turn of the century, with the creation of the Human Development Index (HDI), which measures development through health, education, and standards of living, the UNDP's role expanded to include supporting programs aimed at reducing poverty and promoting social inclusion and equity.

Today, UNDP operates in over 170 countries and territories, making it the largest UN development aid agency. Its modern work is grounded in the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs). The 2030 Agenda, adopted by all UN Member States in 2015, created the 17 SDGs, which include the eradication of poverty, the promotion of health and well-being for all ages, expanded access to affordable and clean energy, and the elimination of gender-based discrimination and violence – all of which are central to UNDP's core mission. On urbanization issues, UNDP centers the 11th Sustainable Development Goal (SDG 11), which focuses on making all cities and human settlements inclusive, safe, and resilient. In this realm, UNDP primarily serves as a coordinating agency, working alongside UN-Habitat and the UN Environment Programme to support national policies addressing infrastructure gaps, governance challenges, and climate-related risks.

For instance, UNDP actively supports countries in implementing the New Urban Agenda: a 20-year framework that aims to increase global urban policy coherence through a set of national urban policies (NUPs) that align countries' goals with sustainable urban principles. Similarly, UNDP launched the Livelihoods Improvement of Urban Poor Communities Project (LIUPCP), working with the Government of Bangladesh to launch and scale climate-resilient, low-cost housing units for the urban poor population. Within this initiative, UNDP provided technical assistance for policy formation to establish replicable housing standards that integrate climate resilience into urban housing solutions.

As delegates address the challenges of rapid urbanization and transportation within this committee, it is important to evaluate the valuable foundation UNDP has established through these initiatives and consider how they can be expanded upon while identifying gaps where we can execute new, innovative solutions to create sustainable futures for urban communities.

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Topic One

Managing Rapid Urbanization In Developing Regions

Introduction

With cities growing at unprecedented rates, rapid urban development is placing increased stress on housing, infrastructure, and public services. Without coordinated planning, urban expansion poses threats to public health, economic stability, and cities' capacity to adapt to new, emerging environmental risks that disproportionately impact their most underprivileged populations. As cities continue to develop, the United Nations must address how urban growth can be managed in a sustainable and inclusive manner.

Glossary

- **Urbanization**: The process of population growth in cities as people move from rural areas to urban areas, causing cities to expand in size, density, and economic importance.

- **Megacity:** A city with a population of 10 million or more, often facing intense pressure on housing, transportation, infrastructure, and public services.

- **Informal Settlement (Slum):** A densely populated residential area where housing is often built without legal permits and residents may lack secure land tenure, reliable infrastructure, and basic services such as clean water and sanitation.

- **Land Tenure:** The legal right to occupy or own land; secure land tenure protects residents from forced eviction and helps communities access public services and investment.

- **Land Subsidence**: The gradual sinking of land, often caused by groundwater extraction, soil compaction, or heavy infrastructure

- **Relative Sea Level Rise**: Sea level rise measured relative to the land surface; this can increase faster than global sea level rise when the land is sinking due to subsidence.

- **Urban Heat Island (UHI) Effect:** A phenomenon where cities become significantly warmer than surrounding rural areas due to heat-absorbing surfaces like asphalt and concrete, limited vegetation, and waste heat from buildings and vehicles.

- **Climate Resilience**: The ability of a city or community to prepare for, withstand, and recover from climate-related disasters such as heatwaves, floods, droughts, and storms.

- **Adaptation**: Policies and strategies designed to reduce the harm caused by climate change (e.g., seawalls, cooling infrastructure, flood-resistant housing).

- **Mitigation**: Policies and strategies designed to reduce greenhouse gas emissions and slow climate change (e.g., clean energy, public transit, emissions regulations).

- **Green Infrastructure**: Natural or nature-based systems (e.g., parks, trees, wetlands, green roofs) that help cities manage heat, stormwater, air quality, and climate risk.

- **Urban Sprawl**: The outward expansion of cities into surrounding rural land, often increasing car dependence, emissions, and infrastructure costs.

- **Groundwater Extraction**: The removal of water from underground aquifers using wells. Excessive extraction can cause land subsidence and long-term water shortages.

- **Informal Governance**: Non-state power structures that emerge when governments are absent or ineffective, including community leaders, local networks, or criminal groups.

- **Displacement**: When people are forced to leave their homes due to disasters, eviction, conflict, or development projects (e.g., climate migration)

- **Sustainable Development Goal 11 (SDG 11)**: A UN goal focused on making cities inclusive, safe, resilient, and sustainable, including housing, transportation, planning, and disaster risk reduction.

Topic History

For much of human history, people across the world lived in small, rural communities. In 1800, less than 10% of people across all regions lived in urban areas. However, starting from the 19th century, with the rise of the Industrial Revolution, new technologies (i.e., steam engines and electricity) enabled factories to move away from rivers, creating the rise of urban centers to meet the rapid demand for urban-concentrated labor. This shift from rural to city living continued to accelerate during the 20th century. By 1960, the urban segment constituted more than 40% of the population. Since then, the share of individuals residing in urban areas has only escalated, exceeding 50% of the total population. More than 4 billion people now live in urban areas worldwide (UN DESA).

The United Nations estimates that this milestone event (i.e., when the number of people living in urban areas overtook those in rural settings) occurred in 2007 and has only consistently accelerated since. Across most high-income countries (e.g., Western Europe, the Americas, Australia, etc.), more than 80% of the population lives in urban areas. In most upper-middle-income countries (e.g., East Asia, Northern and Southern Africa, South America, etc.), between 50–80% do so (Our World in Data). In many low- to lower-middle-income countries, the majority of the population still lives in rural areas. Urbanization is projected to continue to intensify with rising incomes and continued shifts away from agriculture-based industries. Researchers estimate that 2.5 billion additional people are expected to live in urban areas by 2050, totalling two-thirds of the world's total population. Nearly 90% of this growth will be concentrated in Asia and Africa, with the greatest numbers in India, China, and Nigeria (UN DESA).

Between 1970 and 2017, developing economies experienced the world's fastest population expansion and urban growth rates: a trend that remains consistent with today's urban leaders. While rapid urbanization and population growth in these nations reflect the broader global trend, there are exceptions. Certain countries, namely Japan and South Korea, are facing negative urbanization and witnessing shrinking city populations due to historically low fertility rates, population aging, and the persistence of high-cost, competitive urban cultures (Glob. Health & Med). As delegates consider how to address urbanization challenges, it is essential to consider both the global context and individual nations' circumstances to produce holistic, all-encompassing resolutions.

Urbanization is closely tied to economic growth, with cities generating up to 70–80% of global GDP (UN-Habitat). However, alongside this economic development, rapid urbanization also presents significant challenges. High population density produces environmental degradation, air and water pollution, and heightened exposure to climate-related risks, such as flooding, heatwaves, and

sea-level rise. Public health challenges also frequently arise; overcrowding, inadequate sanitation, and limited access to clean water facilitate the spread of disease. Furthermore, rapid, often unplanned growth results in a lack of affordable housing and the expansion of slums: informal, unsafe, and underserved areas that are characterized by poor construction and a lack of essential services. With a distinct lack of housing in major urban metropolises, over half a billion people worldwide currently live in informal settlements or slums that lack basic, functioning infrastructure and social protections. Addressing these diverse, interconnected challenges requires sustainable and strategic urban planning that prioritizes inclusive growth, climate resilience, and equitable access.

Current Situation

Concentrated populations require intensive food, water, and energy supplies, leading to the overexploitation of natural resources and many complex social, environmental, and governmental challenges.

