ROUTLEDGE STUDIES IN SUSTAINABLE DEVELOPMENT

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Implementing Sustainable Cities

Edited by Sylvie Albert, Jeremy Millard and Manish Pandey

IMPLEMENTING SUSTAINABLE CITIES

This edited volume brings together international authors to explore how cities around the world are implementing their commitment towards the UN Sustainable Development Goals (SDGs).

To achieve sustainability, cities choose their own goals and develop the necessary governance and resourcing mechanisms to achieve their objectives. This book highlights the innovative ways cities can plan their implementation by drawing on comprehensive research and literature reviews. Case studies from around the world, including North and South America, Europe, Asia, and Africa, describe examples of various cities' governance mechanisms, resourcing strategies, and implementation strategies. By showcasing these case studies, cities worldwide can emulate, transform, and execute their own vision, drawing on the examples and pathways laid out by their peers. The book concludes with a comparative analysis of UN SDG implementation, contrasting the approaches and enabling communities worldwide to learn from one another and choose strategies that meet their local needs.

This book will be of great interest to students, researchers, and professionals of urban sustainability, planning, smart cities, and sustainable communities. It will also be useful for city and government stakeholders, including policy makers, economic development corporations, and non-governmental organizations (NGOs).

Sylvie Albert is a Professor of Leadership and Strategy, and a past Dean of the Faculty of Business and Economics and Continuing Education, at the University of Winnipeg, Canada.

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FOREWORD

Implementing Sustainable Cities is an important and significant book that for the first time demonstrates the tremendous progress made by cities of various sizes in implementing the Sustainable Development Goals (SDGs). It's important because achieving the SDGs matters enormously if an increasingly divided world is to avoid political, social and climate breakdown, and is significant because the leading work of cities on implementing the SDGs through local action and Voluntary Local Reviews is not well known. Yet it should be.

As the book notes, cities are where the bulk of the world's population is, the bulk of its economic activities (80%) and the bulk of its carbon pollution. Increasingly, cities are where the solutions to global challenges are found – for example, in the climate leadership of the members of C40 Cities, where self-imposed membership standards require the members to have climate plans that do their fair share of holding overall average temperature rise to 1.5 degrees. The contrast with national governments – who have no legally binding climate commitments – is vivid.

Although the SDGs were perhaps conceived as an initiative to be undertaken by nations, it is largely in cities where their success – or failure – will be secured. Can we create affordable housing and good jobs that pay a living wage? How do we include the marginalized residents of informal settlements and low-income neighbourhoods in the political life of our city, both so they have a say and so their needs are met by emerging policies? How do we use city powers over water, transportation, parks, urban forests and waste management to address environmental challenges and start to build a future where people can live in harmony with their planet? And increasingly, how do cities use their public policy tools – like purchasing and the provision of free public services like libraries – to help change the very economic systems that have created a need for sustainable development goals?

Since the Bretton Woods Conference in 1944, and particularly since the Reagan/Thatcher administrations of the early 1980s, the world has treated an economic theory of extreme free markets with little to no regulation as the paradigm for success. It's a top-down model, and the results are clear – it produced short-term growth at the cost of risking long-term environmental and social catastrophe. A critical part of the needed response to the excesses of neoliberalism is local – a movement towards building long-run economic prosperity by meeting the real needs of residents: for meaningful work, but also for community and all that it implies – a sense of connection and inclusion for all; clean air, water, green spaces and biodiversity; and hope for the next generation. These building blocks start in cities, through the actions city leaders are taking today. The breadth and success of city thinking about the implementation of the SDGs are thought provoking and inspiring – as demonstrated for the first time in this timely and meaningful book.

David Miller, Managing Director of the C40 Centre for City Climate Policy and Economy, author of *Solved: How the World's Great Cities Are Fixing the Climate Crisis*, and Mayor of Toronto 2003–10

1

INTRODUCTION

Sylvie Albert, Jeremy Millard and Manish Pandey

Introduction

In our previous books, we outlined several innovative strategies that cities can undertake to become more sustainable (Albert, 2019), a term we will describe below. Subsequently, we also explained several indicators of sustainability that could be used to measure the performance of cities (Albert & Pandey, 2022). In this book, we take the next step and review how cities, most of which have undertaken a Voluntary Local Review (VLR) (see United Nations Department of Economic and Social Affairs, 2024) of their progress in meeting their selected Sustainable Development Goals (SDGs), are implementing their programmes. We have asked a shortlist of cities the hard questions about how they plan, structure, finance, lead, and govern their projects and what has worked, and we asked them to report on the challenges they have faced. These shared experiences will help other cities, as well as many other relevant actors, in planning their contribution to solving their own localized United Nations (UN) SDGs, or other goals that are most relevant and pressing to solve in their locale. Sometimes a city's goals cross over between different SDGs or even address specific goals not directly included in the SDGs, but which nonetheless contribute significantly to sustainable development in their own specific context. These issues are also examined in some of the chapters in this book.

