Afterword

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1. Background

In 2015, after years of planning and deliberation, members of the United Nations (UN) committed to the implementation of a wide- and far-reaching set of sustainable development goals. The 17 Sustainable Development Goals (SDGs), along with their 169 targets, laid the framework for the ambitious 2030 Agenda for Sustainable Development. The 2030 Agenda–an action plan to ensure sustained and inclusive growth–seeks to eliminate extreme poverty, reduce inequality, and protect the planet. Today, we are halfway to 2030, and according to the UN, the situation is dire. In the recent *Global Sustainability Report of 2023, "Times of Crisis, Times of Change: Science for Accelerating Transformations to Sustainable Development"*, the UN and their scientific partners have assessed the progress made towards the SDGs and their message is clear: we are failing miserably. Using an infographic indicating that not a single SDG target has been met, they state that "the world is far off track as shown in the figure which captures [the] current status of the Sustainable Development Goals. Without urgent course correction and acceleration, humanity will face prolonged periods of crisis and uncertainty—triggered by and reinforcing poverty, inequality, hunger, disease, conflict and disaster."

In her book *Not the End of the World: How We Can Be the First Generation to Build a Sustainable Planet*, data scientist Hannah Ritchie challenges the dominant doomsday narratives around climate change. She argues that if we look at environmental data through a wider lens, a more nuanced, and perhaps even more hopeful, picture emerges. Rather than focusing on climate failures, she reinterprets climate data to also identify successes, to debunk assumptions about best practices, and to encourage readers to think strategically to identify individual actions that will have the most impact on reducing our carbon footprint.

Like others, I vacillate between the sentiments of alarm and optimism expressed in *"Times of Crisis, Times of Change"* and *Not the End of the World*. In this time of crisis, how can we work with necessary urgency and yet leave room for iteration, error, and hopefully innovation? Additionally, when it comes to SDG 11, "Make cities and human settlements inclusive, safe, resilient and sustainable", where should we–as designers of the built environment–focus our efforts? Where will we be most

impactful? How can we take a more fine-tuned and nuanced approach while still keeping the big picture in mind?

In this moment of great uncertainty, there are no easy solutions to solve the complex challenges we face. Indeed, the ideas assembled in this volume, *Transitioning to Sustainable Cities and Communities*, on their own will not achieve SDG 11, or the 2030 Agenda for Sustainable Development, for that matter. However, the volume is notable in that it approaches the questions of sustainable development from the perspective of design. Contributions include scholarly essays by emerging design and planning practitioners working in the built environment and interviews with eminent urbanists. The authors are not climate scientists or experts, but instead are mostly trained as design thinkers who in their work connect many different variables, ranging from physical, historical, cultural, environmental, and economic factors, and are used to dealing with overdetermination and uncertainty. Furthermore, their research is not driven by fulfilling the SDG criteria or "checking boxes", but instead represents creative responses to very local challenges involving different actors and ideas. Notably, the case studies and projects reflect multidisciplinary collaboration and employ iterative feedback loops.

In working on this volume, I have come to both respect the SDG rubric and also recognize its shortcomings. Without a doubt, negotiating global consensus on, and commitment to, a sustainability agenda is a crucial foundation of climate action. Many of our global challenges—forced migration, unequal distribution of resources, shortage of affordable and safe housing, sea-level rise—have resulted from the lack of regional, national and super-national coordination. With the establishment of agreed-upon goals, targets, and a program of accountability among UN members, the global community has made an unprecedented and historic step. The 2030 Agenda is sensibly structured upon a broader vision of sustainability, which rests upon categorically defined goals, which are further explicated through many targets. The logic is linear, going from big idea, to goal, to target. Each goal represents an answer to a problem, and the whole approach sets up a clear system of accountability through checklists and progress charts. Yet, the program's inherent hierarchy and linear structure potentially hinder more iterative and open-ended processes, as well as potentially disadvantage research that overlaps multiple SDG goals and targets.

For example, take the issue of urban lighting, a subject matter that is covered by two essays in this volume. In "*Everynight Life* in Informal Settlements", authors Stephanie Briers and Yael Borofsky describe the inequities connected with inadequate nighttime lighting in informal settlements in Cape Town, South Africa. They trace the history of apartheid planning and connect it to the government's deployment of

high-mast lighting in areas that have been, and continue to be, inhabited by Black residents. High-mast lights are floodlights that are fixed atop tall poles, and because of their relatively low-cost, ease of installation, and wide coverage, they have been installed on the edges of dense informal settlements. The authors argue that while high-mast lighting may make a lot of sense from a technical perspective, in practice, because of the fixtures' height and lighting intensity, they create a lot of shadows on the narrow streets and passageways of informal settlements. As a result, high-mast lighting fails to create conditions in which residents feel safe at night, and therefore it limits free movement and accessibility, especially for women, children, and the elderly. Working with community organizations in one township, the team led a participatory process with residents that resulted in the co-design and piloting of an "off-the-grid", solar-powered light that was attached directly to buildings in the informal settlement. The design improves local lighting levels, enhances feelings of safety, and increases nighttime accessibility in the neighborhood.