Environmental Challenges:
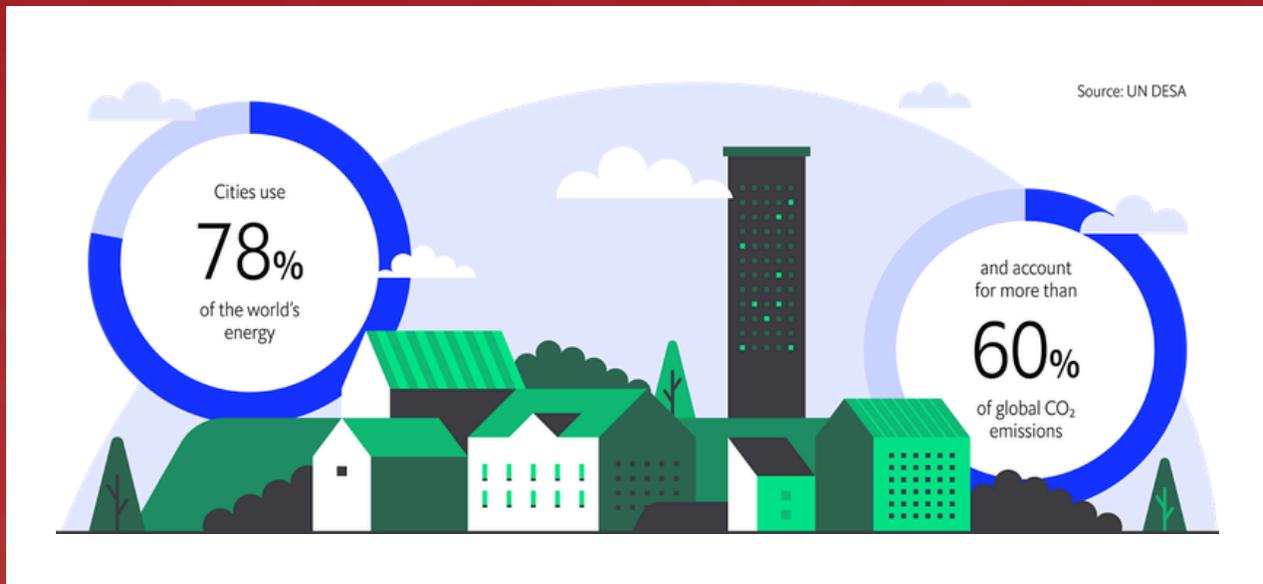
Despite occupying just 3% of the world's land, cities have extremely high energy demands and contribute greatly to global CO2 emissions (Economist Impact)

Cities consume over two-thirds of the world's energy and are responsible for over 70% of greenhouse gas emissions (UNFCCC). This is largely driven by the high energy demands of dense housing, industrial production, and transportation networks concentrated within urban regions. Cities are built on, and reliant upon, complex energy infrastructure: interconnected systems that are integrated into the foundation of urban centers. Heavy traffic, industrial activities, and large-scale residential heating also generate significant air pollution. Cars and trucks burn fuel, which produces nitrogen dioxide (NO_2), especially from diesel engines. Factories, power plants, and construction sites burn coal, gas, and oil for heating and electricity, releasing sulfur dioxide (SO_2) and nitrogen oxides (NO_x), among other pollutants. These pollutants also react in sunlight to form smog (ground-level ozone). High-rise buildings and industrial activity situated closely together cause poor air circulation by altering wind patterns, trapping these pollutants in areas where urban communities reside. As a result, an estimated 91% of people in urban areas breathe polluted air (World Health Organization). These rates of

pollution are directly correlated with negative health effects, including heightened rates of cardiovascular and respiratory conditions (e.g., asthma and COPD) and irreversible lung damage.

<u>Case Study:</u> **Delhi, India**

Delhi consistently ranks as one of the most polluted cities in the world. Recent reports indicate that 100% of its residents are exposed to "severe and life-threatening" toxic air, especially during the winter months. Residents of Delhi are projected to lose an average of 8.2 to 11.9 years of life expectancy due to high PM2.5 concentration. The major contributor to pollution in Delhi is vehicular emissions, contributing an estimated 84-91% of urban pollution (University of Chicago). However, industrial activity and agricultural practices, namely annual winter crop stubble burning, are relevant factors as well. Most concerningly, researchers have found that indoor air pollution in Delhi homes is often "substantially higher" than outside, meaning there is no escape from the toxic air. This reveals a deep-rooted challenge: if pollution is ingrained into the foundations of urban landscapes, how can policymakers build more sustainable systems to undo the damage?

The environmental challenges facing urban areas create a seemingly never-ending cycle of destruction where urban populations are among the most vulnerable to climate change. On average, inland cities may experience higher temperatures than surrounding rural areas due to the urban heat island effect. Heat from industrial processes and vehicles warms the air. Sunlight is reflected from and absorbed by the large concentration of buildings and infrastructure built over concrete expanses. A lack of green space and exposed soil means less shade and sources of moisture that typically cool the air through evaporation. With all of these factors, it is estimated that highly developed urban areas can, on average, experience temperatures 3-5°C higher than surrounding vegetated areas (RFF).
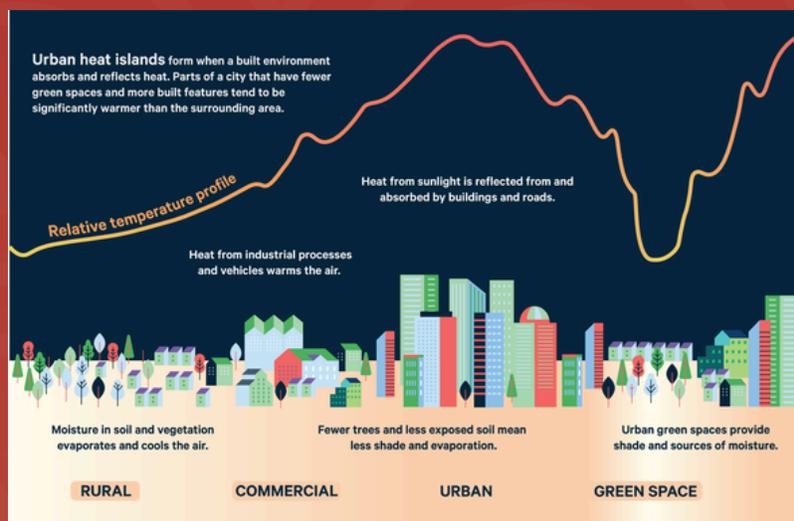
This figure shows the process by which urban heat islands form. Heat from industrial processes and vehicles is combined with sunlight reflected from and absorbed by roads to concentrate heat in urban areas with little green space (Resources for the Future)

Case Study: **Bangkok, Thailand**

In Bangkok, rapid development and reduced green spaces create an intense urban heat island effect, with urban areas experiencing temperatures up to 7°C higher than surrounding areas in the summer (Bangkok Post). This phenomenon, driven by dense construction and high traffic, increases electricity demand for cooling and worsens health risks for millions. In fact, it is estimated that for every 1°C rise, there is a 6.79% increase in electricity, causing peak demand to break records. An often overlooked impact of urban heat islands is reduced labor productivity. In Bangkok, rising temperatures are predicted to increase heat-related illness, worsen conditions for outdoor laborers, and reduce cognitive performance across the workforce, contributing to a 5% drop in productivity and approximately $8.6 billion USD in annual economic losses (Climate Resilience Center).

Another significant problem faced by urban metropolises is sea level rise. Ocean rising is typically attributed to greenhouse gas emissions, but it is also the result of persistent urban processes. Many coastal megacities are built on soft delta sediments and are physically sinking due to groundwater extraction and the weight of dense infrastructure. This causes the relative sea level rise to be much higher among coastal megacities than the global average (~3.7 mm per year, according to the Intergovernmental Panel on Climate Change's most recent assessment report). Similarly, urbanization reduces natural absorption and alters drainage pathways, increasing surface runoff and intensifying storm surge impacts, leading to more frequent, destructive flooding. With rising sea levels, coastal nations risk permanent land loss and the forced displacement of millions of people by 2100 as "climate refugees." There are also notable economic costs; for instance, the Asia-Pacific region risks losing up to $500 billion a year by 2100, driven by damage to infrastructure (e.g., roads, sewage systems, power plants, etc), agriculture, and tourism industries (Scientific-Reports).

Case Study: **Jakarta, Indonesia**

Jakarta is the world's fastest-sinking city, with northern areas dropping up to 25 cm annually primarily due to excessive groundwater extraction. Due to a lack of reliable, city-wide piped water infrastructure, approximately 60% of residents and many businesses are forced to rely on deep wells for daily water needs (UNESCO-IHE Institute for Water Education). Thus, the rate of groundwater pumping is far outpacing the rise in global sea levels.