The book is separated into different parts. At the onset, we describe some key issues of governance and resourcing, and we follow this with a VLR chapter that compares VLRs from 40 cities and highlights some good practice examples. The VLR chapter provides a comparison of the types of projects that cities are undertaking under the various UN SDGs. The book then provides the accounts of nine cities on their implementation experience plus one chapter from the European Union (EU) outlining a support programme being

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provided to cities for implementation of the SDGs. The final chapter, our conclusion, will give a snapshot of implementation tactics that cities might want to consider and we provide our own feedback on what seems to work and what may be missing, drawing on healthy implementation tactics.

How did we choose the cities that provided a chapter and the VLR reports that would be used for analysis? According to the VLR (United Nations Department of Economic and Social Affairs, 2024), 125 reports were submitted from cities and regions engaged in this process between 2021 and 2023. Of these, 15 reports were duplicates (cities which provided a second or a third VLR update), and 40 were not available in English (Argentina and Mexico submitted several VLRs but few with English translations). From the remaining 70 possible VLR reports, and our own connections with activists worldwide, we approached 11 cities to prepare a chapter (9 that ultimately completed this task) and undertook a qualitative and quantitative study of 40 cities focused on 2021 and 2022 data (46 reports), plus a few reports made available earlier in 2023, before our data collection closing, that could improve our international coverage.

In the limited confines of this book, the nine city chapters selected attempt to balance geography, size, type, and partnership arrangements to maximize the scope, relevance, and benefit of the book, as well as willingness to write a chapter. We have tried to focus on cities that have a valuable story to tell about how they are implementing their SDGs to maximize the potential learning and inspirational benefits for the reader.

The analysis of 40 VLR reports is meant to supplement the work of our chapter authors, and compares the goals undertaken by cities and the projects to meet these goals. There are several innovations that are worthwhile to note, and it sheds light on the differences and similarities between cities.

What is meant by sustainable development?

For many years after 1945, the international community adopted a top-down market- and technology-driven approach to development based on classical economics through practices based on ideas around so-called modernization, growth, structuralism, and dependency. Despite the brief appearance of more bottom-up basic needs programmes in the 1970s, which took account of the real lives of people in their communities and locales, the 1980s saw a reversion to more-or-less all-embracing market-driven approaches. However, at the same time alternative frameworks slowly began to emerge, most notably the so-called post-development and human development theories. These laid the basis for a mindset change away from the prevailing one-size-fits-all philosophy by attempting to align large-scale macro change with more local, micro, and grassroots needs, resources, and processes, and social and even cultural issues (Millard, 2014).

In turn, this led to the notion of sustainable development which took this joint social and economic concern one step further to take account of how human development could avoid despoiling the physical environment. This approach was adopted by the UN through its definition of sustainable development as "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland Commission Report, 1987, p. 37). The UN has since developed frameworks for global sustainable development starting in 2000 with the UN Millennium Declaration Goals (MDGs) (United Nations, 2000), committing nations to a new global partnership to reduce extreme poverty and setting out eight overall targets. Although impressive gains were achieved, such as some reduction in extreme poverty, serious shortfalls continued, and hunger remained a global challenge (United Nations, 2015a).

In 2015, the UN coordinated the preparation of the 2016–2030 Sustainable Development 2030 Agenda in the form of the SDGs (United Nations, 2015b). Whereas the MDGs were aimed primarily at the developing and emerging economies, the 17 SDGs apply to, and have been signed by, virtually all countries. They are seen as the guiding principle for balanced long-term global development consisting of the three dimensions of economic, social, and environmental development, so that if any one dimension is weak then the whole system is unsustainable.

Figure 1.1 shows the architecture of the 2030 Agenda, comprising the 17 SDGs positioned across the three overlapping dimensions. One lesson of the MDGs was that, although clear and ambitious but also realistic goals are needed, as articulated in SDGs 1–15, so too are the means of delivering these goals. Thus, a fourth governance dimension was added consisting of two further SDGs, numbered 16 and 17, designed to support how the 15 substantive SDGs can best be delivered, and focused respectively on peaceful institutions and partnerships. These four dimensions also align with the five principles of critical importance to the 2030 Agenda, respectively: prosperity, people, planet, peace, and partnership.

