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Urbanization

Although Sustainable Development Goal (SDG) 11 most directly targets urban areas, cities will not realize the goal’s description of becoming “inclusive, safe, resilient and sustainable” without achievement of related SDGs. Globally, of a population of 7.8 billion in 2020, 4.4 billion people lived in urban areas; by 2050, of a total projected population of 9.7 billion, 6.7 billion people are projected to live in urban areas (Figure 5-1; UN, 2019a). Eighty-three percent of the U.S. population lives in urban areas (Center for Sustainable Systems, 2022).

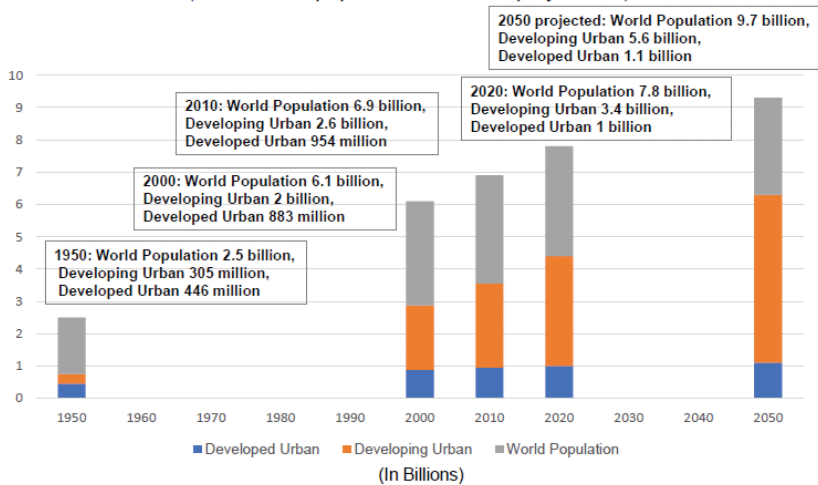
The role of urban areas in sustainable development has been increasingly recognized over the past several decades. Workshop presenter Marc Weiss of Global Urban Development recalled that at the 2002 UN World Summit for Sustainable Development, urbanization was barely on the agenda. Now, urbanization is recognized as an important phenomenon to address to operationalize sustainability. Improving the connections between urban areas and their intermediary cities and rural areas is also a growing area of research (OECD, 2021b).

CHALLENGES

Although local-scale sustainability transformations (e.g., restoring a park or lake, or creating a set of bike paths) are important, they are easier to achieve than systemic change across multiple dimensions of SDGs at the city-regional scale. Yet, setting large-scale science-based targets can have social and economic consequences. For example, decreasing carbon emissions by x percent, or increasing tree cover by y percent, may be possible, but doing so without exacerbating inequity or worsening poverty and vulnerability is more challenging and difficult. Although the rapid development of cities and influx of new residents have significantly

TOTAL WORLD POPULATION AND URBAN POPULATION, 1950-2050 (projected)

(Source: UN population data and projections)

**FIGURE 5-1** Total world and urban population, 1950 to 2050.

SOURCE: Marc Weiss/Global Urban Development, Workshop Presentation, April 21, 2022, based on UN data (<https://population.un.org/wup>).

increased property prices and made cities unaffordable for many, efforts to reduce urban disparities will allow cities to become more sustainable and inclusive places to live and work. SDG 10 emphasizes that reducing inequalities and ensuring that no one is left behind are integral to achieving the SDGs (UN, 2022a).

CASE STUDIES AND SYNERGIES

Workshop presenters highlighted opportunities for synergies among SDGs related to urbanization. For example, restoring wetlands and urban forests can bolster food security, provide flood and drought relief, buffer urban heat island effects, and reduce air pollution, as well as provide city dwellers mental and physical relief from stress. Transitioning to low-carbon (e.g., bike-friendly or bus-based) transport systems can not only reduce carbon emissions, but also decrease obesity levels, improve local economies, and reduce air pollution. Globally, Copenhagen, Denmark (Box 5-1) and Porto Alegre, Brazil (Box 5-2) illustrate how these benefits can engage citizens to make sustainability fun and aspirational, not just scary and requiring sacrifice. It takes less time to commute by bike than to drive in Copenhagen, for example. Stormwater management areas that are part of the city's Cloudburst Management Plan are built as parks. Rather than "giving up privileges," it was suggested reframing the discourse when possible to "getting benefits" (Leonerdson, 2022).