Jakarta is the world's fastest-sinking city, forcing the Indonesian government to take efforts to relocate the capital to Nusantara on the island of Borneo (VOA Indonesian Service)

 By 2050, 95% of Northern Jakarta will be submerged, threatening the livelihoods of over 30 million residents (C40 Cities). Even in areas that are not yet submerged, frequent flooding causes $300 million in annual damages (Resilience Development Initiative). Although the city has attempted to construct protective measures in the form of a 32km seawall, this measure primarily addresses coastal flooding without tackling the root problem: rapid land subsidence. With Northern Jakarta continually sinking, seawalls risk trapping water inside the city, turning protected areas into low-lying basins that require constant drainage to avoid flooding. As subsidence continues to outpace global sea level, the situation may be irreparable. The Indonesian government is moving its capital city from the sinking Jakarta to a new, planned city called Nusantara on the island of Borneo: a $33 billion dollar project that foreshadows the fate of many other coastal nations if urbanization-related climate challenges are not critically resolved in the foreseeable future.

Health-Related Challenges:

Public health challenges also frequently arise. The high-density living conditions and overcrowding in urban centres facilitate the rapid spread of infections. Individuals in residential buildings, workspaces, and public transportation are in frequent close contact with one another, providing many opportunities for pathogens to spread. To further worsen these situations, nearly 40% of urban dwellers have no access to safely managed sanitation services and adequate

drinking water (World Health Organization). Poor waste management and sanitary systems lead to outbreaks of waterborne and respiratory diseases. For instance, stagnant water, which often piles up due to inadequate drainage, is a prominent breeding ground for mosquitoes, increasing the risk of diseases like dengue, Zika, and malaria. Other aspects of urban living are also linked to negative health outcomes.

Noncommunicable diseases like heart disease, asthma, cancer, and diabetes are made worse by unhealthy living and working conditions, inadequate green space, pollution such as noise, water and soil contamination, urban heat islands, and a lack of space for walking, cycling, and active living. Diabetes is linked to obesity and physical inactivity in cities lacking good transit and walking/cycling infrastructure. Urbanization is also linked to high rates of depression, anxiety, and mental health illness.

Despite all of these health challenges, many cities' health systems are not well-equipped to serve the rising number of patients. Patient demand often exceeds resources, leading to boarding: the practice of holding patients in the emergency department or another temporary location for an extended period of time due to a lack of available inpatient beds. This, combined with other resource deficits, causes hospital strain, which results in increased mortality rates and staff burnout as they struggle to keep up with influxes of sick citizens.

Case Study: **Mumbai, India**

Mumbai slums struggle with overcrowding and poor ventilation (Direct Relief).

In Mumbai, overcrowding and poor ventilation in slums facilitate the transmission of airborne pathogens during the COVID-19 epidemic. At the same time, COVID-19, which weakens the respiratory systems, worsened outcomes for patients

suffering from tuberculosis (TB), causing cases for both diseases to simultaneously skyrocket in overcrowded urban areas. However, the extreme population density and lack of sanitation infrastructure prevented even basic standard public health protocols (i.e., social distancing and handwashing) from being implemented. For example, roughly 40% of households in some slum areas lacked private toilets, forcing residents to use community latrines, which acted as hotspots for virus transmission. By July 2020, 55% of Mumbai slum residents already had COVID-19 antibodies, which was 3.2 times the seroprevalence in non-slum areas (NDTV). Mumbai's healthcare systems were overwhelmed, compromising the quality and speed of care necessary to address the epidemic.

Housing-Related Challenges:

Urban areas experience high birth rates, which, combined with immigration, accelerate population density and result in a lack of affordable housing and the expansion of slums. Without a strong regional government, urban planning remains weak and fails to keep pace with growth. Private markets cannot build enough low-income housing, and the government does not sponsor sufficient amounts of public housing projects. Even if governments attempt to match available housing supply with demand, there is a scarcity of land in urban centers that makes it expensive to build affordable units. In many cities, there are also zoning laws that restrict development to, for example, single-family homes. This serves as an additional barrier to construction, fundamentally limiting the amount

of housing that can be built on a given area of land. All of these factors combined create a shortage that forces urban citizens to resort to housing their families in slums. Over 85% of slums are concentrated in three regions: Central and South Asia (with approximately 359 million slum dwellers), Eastern and Southeastern Asia (with approximately 306 million), and Sub-Saharan Africa (with approximately 230 million). In Sub-Saharan Africa, over half of the urban population lives in slum-like conditions (UNSD).

Slums produce severe negative impacts. Health risks from poor sanitation and overcrowding are intensified by the unmanaged density and severe lack of clean water or

Over 1 billion people live in slums globally, with slums concentrated in several regions like Central/South Asia, Eastern/Southeastern Asia, and Sub-Saharan Africa (United Nations Human Settlements Programme)

Case Study: Port-au-Prince, Haiti

Around 70 to 74% of the urban population in Haiti resides in slums (Journal of Urban Health). Many are concentrated within the capital city of Port-au-Prince, where rural Haitian residents fled in an attempt to escape poverty following the loss of agricultural productivity due to severe environmental degradation. Residents face deficient living conditions, namely a severe lack of clean water or sanitation. An estimated 60 to 70 percent of houses have no access to a latrine; approximately 33% to 40% of Haiti's population does not have access to clean drinking water (UNICEF). Furthermore, gangs control roughly 80% to 90% of the capital, acting as the "local government" in many neighborhoods, using high rates of violence to subjugate vulnerable populations and maintain control (International Crisis Group). The Haitian National Police force is notably understaffed and can be overwhelmed by gang members who commonly wield more advanced weaponry. Gangs have established "near-total control" over an estimated 90% of the metropolitan area of Port-au-Prince. Mobilized by ineffective police and government interference, the criminal groups running Port-au-Prince are now expanding into previously peaceful areas, increasing their scope of violence. This represents a compounding of social, government, and environmental factors that produce a multidimensional urban crisis.

Potential Solutions:

The United Nations has focused on making cities more inclusive, sustainable, and livable by focusing on strengthening national urban governance and expanding access to basic services in informal settlements. Their approach begins with engaging the root cause: poor urban planning. For instance, cities expand outward without limits, resulting in high car dependency, high-demand infrastructure maintenance, and concentrated, isolated public housing projects that lack access to amenities and result in "poverty traps." The United Nations has provided countries with policy and technical support, and most recently, implemented the 2026-2029 Strategic Plan, which focuses on improving informal settlements, increasing access to land, and advancing urban equity. Its institutions have worked to make housing affordable and adequate by improving national policies in 43 countries, launching regional programs to restore housing in conflict zones. Over 237 million people indirectly benefited from 74 cities that institutionalized mechanisms for inclusive participation of civil society, ensuring more equitable processes in urban planning and management. 64 countries were supported by UN-Habitat to advance national-level urban policies to improve sustainable planning. 98,700 households gained more secure land tenure through improved documentation. "If addressed, housing becomes a cornerstone for sustainable development, unlocking progress across health, education, climate resilience, and economic growth, among others," explained Anacláudia Rossbach, the executive director of UN-Habitat.

In line with more intentional, equitable planning is sustainability. The U.N. has worked to promote low-carbon city planning and encouraged the development of energy-efficient buildings and climate-resilient infrastructure. Through their Strategic Plan, cities will be assisted in preparing for heatwaves, flooding, and sea level rise with the strengthening of disaster-risk planning and early warning systems. Additionally, recognizing the disastrous impacts of a lack of sanitation in cities, 205,000 people in slums and informal settlements from 27 cities in 19 countries have been supported in accessing basic services, gaining increased access to water and clean energy, and bridging the gap. With all of these efforts, the U.N. hopes to mitigate environmental, health, and poverty-related risks, improving overall well-being in urban communities.