The SDGs form the framework used by Member States to implement the UN's 2030 Agenda, and many local and regional governments are already active in localizing this framework as a tool for planning and execution to bring the SDGs closer to the people they serve. As part of this process, many cities have prepared one or more VLRs (United Nations Department of Economic and Social Affairs, 2024), which this book uses as a starting point for examining the SDGs they have selected to best fit their own needs and ambitions. The value-added of this book is that it goes well beyond any existing VLRs the city has prepared. Although each of the city chapters in this book is distinct, they all provide additional details and analysis of how SDG projects are chosen, governed, and financed; how collaborations were developed; how citizens are being engaged to create synergistic outcomes; which initiatives were successful and why and conversely what has been tried with less success and what was learned; as well as guidance on specific topics.

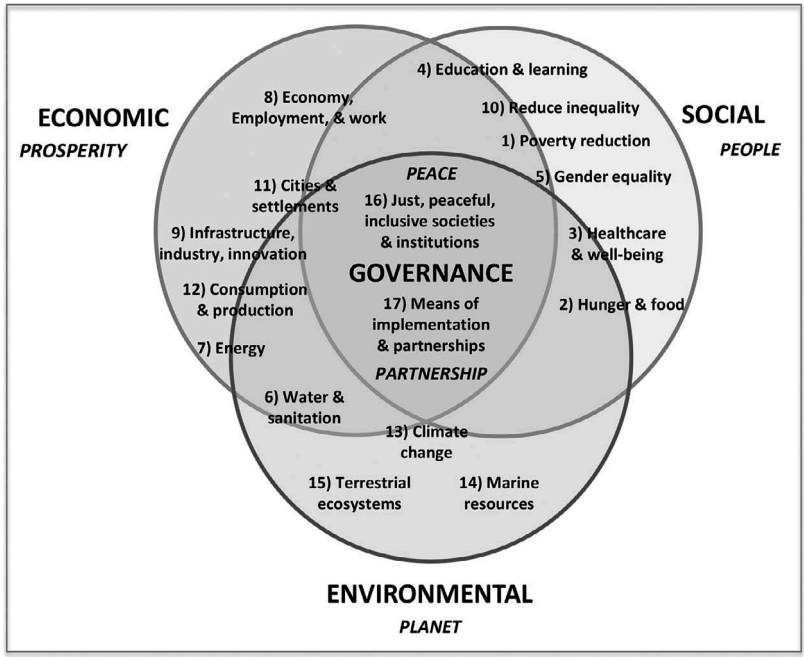

FIGURE 1.1 The overlapping architecture of the UN's 2030 Agenda and the 17 SDGs
Source: Author creation.

Cities are important contributors to sustainability

According to the UN (United Nations, 2022) over half the global population, 3.5 billion people, currently live in cities and this is expected to increase by 2 billion in 2030 and rise to about 70% of the world's population living in urban areas by 2050. Moreover, 95% of urban expansion in the next decades will take place in the developing world. Even today, cities contribute more than 80% of global gross domestic product (GDP) so are essential for economic growth, especially in Africa and Asia. However, and although cities occupy only 3% of the Earth's land, they emit more than 70% of the world's greenhouse gases, and rapidly increasing urbanization is exerting pressure on fresh water supplies, sewage, the living environment, and public health.

> If well-planned and managed, urban development can be sustainable and can generate inclusive prosperity. … The deep inequalities exposed by the COVID-19 pandemic and other cascading crises highlight the importance of sustainable urban development. Strengthening the preparedness and resilience of cities … is crucial in responding to future crises.
>
> *(United Nations, 2022)*

Cities are also changing rapidly in response to the means they have available for sustainable development. Digitalization and escalating innovation have added the 'technological environment' as an important tool to city development. Indeed, most of the world has been striving to improve access to telecommunication and technology to compete and provide an improved quality of life to its citizens. We have argued that to accomplish these objectives, cities need to ensure they have sustainable political/legal systems, economic and development strategies, sociocultural milieus, technological and innovation systems, and sustainable ecologies (Albert & Pandey, 2022).

The concept of the 'smart city', using digital tools and data to provide, interconnect, and improve the efficiency and effectiveness of basic urban infrastructures and human settlements more generally, is increasingly important to the sustainable development of cities. In most developed countries, and increasingly in the developing economies, the integration of digital technology solutions to govern, support, and manage a city's assets, buildings, institutions, utilities, organizations, and people is emerging. For example, smart cities aim to coordinate and thus optimize transportation systems, hospitals, power plants, water supply networks, waste management, law enforcement, and other community services to increase both the efficiency and effectiveness of services. Digital technology significantly enhances urban planning and management, for example using 'digital twins' that provide a software replicate of all aspects of the city required for these purposes so that proposed policies can be precisely modelled before implementation as well as during implementation to monitor impacts. This enables policies to be designed in advance and adapted in real time to maximize desirable impacts.