BOX 5-1

Global North: Copenhagen, Denmark

With an international reputation as a livable, relatively wealthy city, Copenhagen brings to mind images of people bicycling to work and of green spaces and parks. Lykke Leonardsen, program director of Resilient and Sustainable City Solution, shared that this environment was not always the case. She described the role of ambitious targets and co-benefits in engaging the population to create a more sustainable, resilient metropolitan area. As Leonardsen commented, “People see a city that was always rich. But this is not so. The inner harbor was heavily polluted 40 years ago; people can now swim in it. In 1993, the city was bankrupt.”

Focus on Livability

With this financial crisis came an opportunity to rebuild with livability linked to sustainability. The city’s goal is to become carbon neutral by 2025. Much progress has been made, but Leonardsen acknowledged “the last mile is difficult.” The key goals in the Copenhagen Climate Action Plan are to reduce energy consumption, reorient energy production to wind and other renewable sources, increase green mobility, and change how the city itself delivers results. Circular Copenhagen has set specific targets related to recycling, carbon dioxide reduction, and reuse of materials. Bicycling is part of everyday life. Significant for success, people do not bike necessarily with the environment as a motive but because it is the easiest and most convenient way to get around the city because of large investments in bicycle infrastructure.

Focus on Resiliency

Copenhagen expects that climate change will bring more extreme weather in the future. A Cloudburst Management Plan represents a comprehensive infrastructure effort with more than 300 projects to manage stormwater. The plan gives the city an opportunity to consider other issues; for example, water parks that can be used for water storage and recreation. The idea is to take advantage of climate adaptation with co-benefits: recreational value, biodiversity, social resilience, health, improved microclimate, accessibility and safety, and economic growth.

Five quality parameters that define urban nature in Copenhagen can be applied in other urban areas: biodiversity, climate adaption, functionality, spatial quality, and maintenance. Although an urban park or garden will differ from a forest in a more rural area, Leonardsen stressed the social and environmental benefits of green space. Rather than divorce urban dwellers from nature, nature should be integral to the development of a city. “It’s just not fixing a problem, it’s about creating a better city for citizens,” she observed. “It’s part of how to get citizens active and engaged.” Rather than discuss hydrological issues, for example, residents can envision how the space could appear when it is not raining.

References

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BOX 5-2

Global South: Porto Alegre, Brazil

Generating sustainable prosperity and quality of life for urban residents requires a new development paradigm, stated Marc Weiss, chairman and CEO of Global Urban Development (GUD), but “fear and inertia get in the way.” A solution: “We need to replace economic fear with economic hope.” GUD was founded in 2001 with a 30-year strategy to enable people to thrive in peace with each other and with nature through sustainable innovation and inclusive prosperity.

“Four Greens”

Sustainable innovation economic development strategies are built on a paradigm that innovation, efficiency, and conservation in the use and reuse of all natural and human resources is the best way to increase jobs, incomes, productivity, and competitiveness (Nixon and Weiss, 2010; Weiss and Nixon, 2011). These economic strategies are also the most cost-effective method of promoting renewable energy and clean technologies, protecting the environment, and preventing harmful impacts of climate change. “People, places, and organizations get richer by becoming greener,” Weiss said, through:

- **Green savings:** Cutting costs of businesses, families, communities, and governments by efficiently using renewable resources and by reducing and reusing waste
- **Green opportunities:** Growing jobs and incomes through business development and expanding markets for resources efficiency, sustainability, and clean technologies
- **Green talent:** Investing in fundamental assets such as education, research, technological innovation, and modern entrepreneurial and workforce skills
- **Green places:** Establishing sustainable transportation and infrastructure, and protecting and enhancing the natural and built environment, to create more attractive, livable, healthy, productive, and resource-efficient areas and communities

Porto Alegre Sustainable Innovation Zone (ZISPOA)

GUD has been involved in a World Bank-funded strategy for the southern Brazilian state of Rio Grande do Sul. To keep people actively engaged at the local level and over the long term, the strategy employs Sustainable Innovation Zones that combine six elements: (1) innovation and technology, (2) entrepreneurship and startups, (3) sustainability and resource efficiency, (4) creativity and collaboration, (5) participatory community management, and (6) business-friendly environment (Weiss, 2019).