Case Study: **Singapore**

Nationally, Singapore faced challenges of limited land, water scarcity, and uncontrolled population growth in the 60s. However, it has implemented a set of successful policies to mitigate the negative impacts of urbanization and sustainably regulate growth to improve the quality of life of residents. For example, over 80% of residents live in high-quality, government-built housing through Singapore's Public Housing Integration (HDB) initiatives (Singapore Public Sectors Outcome Review). These government-sponsored housing units are integrated with shops, schools, and public transportation, reducing car reliance and the need for commuting. Singapore has also aimed to streamline management of its water supply, tackling scarcity through the "Four National Taps," which include rainwater harvesting, imported water, highly purified reclaimed water (coined "NEWater"), and desalination (Ministry of Sustainability and the Environment). This approach, integrating several core sources, has transformed Singapore's water model to a diverse, resilient system; research shows that NEWater now meets nearly 40% of demand and desalination provides up to 30%, with a total of 17 reservoirs collecting rainwater from two-thirds of the island (Singapore Water Management).
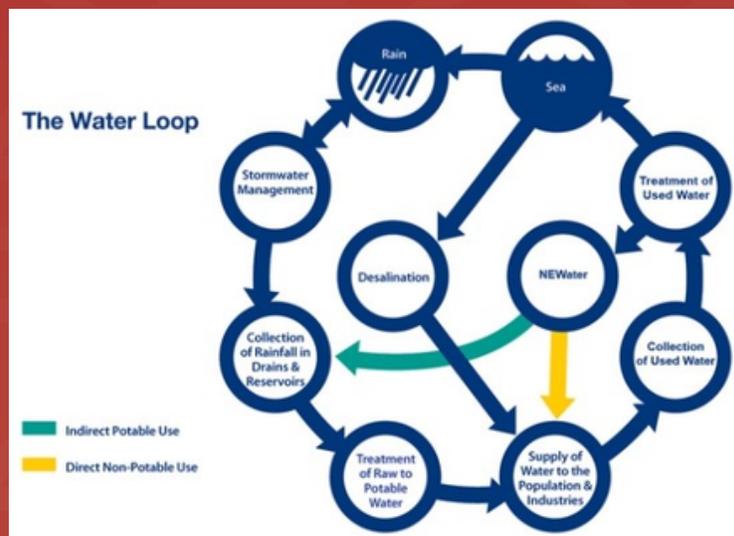

Visual display of Singapore's water supply, integrating the "Four National Taps"
(Journal of Water Management Modeling)

With regards to sustainability and mitigating urban environmental impacts (i.e., urban heat islands), Singapore has enforced strict greening policies, including vertical gardens and mandatory green room initiatives. Congestion pricing, specifically through implemented electric road pricing (ERP), is also being enforced to control traffic and pollution-related burdens. Through all of these programs, Singapore has thoroughly addressed many of the challenges that face urban metropolises. Although there is room for continued progress, Singapore serves as a valuable model of how an equitable, sustainable, and resiliently planned country could look.

<u>Case Study:</u> **Copenhagen, Denmark**

Just a few decades prior, Copenhagen struggled with severe economic, environmental, and social challenges. Unemployment reached 17.5% in the 80s, and the city faced severe climate-driven risks (i.e., flooding) while car-centric planning necessitated car reliance. Nonetheless, its tides turned with the "Five Finger Plan," which focused urban growth along five "fingers" (i.e., suburban railway lines) that radiated from the city center and were enclosed by green spaces.
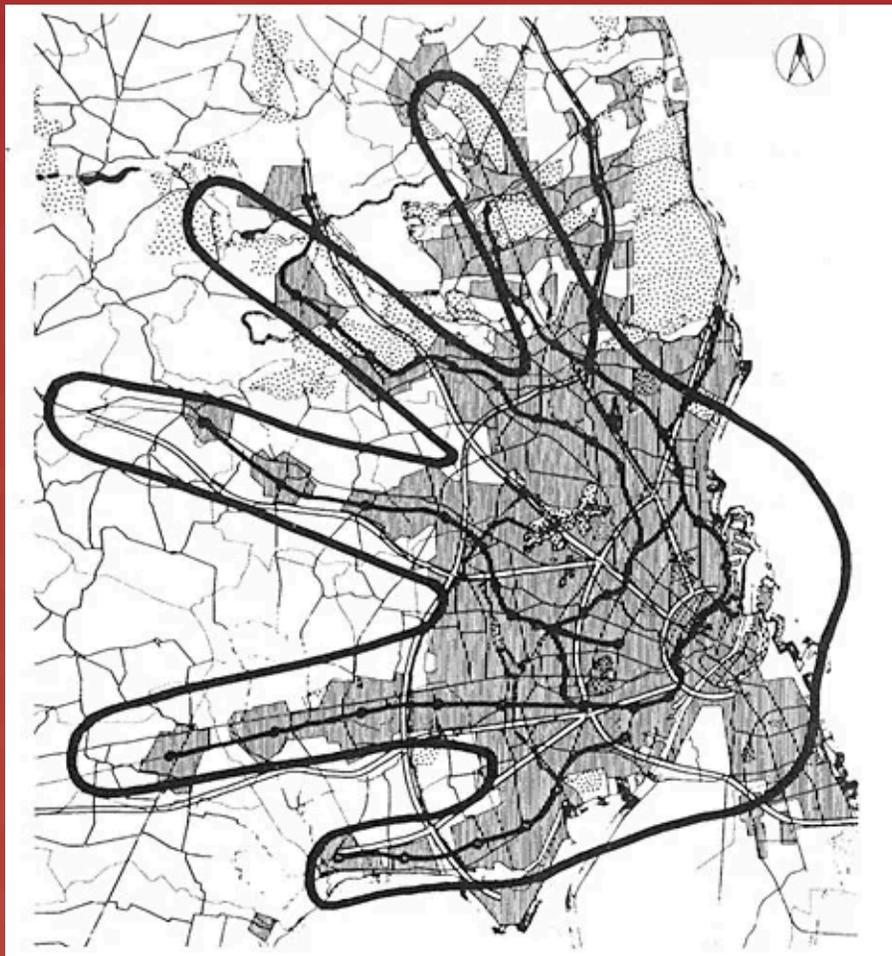
Layout of Copenhagen's "Five Finger Plan," which centralized urban growth amongst routes surrounded by green space.
(Danish Design and Architecture Review)

This development controlled urban sprawl and paved the way for healthier, transit-oriented development, where citizens had access to efficient public transit as well as abundant green space. It also created room for Copenhagen to establish robust cycling infrastructure. Since then, it has established itself as a premier global cycling city, continually prioritizing bicycle infrastructure over cars. Today, over 50% of residents commute to work or school by bike, using the city's over 375-400km of dedicated bike lanes and cycle superhighways that connect the urban center (City of Copenhagen). Similarly, the city invested in sewage management to transform the polluted industrial waterfront into a clean, recreational space. These policies illustrate how long-term, integrated urban planning can transform a city's trajectory, improving sustainability, public health, and overall quality of life.

All in all, as delegates approach the complex, multi-faceted challenges associated with urbanization, it is important to build on existing UN policies and successful case studies while also designing new, innovative solutions that balance sustainability, equity, and feasibility in the pursuit of cities that are more livable, just, and adaptive.

Questions to consider:

1. What are the most urgent challenges created by rapid urbanization, and which populations are most affected?

2. How can countries manage urban growth in ways that promote both economic development and social equity?

3. How can cities strengthen climate resilience (heatwaves, flooding, sea-level rise) without increasing inequality or excluding vulnerable populations from protection measures?

4. What interventions are most effective in improving public health outcomes in high-density informal settlements (ex: sanitation, ventilation, clinics, vaccination, or waste management)?

5. How should states and international organizations address the growth of informal settlements while protecting human rights and avoiding displacement?

6. How can national governments improve urban governance and planning capacity, especially in rapidly growing cities with weak institutions and limited budgets?

7. What policies or financing models are most effective for supporting long-term sustainable urban development in low- and middle-income countries?