Digital technology also enables city officials to interact directly with each other as well as with citizens and businesses, link these to city infrastructures to improve the management of urban flows, and provide real-time responses to problems. For example, using sensors integrated with real-time monitoring systems, data are collected from both people and things through the so-called 'Internet of Things'. The data can then be processed and analysed using artificial intelligence to enhance the quality, performance, and interactivity of urban services, which thereby reduces both costs and resource consumption.

On top of these developments, the pace of changes affecting cities and settlements has accelerated even more rapidly since the onset of COVID-19 in 2020. The alarming increase in geopolitical tensions, disruptions to trade, some moves away from increasing globalization, and more on- and near-shoring of economic activities are the result. The world has become a more uncertain place and cities are in the frontline. As analysed by Millard (2023), many parts of the developed world are seeing the growing importance of small cities and larger towns within the hinterlands of very large cities which, often excepting capital cities, are themselves decreasing in importance driven by digital work, learning, and shopping. There is also a very strong resurgence of local economies and identities linked to efforts to retain as much as

possible of locally created value within the locality. This is seen, for example, by residents becoming more aware of the community, as well as of the economic benefits of local production and consumption, and local governments are focusing much more on local partnerships and procurement. Urban, rural, and community-level geographies are also changing in directions that both accelerate existing trends and carve out new pathways, especially ones that prioritize decentralization within national structures in order to ensure the achievement of just sustainable development for all wherever they live.

The problems cities face cannot be tackled by city governments alone, so they need to work in close partnership with many other actors, both in the city and beyond. In fact, the UN recently outlined the importance that cities play in reaching the overall 2030 Agenda goals.[1] Cities are, after all, where most people live their daily lives and, as such, provide many of the best places to find solutions to most of the issues that face all of us now and well into the future. The UN website guide on VLRs speaks to the types of information needed for successful implementation of sustainable development goals by local and regional government, including the importance of stakeholder engagement:

> The review could indicate how financial systems, statistical data and resource allocations are being aligned to support the realization of the 2030 Agenda and its pledge to leave no one behind. The cities and regions are encouraged to analyze the main roadblocks for tapping into new and additional sources. Cities and regions can utilize this section to identify specific needs they may have in relation to means of implementation and to clarify what types of partnerships and collaboration they are interested in forging to address these needs. Cities and regions may also reflect in this section on their experiences from and actions towards decentralized cooperation, showcasing useful good practices.
>
> *(United Nations, 2020, p. 7)*

Clearly, there is a need to understand challenges more fully – these are the 'why' questions that delve into the source of problems – then to understand the tools and resources at our disposal including the programmes that have attempted to solve issues over time and that can contribute as stakeholders to future directions, and to set agreed-upon goals, shared visions, with collaborators or partners to make a significant change.

City implementation of SDGs

What is implementation and what should we know about implementing the UN SDGs in the city context? Are there strategies and solutions that cities can emulate, amend, or be inspired by that suit their own specific needs? This book demonstrates that this is indeed the case. Learning from, and engaging with, good ideas and good practices is essential. This is not only because

cities are intimately interconnected locally, regionally, nationally, and internationally, but because many of the issues that confront cities everywhere are often very similar. Huge amounts of both time and resource are wasted when the same mistakes are blindly replicated, and good opportunities repeatedly missed. This is particularly true in the changing environment of the 2020s with the COVID-19 pandemic, the rapidly changing global economy, and looming environmental crises in the run-up to the SDG cut-off in 2030. According to a McKinsey (2017) study, if governments globally, including city governments, learnt from what was already demonstrably working successfully elsewhere, there would be savings of US$3.5 trillion each year. Much is at stake.

At the same time, each city has a unique socio-economic, environmental, cultural, historical, and political context with highly distinct needs, challenges, and opportunities, so blind replication of what other cities do is also a mistake. It behoves each city with sustainable development ambitions, on the one hand, to learn from and be inspired by the lessons and good practices of others. On the other hand, cities should also balance this with efforts to adapt these experiences to their own situation and, indeed, themselves contribute successful examples to the common pool of knowledge. This book is aimed at such cities.

Once a city has identified the SDGs it wants to tackle (and several examples of localizing goals and indicators are provided throughout the book), it needs an implementation strategy that addresses the typical planning questions for implementation:

- Who will be responsible and for what project/goal/objective?
- What will be the governing structure and the governance mechanisms?
- What is expected to be realized within short-/medium-/long-term timelines?
- How will success be measured?
- How will projects be financed?
- How will results be monitored and evaluated?