As Briers and Borofsky have demonstrated, sufficient urban lighting is central to making informal settlements inclusive, safe, resilient and sustainable; however, lighting is not mentioned in SDG 11 or in any of its targets. Furthermore, adequate nighttime lighting of informal settlements connects with many of SDG 11's targets, such as 11.1, which relates to improving access and safety in slums; 11.2, which focuses on safe and accessible roads and transport; and 11.7, which calls for safe, inclusive, and accessible public spaces. In addition to supporting SDG 11, urban lighting also addresses SDGs that relate to energy and infrastructure.

My point here is not about nomenclature; I do not think that the SDGs need to recognize and name every relevant topic. Rather, my concern is about the process and the prioritization of ideas and projects in the field. If urban actors—designers, researchers, community organizers, mayors, etc.—solely follow the logic of the SDGs from top to bottom, using it as a kind of roadmap or blueprint to identify projects and prioritize their actions, cross-cutting initiatives that do not immediately "check the box" could be overlooked or receive less support. Research and research-based projects that help governmental organizations identify gaps, synthesize multiple goals, and make strong connections to specific, locally based, on-the-ground conditions are crucial to achieving sustainable development and must be supported. I believe the work contained in this volume serves exactly this purpose.

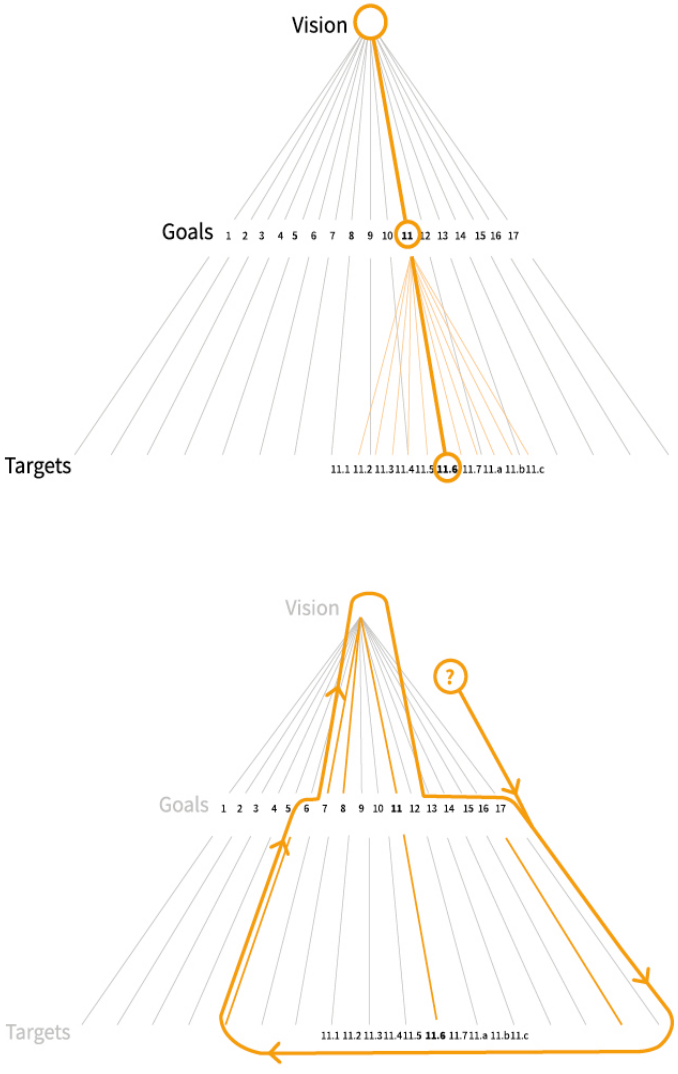

Figure 1. (**Top**) The broad and hierarchical approach of the Sustainable Development Goals framework favors a linear, top-down approach, moving from vision to goal to target, as in a tree diagram. (**Bottom**) Sustainable development depends on an iterative feedback loop that intersects multiple goals and targets, as well as being flexible enough to incorporate (and perhaps even leverage) unknowns and externalities. Source: Figure by author.