Additional Resources:

https://unhabitat.org/world-cities-report-2016

https://unhabitat.org/news/02-jun-2025/2024-annual-report-the-housing-gap-is-widening

https://www.un.org/en/desa/2018-revision-world-urbanization-prospects

https://ourworldindata.org/urbanization

https://www.un.org/en/desa/around-25-billion-more-people-will-be-living-cities-2050-projects-new-un-report

https://pmc.ncbi.nlm.nih.gov/articles/PMC10615022/

https://www.energy.gov/ne/articles/history-nuclear-energy

https://aqli.epic.uchicago.edu/post/delhi-residents-losing-8-2-years-of-their-lives-to-high-air-pollution-report-en

https://www.rff.org/publications/explainers/urban-heat-islands-101/

https://pmc.ncbi.nlm.nih.gov/articles/PMC6904710/

https://spor.performancereports.gov.sg/citizens/quality-and-sustainable-living/housing-and-amentities/

https://www.mse.gov.sg/policies/water/

https://studylib.net/doc/27296830/pubourwaterourfuture

https://unstats.un.org/sdgs/report/2023/Goal-11/

https://www.ndtv.com/mumbai-news/coronavirus-mumbai-sero-survey-finds-57-have-had-covid-19-in-slums-16-in-other-areas-2270412

https://www.preventionweb.net/publication/what-can-we-learn-jakarta-and-bekasi-floods-march-2025-rapid-assessment-and-policy

https://www.c40.org/case-studies/c40-good-practice-guides-jakarta-coastal-defence-strategy-and-flood-mapping/

https://www.nature.com/articles/s41598-025-11517-6

https://www.bangkokpost.com/opinion/opinion/2785989/taking-on-bangkoks-punishing-heat

https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health

https://unfccc.int/news/urban-climate-action-is-crucial-to-bend-the-emissions-curve

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Topic Two

Sustainable Transportation & Urban Mobility

Introduction

In the fastest growing cities in the world, car-centric planning, lack of investment in public transportation, and unstable metropolitan governance have resulted in transportation systems that inadequately serve urban populations, resulting in air pollution, congestion, and unequal access to mobility: all of which create strain on urban systems and exacerbate cycles of social and economic inequality. As these pressures persist, the region must critically reconsider how states can develop sustainable and resilient transportation systems that minimize environmental damage while promoting access to mobility.

Glossary

- **Car Dependency**: A structural condition in which urban design, land-use patterns, and infrastructure make cars/private vehicles the dominant or only practical mode of transportation.

- **Urban Sprawl**: Low-density, outward expansion of cities that increases commute distances and infrastructure costs.

- **Electrification**: The transition from fossil-fuel-powered vehicles to electric-powered systems to reduce greenhouse gas emissions.

- **Transit-Oriented Development (TOD)**: High-density, mixed-use development located near transit hubs to encourage ridership and reduce car dependency.

- **Rail + Property Model:** A financing model pioneered by the MTR Corporation in Hong Kong, in which transit operators fund rail expansion through integrated real estate development around stations.low-income populations live and where employment opportunities are concentrated.

- **Congestion**: A condition in which transportation demand exceeds road or transit capacity, resulting in slower speeds, longer travel times, and reduced system efficiency.

- **Induced Demand:** The phenomenon in which expanding road capacity leads to increased vehicle usage, ultimately restoring congestion levels.

- **Spatial Mismatch:** A disconnect between where low-income populations live and where employment opportunities are concentrated.

- **Lifecycle Costs:** The total economic and environmental cost of infrastructure over its lifespan, including construction, maintenance, operation, and disposal.

- **Sustainable Mobility:** Transportation systems designed to balance environmental protection, economic productivity, and social equity.

Topic History

For the first few centuries of modern urbanization, cities were designed compactly, with homes, markets, and institutions situated in close proximity. Due to these "walkable" designs, transportation was primarily organized around foot traffic and animal transport. Donkeys and horses carried both goods and people on carts. However, as the technological advancements of the 19th and early 20th-century Industrial Revolution contributed to population growth and geographic expansion in cities, industrial economies expanded and began spreading outward beyond walkable distances. This created a growing need for reliable urban transportation and gave rise to "streetcar suburbs," in which workers could live farther from the city center while still commuting efficiently through public transit systems. As a result, public transport became a central mechanism of urban expansion, proving essential to the layout of metropolises. Public transport refers to forms of transport available for use by the general public. While models vary across countries, they typically operate on fixed routes and schedules and charge standardized fees, supplemented by public funding when necessary.

The public bus transport system, which was established in Paris in 1662, was the first organized public transit system within a city. However, the first recognized public bus system was the horse-drawn omnibus service introduced by Stanislas Baudry in France in the early 1800s. These carriages, which carried up to 16-42 passengers, most closely resembled contemporary transit structures – they were open to everyone and followed routes on a set schedule. In 1825, George Stephenson built the Locomotion No. 1 for the Stockton and Darlington Railway in Northeast England. This was the first public steam railway in the world; the first steam-powered underground railway soon opened in London in 1863. As transit technology continued to advance, the first successful electric streetcar was built for 11 miles of track for the Union Passenger Railway in Tallahassee, Florida, in 1888. These electric streetcars could carry heavier passenger loads, which reduced fares and stimulated greater use. At this point, manual and animal-driven methods were rendered completely obsolete. Electric streetcars also paved the way for the first subway system in America. In 1894, Boston built the first subway in the United States: an electric streetcar line in a 1.5-mile tunnel under Tremont Street's retail district. Other cities quickly followed, constructing thousands of miles of subway in the following decades.

The modern car became possible when inventors developed the internal combustion engine, which burns fuel within the engine to create power. In 1886, Karl Benz built the first gasoline-powered automobile, and Henry Ford introduced assembly-line mass production to make car models accessible for middle-class buyers around 1913. These advancements transformed cars from a luxury product into mass consumer technologies, especially in wealthier, more industrialized
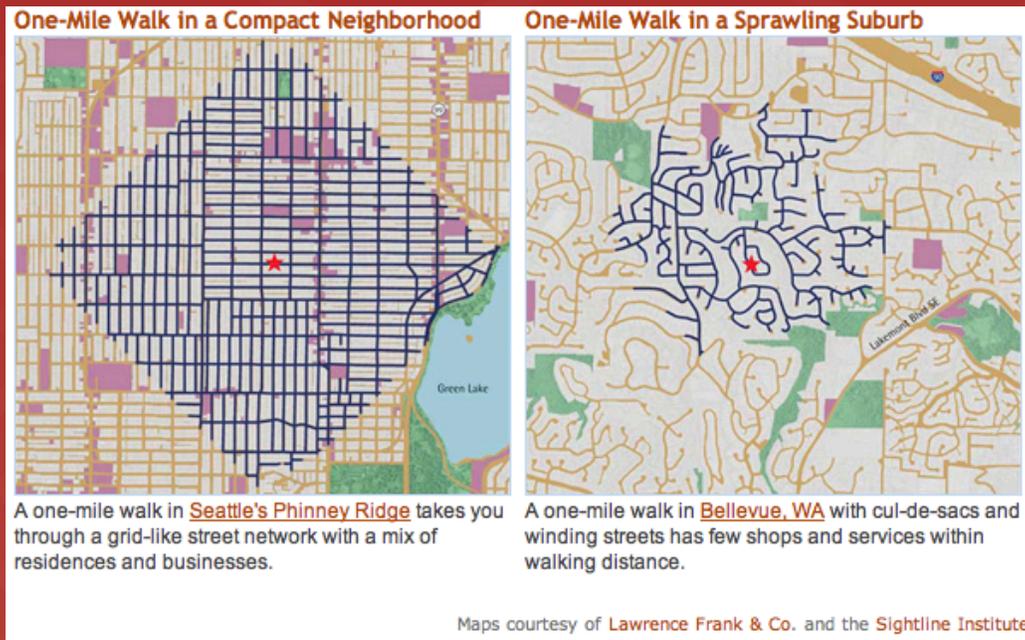
countries. The availability of cars further enabled people to live farther from urban centers, stimulating the continued rise of the suburbs. These areas were designed with the idea of "commuting" in mind (i.e., without adequate public transit), which further embedded car ownership as a necessity for basic functioning in these communities.

As car traffic increased, governments began widening roads and fundamentally redesigning urban spaces to accommodate automobiles. In the 1920s, cities began dismantling streetcar and rail systems, prioritizing the construction of intersections, multi-lane roads, and highways. Over the past century, the continued emphasis on private car infrastructure has led to many transportation-related challenges for major metropolitan areas. Nowadays, a majority of public transit suffers from chronic disinvestment, which produces a negative feedback loop where inadequate, infrequent, or unreliable public transit forces residents to continuously rely on personal vehicles, increasing the number of cars on the road and subsequent negative impacts. These impacts are diverse and far-reaching. Higher car dependence increases greenhouse gas emissions and worsens local air pollution. Chronic congestion reduces economic productivity by increasing commute times, raising fuel and shipping costs, and limiting access to employment opportunities. Additionally, car-centric systems perpetuate cycles of inequality as those without access to cars, such as lower-income households, youth, elderly populations, and people with disabilities, face large barriers to healthcare, education, and essential services. Over time, these pressures accumulate, straining urban infrastructure, weakening social mobility, and compromising the resilience of cities to future growth and climate-related disruptions. Addressing these intricate, multifaceted challenges requires careful consideration across long-term planning, investment, and governance. As former UN Secretary-General Ban Ki-moon noted, the answer to such challenges "is not less transport – it is sustainable transport […] we need more systems that are environmentally friendly, affordable, and accessible."