Morrison et al. (2019) said it best when they described cities as complex systems in which many actors have different opinions. When everyone follows their mandate or their personal goals, it is a challenge to collaborate as it affects our desire for independence, as well as sub-optimizes impacts due to inconsistent and often contradictory objectives. Sometimes, we refuse to collaborate until we are forced to do so, but we have an urgent need to find ways to encourage people to collaborate. Many cities have found transferable or inspiring solutions, so it is important to share and understand how they have achieved their successes. If we are to make significant progress into sustainability, we need the engagement of the widest possible variety and force of stakeholders. It is the only way to create synergy. This means that we need to engage people in drawing up and implementing a plan as part of a shared

vision. Buy-in will help us to implement the agreed-upon goals – it will allow us to divide and conquer the challenges and share the responsibilities. Even if not everyone is on board, a collaboration of the willing will make a significant difference both locally and internationally.

Realizing engagement is hard, there are many steps to be undertaken before this happens. We must recognize that engagement and alignment on sustainability issues require deep conversations about complex problems that will spawn many dissensions and divergent ideas about appropriate solutions and strategies. The UN SDGs are 'wicked problems'[2] – how do you solve homelessness and hunger? There are no clear solutions, and these problems are likely to be ongoing for a long time. Despite many promises to keep global warming to 1.5°C, we have not yet come close to realizing this objective, and part of the problem is our top-down approach and lack of engagement. We can make improvements and better use of our combined resources if we plan engagement. Before we do so, we need to acknowledge several important behavioural and process challenges so that we can plan in view of minimizing these issues – the following are examples drawn from our personal experience in managing community development initiatives:

1. Analysis paralysis: while we study a problem, we can get overly engaged in studying the numbers and avoid setting meaningful goals as well as overlooking important issues that are not easily measured by numbers. An ongoing discussion without action will discourage people from engaging.
2. Good enough solutions: in our attempt to reach consensus, we may choose solutions that are acceptable or easy and perhaps lacking in reach to achieve significant outcomes. This further discourages engagement. However, 'good enough solutions' like low-hanging fruit can be a useful first step in demonstrating what can be done through collaboration, if it does not end there.
3. Lacking a systems approach: we continue to offer the same solutions expecting different results. Asking the 'why' questions several times can help us arrive at the root cause of problems, but it also affects 'territory' and we are hesitant to change the system. These behaviours discourage critical thinkers and activists that could help us achieve real improvements.
4. Leadership dilemma: we want to recognize people with formal authority, but these may be people too busy to get the job done and they may not be the most appropriate people for the specific task in hand. This stems from a historical reliance on command-and-control structures which prevent us from acknowledging the opportunity in connected networks and giving power to others.
5. Silo effects: we have always operated within our sphere of influence or within our mandates and have become protective of our resources. An overreliance on finger-pointing (NIMBY or not my responsibility) is preventing collaboration. When sharing and open mindsets are not part of our DNA, we cannot accomplish what we need to do.

6. Alignment requires some structuring: no city is an island, rather it needs to align its activities with other actors, their needs, powers, and responsibilities. However, a balance is needed as the complexity of aligning everything seems overwhelming and we attempt to over-design for control or give in to smaller achievable goals. We need to develop a culture of doing rather than give in to our need for control and knowing.

The more complex the issues, the larger the group needed to work on it. The larger the group, the more likely that a network form of organization is needed to manage the various parts of the programme. The wider the network, the more difficult the task in engaging people and controlling the outcomes – this requires careful planning and innovation. Since collaboration is needed and involves linking, leveraging, and aligning resources, we need to create trust and mutual benefit. So, the next question is: how do cities create trust, mutual benefit, collaboration both within the city and with other relevant actors elsewhere? These are some of the topics that this book will explore in the conclusion, drawing on the experience of the various chapter authors and our own review of several VLR reports.

About the chapters

Chapter 2 City governance and resourcing

In this chapter, Jeremy Millard briefly reviews some of the main theoretical and applied examples of city governance and resourcing, then attempts to assess the current and near-future situation in the context of designing and implementing the SDGs at the sub-national level.

Chapter 3 UN voluntary local reviews by cities

In this combination of quantitative and descriptive research into the reports of 40 cities who submitted a VLR during 2021–2023, there are many examples of similarities and innovations that cities can use or adapt to design their own sustainability agenda.

Chapter 4 Mexico City, Mexico

The chapter summarizes the contents of the 4th report to Congress on the SDGs and contemplates implementation issues. The overriding theme has been on dealing with inequalities which are linked to at least three dimensions of the UN SDGs – social, economic, and environmental. The chapter addresses ways that the city is dealing with mobility, education, and efficiency in water infrastructure.