ZISPOA was created within Porto Alegre, a city of 1.5 million. The aim is for the city to become the most solar-powered, energy-efficient, bike-friendly, circular economy, and digitally-connected community in Latin America by 2030. Community members have joined together to plan and take part in courses, marches, festivals, community gardens, composting centers, electric car sharing, electric car charging stations, solar posts and rooftops, sustainable parklets, bike sharing/bike lanes/bike parking, and much more. Faculty and students in different disciplines

BOX 5-2 Continued

have assumed a leading role in these efforts. Groups that previously did not interact with each other now collaborate through ZISPOA.

A bottom-up approach, with neither state nor city officials in charge, involves civil society, academia, business, and government. Elements for change include taking action and producing results to show what sustainable improvements will look like; participatory inclusiveness; and independent nonpartisanship to survive electoral changes in political leadership. Professors, in addition to being experts, use their ZISProf platform to enable students and universities to become engaged in transformation. An interdisciplinary graduate Sustainable Innovation Professional university program is now offered. The ZISPOA concept has spread to Santo Angelo within Brazil, as well as to communities in Panama City, Panama; Western Sydney, Australia; and Poznan, Poland. GUD is also working in Wheaton/Montgomery County, Maryland, to develop a Sustainable Innovation Zone.

References

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The importance of collaboration and knowledge-sharing surfaces in almost any discussion about sustainable urbanization. A regional partnership spearheaded by the University of Texas at Arlington (Tare, 2022), public-private partnerships in New York City (Koval, 2022), and development of Voluntary Local Reviews (Saiz, 2022) served as useful examples for the committee. Efforts such as C40, Local2030 Hubs, and SDG Leadership Cities have created and strengthened communities of practice and knowledge-sharing. Yet, as several presenters warned, strategies must be participatory at all stages, not just in form but truly co-developed. If too closely tied with the agenda of a mayor or other leader at the helm, strategies could fall apart with changes in leadership.

It would be useful to examine issues of the expanding footprint of cities and the challenges of providing essential services to their residents in the Global North as well as the Global South. An example includes the Cities Development Initiative piloted by the U.S. Agency for International Development (USAID) in the Philippines as a strategic investment in secondary cities to foster larger regional development beyond the major urban cities (USAID, 2018).

KEY RESEARCH PRIORITIES FOR URBANIZATION

The committee proposes the following key priorities for research to operationalize sustainable development in the area of urbanization:

- Examine how to achieve systemic transformation across multiple dimensions of the SDGs at the city-regional scale while addressing transnational and rural-urban linkages and externalities, including shifting burdens (social, economic, and environmental) beyond the regional borders.
- Build a multiscale narrative of urban change that links local, national, regional, and global activities in the context of COVID-19, climate change, and global conflicts.
- Improve data collection and reporting at the local level, including of disaggregated and city-level data, as well as create open data hubs and portals to capture information from local agencies and community-generated data sets.
- Improve information on cities, including by filling data gaps, especially in the Global South, because developing cities will contribute the majority of the future urban transition in coming decades.
- Improve the understanding of the types of data needed from cities to monitor SDG transitions along environmental, social, *and* economic considerations. The first step would be to identify the types of data that are missing. The second step would be to determine how to collect these data across multiple locations.
- Explore how to conduct research on systemic equity and power that aligns with research on environmental and economic transitions, because this research is often conducted in silos.

POSSIBLE ACTIONABLE STEPS FOR URBANIZATION

The committee identified the following possible actionable steps to operationalize sustainable development in the area of urbanization:

- Urban leaders and planners could convene diverse, inclusive groups in workshops to focus on the key research priorities addressed above in the context of the COVID-19 pandemic, climate change, and global conflicts.
- Research institutions could create opportunities for workshop reports and journal special editions that focus sharply on identifying critical knowledge gaps relating to big data and research on cities and on producing new knowledge of special relevance to direct action, such as providing guidance to funders about areas for future work.
- International organizations could establish and maintain databases for international research on urbanization, such as the Urban Policy Platform (2022), that focus on urban-rural linkages and the Organisation for Economic Co-operation and Development work (2021b) that strengthens intermediary cities to achieve the SDGs.