Current Situation

In the fastest growing cities in the world, car-centric planning, lack of investment in public transportation, and unstable metropolitan governance have resulted in transportation systems that inadequately serve urban populations, resulting in air pollution, congestion, and unequal access to mobility: all of which create strain on urban systems and exacerbate cycles of social and economic inequality.

One of the major root causes of these urban challenges is car-centric planning. Throughout the 20th century, particularly following World War II, many cities adopted planning models that prioritized private automobile use. For example, the United States adopted the Federal-Aid Highway Act of 1956, which funded the large-scale expansion of highways and integrated both suburbanization and car dependency into the physical design of major cities. As a result, many cities are designed with separated, single-use, low-density zones: a phenomenon known as urban sprawl. Residential, commercial, and industrial areas are segregated, requiring citizens to drive long distances to reach their destination every day. Due to this, many essential destinations, including work, schools, and convenience stores, require travel by car.

One-Mile Walk in a Compact Neighborhood   **One-Mile Walk in a Sprawling Suburb**

A one-mile walk in Seattle's Phinney Ridge takes you through a grid-like street network with a mix of residences and businesses.

A one-mile walk in Bellevue, WA with cul-de-sacs and winding streets has few shops and services within walking distance.

Maps courtesy of Lawrence Frank & Co. and the Sightline Institute.

This graph displays the differences between people-centric and car-centric planning. Cities planned around people are more integrated and accessible for pedestrians (Urbanist Wanderer)

Walking and biking are often impractical and unsafe; wide multi-lane roads and intersections are difficult to cross with high-speed traffic, and there is limited access to pedestrian walkways. To meet car-centric demands, a disproportionate share of land is allocated towards roads, parking lots, and highways instead of infrastructure for public transit. This de-prioritization of the public transportation

system results in the majority of public transit suffering from chronic disinvestment, creating a self-inforcing, negative feedback loop that is often referred to as a "downward spiral." Inadequate funding leads to poor service quality (i.e., aging vehicles) and reliability issues (i.e., delays), creating a reputation that the systems are inadequate and further deterring citizens from choosing public transit over their personal vehicles. Without citizens actively supporting public transportation, ridership and fare revenue continue to plummet, weakening the case for systems to receive additional funding from cities' tight fiscal budgets.

For instance, ridership in the San Francisco BART system was still around 60% below pre-pandemic levels in 2024. Because fare revenue historically funded a large portion of operating expenses, this ridership decline has had far-reaching consequences on critical system functions. Now, fare revenue covers only about 25% of operating costs, forcing a reliance on emergency funds that are expected to be depleted by the end of this year (Bay Area Rapid Transit District). Once these funds expire, the transportation agency must secure new revenue streams. Similarly, the Chicago CTA is projected to experience a budget shortfall as high as $250 million starting this year, which will result in unprecedented service cuts and potential delays. Nationally, transit ridership in the United States has declined by over 23% over the past five years, with 24 of 25 cities with major transportation hubs experiencing service declines (High Speed Rail Alliance).
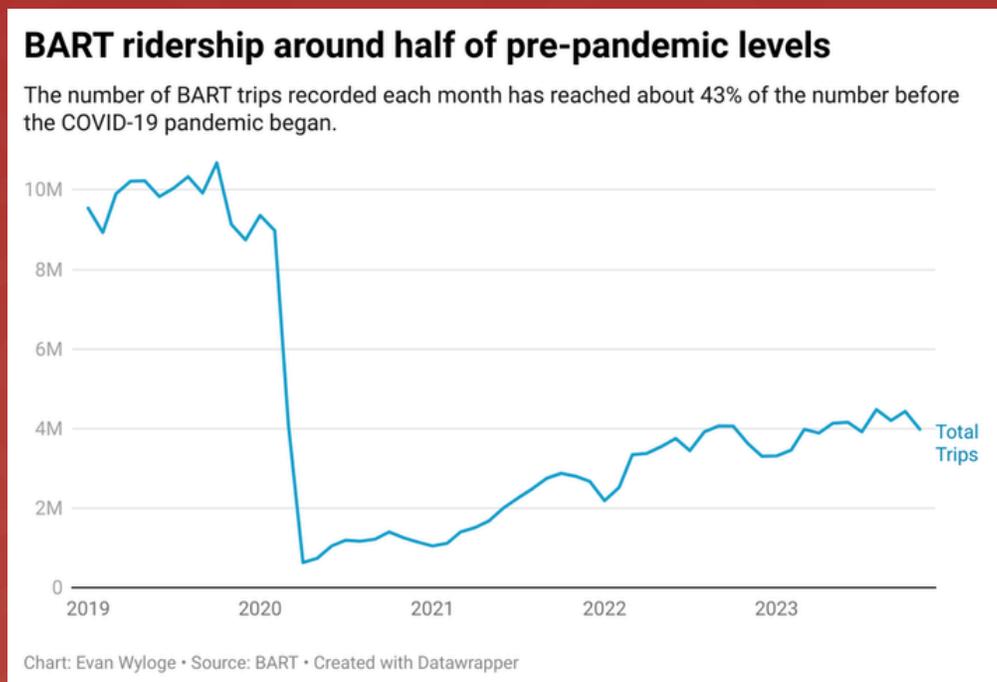
Public transportation ridership in San Francisco decreased drastically during the pandemic and has been recovering at a slow rate (SF Examiner)

Environmental Harms

The lack of robust public transportation systems increases car dependence, which is closely linked to greenhouse gas emissions, air pollution, and public health challenges. The typical car releases roughly 4.6 million tons of carbon dioxide (CO_2) every year. Globally, the transportation sector accounts for approximately one-quarter of all energy-related CO_2 emissions; in many countries, it is the largest emitting sector. The United States recorded a total of 5.6 million metric tons of CO_2, and transportation accounted for 29% of total emissions: greater than any other contributor (U.S. Environmental Protection Agency).

Beyond carbon emissions, gasoline- and diesel-powered vehicles also release a host of harmful air pollutants, including nitrogen dioxide (NO_2), volatile organic compounds (VOCs), and particulate matter (PM2.5). These vehicular pollutants decrease air quality and are frequently associated with higher rates of asthma, cardiovascular disease, and respiratory illness, specifically impacting children in dense urban areas. The nature of car-centric planning, leading to congested highways and development patterns that position tens of thousands of cars daily near residential and school zones, leads to the concentration of pollutants that intensify poor environmental and health outcomes.

Additionally, while public transportation is generally considered a more energy-efficient and sustainable mode of transport than private vehicles, these systems are not automatically entirely sustainable. A significant share of the world's bus systems still primarily rely on diesel or other fossil fuels, releasing the same greenhouse gases and pollutants as cars. Specifically in developing cities (i.e., the Global South), low-income and marginalized communities are disproportionately situated near bus facilities and transport hubs, bearing a substantial portion of these systems' negative impacts.

Case Study: **Delhi, India**

In Delhi, heavy reliance on diesel buses has historically contributed to some of the highest urban air pollution levels in the world. As an urban hub with high pollution density and traffic congestion, exhaust from diesel buses accumulates in the air. This is particularly significant during seasonal smog episodes and winters when temperature inversions trap pollutants close to the ground – a level where most residents exist and are exposed. In the early 2000s, Delhi began a large-scale transition of its public buses from diesel to compressed natural gas (CNG) in an attempt to reduce emissions following a ruling by India's Supreme Court.

Delhi began implementing CNG-fueled busses in the early 2000s (The Indian Express)

However, CNG is still a fossil fuel and continues to produce greenhouse gas emissions, and diesel buses have not been entirely eliminated from Delhi's fleets. Looking forward, Delhi has launched electric bus initiatives and plans to expand its metro-rail infrastructure. These efforts are promising, but redesigning existing transportation infrastructure built on fossil fuels will continue to be a challenge.