Chapter 5 Measure, mobilize, connect

This chapter examines the leadership undertaken in the localization and implementation of the UN SDGs by the City of Los Angeles. The chapter includes a description of the reporting process, financing, measurement and impact, and the City of Los Angeles' vision towards sustainability.

Chapter 6 Sustainable welfare and development in Gladsaxe

Gladsaxe has a long-term vision of integrated social, environmental, and economic sustainability and a municipal strategy with six cross-cutting strategic goals each integrating a number of the global SDGs: A good place to live, Children shaping the future, Equal opportunities, Health and well-being, A business-friendly city with job growth, and Climate action. Gladsaxe shares a virtuous circle of pragmatic approaches that fitted local contexts and were able to integrate the SDGs in addressing local issues.

Chapter 7 Navigating sustainability in Shah Alam

The Shah Alam model showcases structured implementation and reporting, serving as a potential framework for cities sharing similar governance structures. The city's SDG strategy integrates seamlessly with broader policies, indicating a bottom-up approach aligned with state and federal policies.

Chapter 8 Japan's Minamata

The small city of Minamata in southern Japan suffered the extreme of unsustainability when its industrial pollution resulted in lethal disease. Yet it subsequently forged a path to sustainability through policies that engage all of its sectors and maintain economic relations far beyond the city.

Chapter 9 The City of Malmö

The city has focused on connecting all its activities to fulfilling SDG objectives, including budget planning. Work so far has concentrated on 9 of the 17 UN SDGs and has been structured thorough citizen engagement and innovation in focus.

Chapter 10 Cape Town

Social and economic conditions facing Cape Town are presented as the city pursues its own iterations of sustainability initiatives. The chapter outlines the challenges and possible solutions as well as provides a perspective on finance,

debt, aid, policy externalization, political and social justice, crime, and culture as they shape the current state of Cape Town's SDG initiatives.

Chapter 11 A grassroots approach to understanding SDGs for a VLR in Kelowna

A community-wide planning initiative, Kelowna's VLR wasn't a straightforward process and a number of challenges and opportunities arose along the way. This is a unique perspective on the challenges, opportunities, and achievements possible through a community-led effort.

Chapter 12 Barcelona's approach to achieving the Sustainable Development Goals

The Barcelona City Council has successfully aligned its municipal plans and strategies with the global SDGs by establishing targets that are relevant both at the urban scale and within the specific geographical, socio-economic, and political context of the city. Concrete examples of project implementation and innovations are provided as well as details on the collaboration that was developed to make sustainability a success.

Chapter 13 The European support and coordination for SDG voluntary local reviews

This special topic chapter added to our book comes from the Joint Research Centre of the European Commission, which is running one of the first attempts by an intergovernmental organization to provide local governments implementing the UN's 2030 Agenda with guidance on how this can be undertaken successfully.

Chapter 14 Conclusions and practice lessons

In this final chapter, we look at the practices of the various cities we analysed from the providers of a VLR to the UN between 2021–3 and summarize some of the success factors and requirements we see in implementing a sustainability agenda.

Notes

1 The UN Environment Programme outlined the importance of cities in meeting environmental goals on CO_2 emissions and climate change, at: https://www.unep.org/explore-topics/resource-efficiency/what-we-do/cities/cities-and-climate-change and in a news release at: https://news.un.org/en/story/2019/09/1046662. The OECD further outlined the importance that cities play in meeting the UN SDGs, at: https://www.oecd.org/about/impact/achieving-sdgs-in-cities-and-regions.htm.

2 Professors Horst Rittel and Melvin Webber introduced the concept of wicked problems in 1973 as problems with innumerable causes, tough to describe, and without a right answer.

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2

CITY GOVERNANCE AND RESOURCING

Jeremy Millard

What is urban governance?

According to UN-Habitat (2023), governance is concerned with the structures, processes, norms, values, and rules through which public affairs are managed in a transparent, participatory, inclusive, and responsive manner. It is about how power is distributed and shared, how policies are formulated, priorities set, and stakeholders made accountable. It includes a diverse range of actors in decision-making processes as well as the formal and informal structures set in place to make and implement decisions. In this context, city governance is the process by which governments and stakeholders collectively decide how to plan, finance, and manage urban areas. This needs to encompass the multiple ways in which individuals and institutions, whether public, private, or civil, plan and manage the common affairs of the city in a continuing process where conflicting or diverse interests are accommodated, and cooperative action is taken.