1.1. Grounded in Research, Applied in the Field

The work featured in *Transitioning to Sustainable Cities and Communities* is mostly based in academia. Several chapters showcase work conducted in partnership with students, such as Clara Rellensmann, Pwint, and Wint Tin Htut Latt's Studio Bagan, which is a collaboration between the faculty and students from Myanmar and Germany, and Melanie Fessel's "Method Design", in which she argues for the importance of urban design pedagogy as practiced with students in academic studios at the ETH in Zurich.

While the research of the chapter authors is grounded in academia, the majority of the work bridges between more traditional university-sponsored research and practical, in-the-field implementation of innovative design strategies. As mentioned, two chapters in this volume focus on urban lighting pilots in informal settlements (Briers and Borofsky in Cape Town, South Africa, and David Michael Kretzer in Bogotá, Colombia). In his chapter, Michael Walczak describes how the planning, zoning, and siting of buildings in the Sarajevo valley have contributed to the city's high levels of air pollution; as a means to help inform future urban plans and policy and improve air quality, he developed and deployed a mobile laboratory to collect onsite measurements of topography and windflow.

The intellectual independence that is at the heart of academic work provides a valuable set of checks and balances to the SDG framework by bringing new ideas, voices of younger generations, and new assessment techniques into the process. The available time and space for research in academic environments allows for non-governmental SDG stakeholders to think "outside of the box" in ways that are semi-independent of the hierarchies and organizational structures connected with the UN.

1.2. Identifying Gaps

The intellectual independence that comes with academic research yields other valuable results, such as the identification of gaps in the broader SDG framework. Like the two chapters that make the case for the importance of urban lighting, which is not currently identified in SDG 11, Chukwuemeka V. Chukwuemeka highlights urban markets as an important but overlooked model of sustainable development. He claims that urban markets, such as Nigeria's Onitsha Markets, serve as sites of economic and social inclusion. Gruia Bădescu argues that human-made disasters resulting from war and conflict present unique challenges to sustainable urban development and should be framed in the SDGs. Given the recent and

ongoing conflicts in the Middle East and Ukraine, Bădescu's focus on post-war urban strategies and reconstruction resonate perhaps more strongly than ever before.

1.3. Synthesizing Multiple Goals through Systemic Design Thinking

While some of the chapters identify topical gaps in SDG11, such as lighting, urban markets, or post-conflict city rebuilding, other chapters highlight the importance of synthesizing multiple goals through systemic planning processes. In her chapter "Cognitive Blindspot: Challenges of measuring coupling effects of isolated development policies on regional sustainability", Tanya Chandra describes the lack of integration between regional transportation and housing policy in India. Through field work and data analysis, she shows that while the Indian government may report successes in increased housing production and expanding home ownership, the true economic, environmental, and life quality costs to residents are not fully understood and/or accounted for. Alejandro Restrepo, in his expansive history of participatory urban planning in Medellín, provides compelling evidence of the benefits of integrated planning policies. Melding narrative, design strategy, and data, he describes some of the challenges and successes of the city's planning department, such as the bundling of mobility systems (like pedestrian and bike paths) with recovered natural corridors, which has led to improved life quality and measurable decreases in urban heat.

1.4. Connecting the SDGs from the Bottom Up

While the topics and geographies of the scholarly essays in this volume are diverse, the methodological approaches of all the authors reflect a commitment to rooting research in existing conditions and local practices. Indeed, the projects follow a logic that is contrary to the Agenda 2030 and the SDGs: a logic that "follows the actors" from the bottom-up (rather than the top-down). Looking carefully and closely at what people do in particular contexts, each author has framed their research questions and hypotheses in relation to local practices found in the field. Authors in this volume have conducted and transcribed interviews with residents and incorporated these on-the-ground experiences into their research. For example, Michael David Kretzer's field work focused on a single street in an informal settlement, where he interviewed residents, documented their self-built luminaires, and recorded public nighttime activity. Chukwuemeka V. Chukwuemeka's illustrated diagrams and maps of the Onitsha Markets represent another approach to grounding research from the bottom-up. Working from the architecture of the market stall to the market building and the market corridor, he

catalogs the city's vast and diverse markets by product type and location (there are nearly fifty distinct markets!) and argues for their importance, especially among economically disadvantaged groups such as underemployed young men and women. When it comes to the SDGs, the importance of these types of "on the ground" research cannot be overestimated, for they connect the broad, universal, UN-defined goals to lived, local experience.

In summary, planning and design research, as represented in this volume, offers an important and complementary counterbalance to the necessary yet broad SDG framework (Figure 1). On its own, academically rooted, open-ended research will not create a direct path to achieving Agenda 2030, but it represents a means to connect the universal, top-down goals with the actions of everyday actors working from the ground up.