Case Study: **Johannesburg, South Africa**

In Johannesburg, diesel-powered buses and minibuses remain a central component of public transport. The city has laid out plans to electrify to reduce emissions, building zero-emission buses starting from 2025. However, electrification has progressed slowly due to fiscal constraints and infrastructural limitations. Electric buses cost significantly more upfront than diesel buses: often 1.5 to 3 times the purchase price. The limited municipal revenue base in Johannesburg relative to city public works demands makes it difficult to prioritize this sustainable transportation initiative over housing, water, electricity access, and other services considered "essential" by the local government. The infrastructure necessary for a well-functioning electrified bus system is also complex, with the construction of new charging systems and grid upgrades necessary to handle high electricity demands. Over the past few decades, South Africa has experienced ongoing electricity supply instability due to national grid constraints. Since transit agencies cannot afford system-wide outages during peak commuting hours, these gaps in energy infrastructure present fundamental challenges that must be resolved before electric buses can be scaled across the region.

Diesel-powered trains are another example. Many freight lines and passenger routes are not electrified and rely on diesel locomotives, despite a broader push for electrification.

Case Study: **United Kingdom**

In the United Kingdom, many intercity routes, such as from London to Manchester, are electrified. However, approximately 60% of the UK rail network is not yet electrified (The Institution of Engineering and Technology).

This graph displays the rail lines in the United Kingdom that have been electrified or have planned to electrify (The Transport Politic)

Many electrification programs over the past decade have been uneven or delayed, with budget overruns leading to the cancellation or postponement of expansion projects. There are also significant infrastructure gaps. Most significantly, many lines, including the routes from London to Manchester or the Great Western Line, feature Victorian-era bridges and tunnels: constrained spaces that lack the necessary clearance for high-voltage overhead lines. Because they were not built with overhead space, installing wires for electrification requires raising bridges or

owering tracks, which are costly, disruptive, and bring risks of compromising structural stability. These factors prevent city planners from pursuing more concrete plans for electrification, as they are unable to determine whether the long-term benefit will outweigh immediate costs. As an alternative to bridge gaps, the United Kingdom has introduced "bi-mode" trains. These trains switch between electric and diesel power, depending on whether the track they are operating on is electrified. While this allows for trains to be flexible, operating sustainably on electrified tracks, they still produce emissions when travelling along non-electrified segments. Although the U.K. has made a blanket goal to phase out diesel-only trains by 2040, the continued financial and logistical barriers threaten to delay this ambitious energy transition.

On the other hand, Poland has one of Central Europe's more extensive electrified rail networks, with over 60% of lines electrified (Railway Research Institute). However, sustainability challenges persist. Although trains emit no exhaust at the point of use, coal-heavy electricity generation results in upstream emissions from coal-fired power plants. Thus, even with successful electrification, the overall electrified rail system produces greenhouse gas emissions. This is another important angle to consider: how can we continue to mitigate the environmental harms that are not immediately visible?

When evaluating these systems, it is important to recognize that the climate efficiency of public transportation that continues to run on gas and fuel depends heavily on ridership rates. A diesel bus operating at high capacity spreads its emissions across many passengers, achieving a significantly lower carbon per passenger-kilometer rate than individual private vehicles. Unfortunately, the same cannot be said for underutilized vehicles carrying only a few passengers. In fact, nearly empty diesel buses often exceed the per-capita emissions of cars. With this in mind, there is the question of how we can reliably increase ridership rates. This is fundamentally a land-use and governance issue, as transit systems empirically perform well when transportation and urban design are integrated.

Case Study: **Hong Kong**

In Hong Kong, rail systems are designed to complement high-density, mixed-use development through its "Rail + Property" model. The Mass Transit Railway (MTR) partners with private developers to construct residential towers, shopping malls, and office complexes in conjunction with stations. For instance, the Langham Place and Mong Kok Station is a vertical, high-density retail and hotel complex directly connected to the MTR station. By positioning residential and commercial clusters near stations, the MTR enhances walkability and integrates public transportation into the daily lives of Hong Kong residents to sustain ridership.
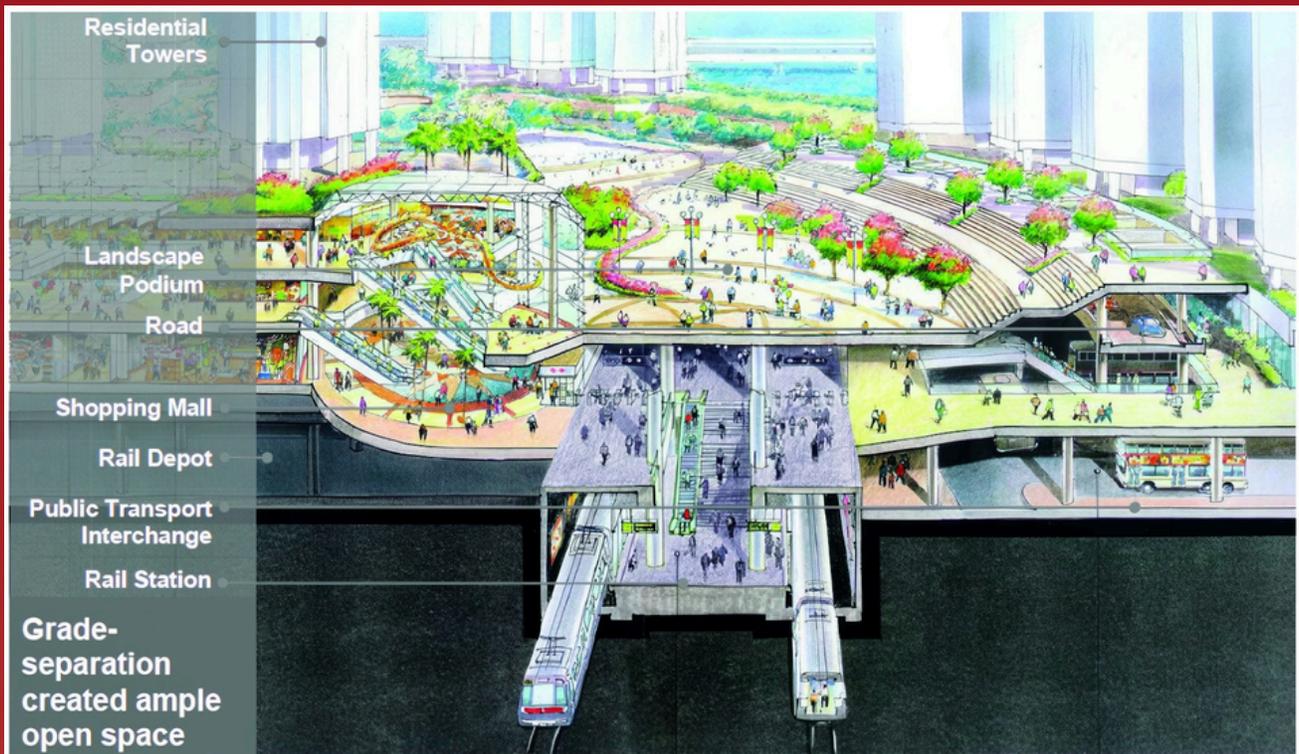
Visual display of the components of the "Rail + Property Model," which epitomizes high-density, mixed-use development (Rail Express)

Hong Kong boasts one of the highest public transport ridership rates in the world, with another 90% of daily journeys (9.7 to 12.4 million passengers) relying on public transit (World Economic Forum). Their transportation-forward planning has practically eliminated the necessity for cars, shifting reliance onto its elaborate public transport networks.

Overall, electrification and similar initiatives have strong potential to improve the environmental sustainability of public transportation systems, especially when supported by adequate infrastructure and energy grids. However, the broader challenge is designing integrated transportation networks that function effectively across regions with varying levels of geographic density. How can transit systems be coordinated across dense urban cores, suburban corridors, and lower-density areas to maximize ridership, efficiency, and emissions reductions? What policy, land-use, and governance reforms are necessary to overcome the financial, infrastructural, and institutional barriers that currently limit sustainable integration?