The quality of urban governance is the most important factor for the eradication of poverty and for prosperous cities. Urban governance is outcome-oriented and promotes the rights of all people by ensuring that all urban residents reap the benefits of urbanization. These elements are recognized by the New Urban Agenda (NUA) and the United Nations High-Level Political Forum on Sustainable Development (UN HLPF) which both note that weak institutions and poor governance mechanisms increase the risk of low performance, wasted resources, inefficient sectoral interventions, human rights violations, and an overall lack of progress (UN Habitat, 2023; UN HLPF, 2021). To achieve good governance at the city level, processes should be participatory, consensus oriented, accountable, transparent, responsive, effective, efficient, equitable, and inclusive. This will reduce maladministration and ensure

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that the views of minorities are considered and that the voices of the most vulnerable in society are heard within the decision-making process. In the context of sustainability and resilience, good city governance should also recognize the natural world as an important actor in its own right. Giving nature a seat at the public governance table ensures that environmental as well as economic and social sustainability is also a major goal and that these three pillars are pursued together in implementing the Sustainable Development Goals (SDGs). The NUA and the SDGs require institutional coordination at all levels through new governance arrangements and improved urban governance structures. The aim is to localize the SDGs through the strengthening of metropolitan capacities using appropriate multi-level governance arrangements and rethinking the relationships between public, private, and civil sectors that can also enhance public sector investment.

This chapter briefly reviews some of the main theoretical and applied examples of city governance and resourcing, then attempts to assess the current and near-future situation in the context of designing and implementing the SDGs at the sub-national level. Note, the term 'city' is normally used as shorthand for all urban configurations, which can also include regions and city regions.

'New localism' is reconfiguring multi-level governance arrangements

Multi-level governance

Multi-level governance refers to the way power is spread vertically between many levels of government from the global/international to the local, and horizontally across multiple government and non-governmental organizations and actors, as sketched in Figure 2.1. This typically rests upon various balances between centralization and decentralization and how power, resources, and responsibility are distributed.

There are always strains and tensions in multi-level governance systems as the different actors, constituencies, and needs jockey for position and, in most cases, reach compromises, whether politically imposed or widely agreed, for mutual benefit. Sometimes, these can be relatively informal compromises that reflect the different (mostly national-level) cultural traits that administrators and policy- and decision-makers need to consider. Although all this varies across countries, city governance is, to a greater or lesser extent, always dependent upon national legal, regulatory, and structural factors. A critical issue is the extent to which finance and power are devolved down to cities from national authorities.

The evidence strongly points to the need for strong coordination between local and regional entities as well as with the central government and other relevant international bodies (Millard, 2023a). This requires networking and interoperability in legal, structural, organizational, technical, and semantic terms, including the sharing of data, resources, services, and control, adapted

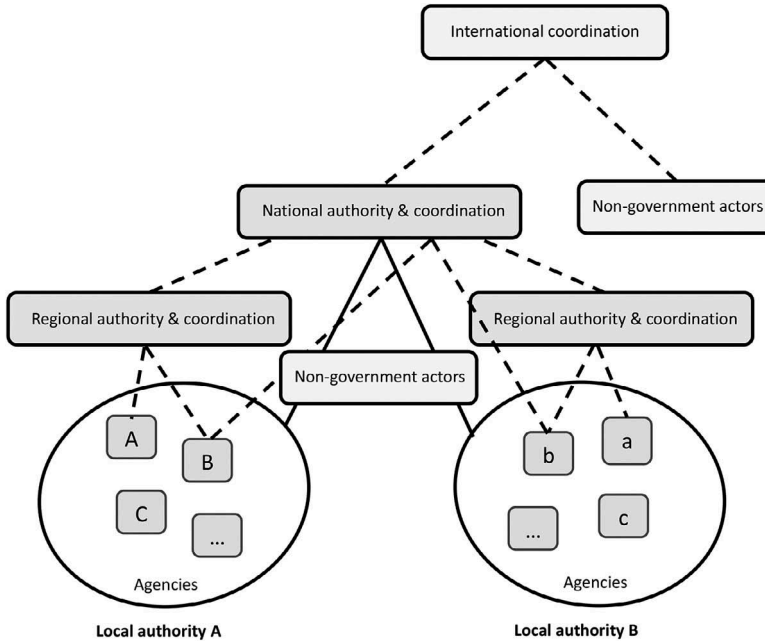

FIGURE 2.1 Multi-level governance
Source: Author creation.

to local needs and taking account of the need for security and privacy protections, all of which are dramatically enhanced by new digital technology. At all levels, networking between tasks and services can usually be achieved by cooperation agreements, both between different government entities and agencies as well as with non-government actors where this can improve overall governance functions. However, this can also be difficult to achieve due to potential jurisdictional issues and tensions between any or all actors, for example arising from problems with the legal framework and relative power and decision-making imperatives. This may cause, or result from, 'silo' structures and thinking where different actors typically have their own interests, purposes, budgets, and data that they might be reluctant to share or collaborate upon, even in situations where a higher authority has mandated them to do so. Informal workarounds may be needed both to ease problems where there are barriers, or to create barriers if a given actor opts to put their own specific interests before general well-being and prosperity.