Economic Productivity & Mobility/Equity-Related Challenges:

Car-centric areas without viable public transportation networks are highly prone to congestion because high demand for road space often exceeds supply. Efforts to reduce congestion through expanding highways or adding more lanes often fail due to the "Fundamental Law of Congestion" (i.e., induced demand). Increasing

the amount of road space available merely encourages more people to drive, filling the new capacity and returning the area to its previous, or worse, congestion level. Without controls addressing the actual volume of traffic, congestion will continue to worsen.

Chronic congestion structurally constrains economic productivity in several ways. The first is by increasing commute times. In the United States, workers lost an average of 43 hours annually sitting in traffic, equivalent to one full work week (INRIX). By preventing workers from getting to their destination in a timely manner, congestion reduces effective working hours and labor productivity. These delays also extend to shipping and logistics: Traffic congestion adds $108.8 billion in costs to the U.S. trucking industry each year. It increases the amount of wasted fuel (approximately 6.4 billion gallons) and hours for drivers while decreasing the number of deliveries a single driver can complete in a shift (American Transportation Research Institute). Businesses often have to compensate for unpredictable delays and the reduced efficiency of both their laborers and suppliers, paying a "time tax" that is largely imposed by congestion and accumulates over time. For example, many businesses adopt risk-averse strategies, such as increasing inventory levels by 5% to 11% to account for unreliable delivery times.

Chronic congestion functions as a structural constraint to economic productivity
(American Transportation Research Institute)

Congestion also generates significant service and emergency delays. With heavy congestion, response times for ambulances, police, and fire services increase by an estimated 10–20%. Even minor delays can compromise first responders' ability to effectively contain emergencies, such as stabilizing patients or extinguishing fires before they spread. Over time, these delays compound, undermining trust in public safety systems and increasing the fiscal burden on local governments. At the

same time, chronic congestion limits access to employment opportunities and regional markets. When travel times become long and unpredictable, workers are less able or willing to commute to distant jobs, effectively shrinking the potential labor market. Similarly, businesses face reduced access to customers and skilled labor pools because congestion narrows the geographic area they can efficiently serve. This constrains job matching and overall suppresses business growth. Together, these factors illustrate how chronic traffic congestion operates as a structural drag on economic productivity. Studies estimate that the annual economic burden of congestion in the United States ranges from $83 billion to over $160 billion, driven by wasted time, increased fuel consumption, higher operating costs, and diminished labor mobility (Bureau of Transportation Statistics).

<u>Case Study:</u> **Sao Paolo, Brazil**

In Sao Paolo, the city's average congestion level is around 58.5%, meaning travel times are roughly 1.6 times longer in congestion than in free-flowing conditions (TomTom). It is estimated that drivers often lose 70 to 100 hours per year in congestion. This acts as a structural constraint on Sao Paolo's economic productivity. As Brazil's economic center, the city depends heavily on trucking for goods movement, but congestion increases delivery times and logistics challenges. Companies must build buffer time into schedules, operate additional vehicles, or absorb higher operating expenses that are often passed on to consumers. Thus, it has been quantified that São Paulo loses more than R$40 billion per year due to congestion, with costs specifically associated with lost productivity, wasted fuel, and slower freight movement. Congestion within Sao Paolo also increases economic disparities as people in lower-income communities experience more than

a 50% reduction in job accessibility during peak travel times (IPEA). The long commute times and limited access to public transit in many neighborhoods make a large number of workspaces in the city unfeasible for residents, creating a phenomenon known as "spatial mismatch" – a disconnect between where low-income populations

São Paulo loses more than R$40 billion per year due to congestion (Bloomberg)

live and where employment opportunities are concentrated that perpetuates cycles of inequality.

Public transit can significantly reduce traffic congestion. A single, full transit bus typically replaces 30–50 passenger cars. During peak commuting hours in dense urban areas, one bus can remove up to 75 cars from the road. When there is inadequate public transit, for example, there is an estimated 47% increase in congestion delays (National Bureau of Economic Research). Public transit policies pose the potential to reverse many of these congestion-driven challenges if properly implemented.

Finally, car-centric transportation systems reinforce and deepen structural inequality. Individuals without reliable access to a private vehicle, including lower-income households, youth, elderly populations, and people with disabilities, often face significant barriers to reaching employment, healthcare, education, and other essential services. The cumulative costs of car ownership, including insurance, fuel, maintenance, registration, and repairs, consume a disproportionate share of income for low-income households, frequently exceeding what is financially sustainable. As a result, more than half of carless or car-deficient individuals report skipping or rescheduling critical trips, including work shifts and medical appointments, due to transportation barriers. These mobility constraints directly limit economic opportunity and long-term upward mobility. Low-income communities and communities of color are disproportionately located near highways, freight corridors, and industrial zones, where exposure to vehicle emissions and air pollution is significantly higher. Over time, these overlapping pressures, economic strain, reduced access to opportunity, and environmental health risks accumulate, weakening overall social mobility in urban ecosystems.

Addressing these interconnected challenges requires a meaningful combination of long-term planning, investment, and governance reforms that integrate transportation, housing, public health, and environmental policy into a resilient strategy for urban development. Thinking back to the U.N. Sustainable Development Framework, Sustainable Development Goals, and the 2026-2029 Strategic Plan, delegates should aim to design multifaceted, holistic solutions that center equity, sustainability, and economic inclusion in the future of transportation.

Questions to consider:

1. How can urban planning reforms, such as zoning changes, density incentives, or mixed-use development, be integrated with transportation policy to reduce car dependency?

2. What regulatory, financial, or infrastructural barriers prevent innovation in public transportation systems, and how can they be addressed?

3. How should states address declining transit ridership and revenue instability while ensuring public transportation remains accessible and affordable?

4. How can governments modernize aging transportation infrastructure to improve reliability and service frequency while maintaining fiscal sustainability?

5. How can cities reduce transportation-sector greenhouse gas emissions while maintaining economic productivity and mobility?

6. How can transportation systems be redesigned to expand effective labor markets and increase access to employment for low-income workers?

7. What measurable performance metrics or indicators should guide transportation investment decisions to ensure alignment with climate, equity, and productivity goals?

Additional Resources:

https://www.un.org/en/desa/answer-global-transportation-challenges-not-less-transport-%E2%80%93-it-sustainable

https://www.un.org/en/desa/a-world-on-the-move-for-sustainable-transport

https://unece.org/climate-change/press/un-decade-sustainable-transport-global-commitment-people-first-mobility

https://blog.ucs.org/kshen/a-trip-down-memory-train-a-brief-history-of-public-transit/

https://www.nationalgeographic.com/environment/article/environmental-impact

https://www.bts.gov/archive/publications/transportation_statistics_annual_report/2015/chapter4

https://www.epa.gov/ghgemissions/transportation-sector-emissions

https://www.weforum.org/stories/2024/05/3-things-cities-can-learn-from-hong-kong-s-sustainable-mobility-divide/

https://inrix.com/press-releases/2024-global-traffic-scorecard-us

https://www.ipea.gov.br/acessooportunidades/en/publication/2023_td2922_impacto_congestionamento/

https://www.infrajournal.com/en/w/hong-kong-public-transit

https://www.statista.com/chart/30890/estimated-share-of-co2-emissions-in-the-transportation-sector/

https://www.nber.org/digest/jul13/impacts-public-transit-traffic?page=1&perPage=50

https://en.clickpetroleoegas.com.br/sao-paulo-pior-transito-mundo-tomtom-2023-dsca00/

https://engx.theiet.org/b/articles/posts/a-generation-of-uk-railway-electrification-lost-because-of-intermittent-funding

https://www.bart.gov/sites/default/files/2025-09/FY26%20Adopted%20Budget%20Memo_FINAL.pdf

https://www.hsrail.org/blog/why-us-transit-systems-lost-ridership-and-how-they-can-thrive/

https://www.itweb.co.za/article/electrification-of-sa-public-transport-faces-obstacles/LPp6VMrBXWDMDKQz

https://www.kenresearch.com/south-africa-electric-bus-and-fleet-adoption-market

https://truckingresearch.org/2024/12/truckings-annual-congestion-costs-rise-to-108-8-billion/

https://www.mdpi.com/1996-1073/15/12/4206#:~:text=In%20Poland%2C%20the%20following%20aspects,of%20conventional%20trains%20%5B42%5D.

UNDP

United Nations Development Programme

Yale Model United Nations China III

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