The city government actor

A basic principle of democratic city governance is openness, participation, and sharing so that all city actors can participate appropriately. This is the

responsibility of the city government actor as the only institution backed by democratic accountability to all the city's inhabitants and organizations, although some responsibility may be taken by the national or another higher authority depending on the country and the extent and type of devolution in place. However, when tackling specific governance challenges, or exploiting specific opportunities, other actors will sometimes need to take the leading or main role and provide most of the assets (resources, knowledge, etc.) given that the city government is far from having a monopoly of all local assets. The city government will, however, often need to take the leading role itself when it does have relevant assets. In addition, a basic role of the city government which other actors are not able to perform is to articulate overall long-term societal missions and provide appropriate legal frameworks, human and physical infrastructures, and standards, as well as the mechanisms for ensuring openness, participation, and sharing.

'Open' is also the *sine qua non* for accountability, responsiveness, consultation, partnering, inclusion, co-creation, etc., all of which help in building trust. Open means the city government and all its agencies opening up their appropriate assets, data, and decision- and policy-making which are typically made available on one or more city 'platforms', whether virtual or analogue, and that invite other actors to join and contribute to pursue certain functions. City governments need to adapt their roles to become facilitators and orchestrators in carrying out their tasks, to provide appropriate tools and supports including big open and linked data, to better manage assets, and to ensure sustainability and balanced public value (Millard, 2015).

A virtual or analogue 'platform', which can take many forms, thus facilitates both democratic communication and action, including the flow of information or any other assets between any members of the network. Indeed, Torfing et al. (2020) use the label 'interactive governance' to denote something similar which encompasses the complex interaction process between social and political actors with diverging interests, promoting and achieving shared objectives by exchanging and deploying a range of ideas, rules, and resources. There are numerous examples, including where other actors have 'usurped' the erstwhile role of the city government, often by using new digital technology. For example, *Fix-My-Street* in the UK where city residents can report, view, or discuss local problems, like graffiti, fly tipping, broken paving slabs, or street lighting, was developed by the civil society organization not by government.[1] Noise measurement around Amsterdam Airport in the Netherlands was initially undertaken by residents in the flight path to combat excessive noise and today operates as a private non-profit company.[2] The *School for Life*[3] initiative in the northern regions of Ghana since 1995 has provided basic numeracy and literacy education for about 500,000 girls and boys in remote villages in the north of the country who would otherwise not receive education. Local unemployed but educated youth are given a six-week training course as so-called 'barefoot' teachers speaking local languages. This

was initially opposed by an embarrassed national government which saw others successfully achieving something it had responsibility for, but which later approved the successful project in an agreement that allowed them to take some of the credit.

Cities are the new locus of power in the 'new localism'

Especially since the economic and financial crisis of 2007–8, many countries have experienced a significant resurgence in 'localism', often termed the 'new localism'. According to Katz and Nowak (2018), power is shifting in the world: downward from national governments and states to cities and metropolitan communities; horizontally from the public sector to networks of public, private, and civic actors; and globally along circuits of capital, trade, and innovation. At its core, the new localism attempts to retain as much as possible of the value generated locally within the locality, rather than see it seep away, possibly out of the country and to tax havens from whence there is little chance of return investment. In very recent years, the COVID-19 pandemic has massively accelerated and transformed these shifts, and this has since been turbocharged by Russia's invasion of Ukraine.

For example, and enabled by digital technology, the pandemic saw a huge rise in people working from home from about 12% to about 50% in the more developed economies, thereby dramatically reducing footfall and economic activity in the centres of most very large cities. Since COVID in these countries, and with only a few exceptions such as in some capital cities, there has been only a partial return. In contrast, smaller cities, often beyond the immediate suburbs of the large cities, have significantly grown in size and economic importance with people living, shopping, and working more locally, as well as having better living conditions and access to rural areas. These trends have gone hand-in-hand with increased population awareness and interest in the environmental and community benefits of, for example, eating more local food and accessing locally generated energy. All cities, but especially the smaller ones, are thereby adapting their economic status, their functions and forms, and their community and social aspirations. Both these long-run and recent trends have a massive impact on city governance, especially in its ability to adapt fast and equitably, depending on the city type and its changing position within the urban hierarchy (Millard, 2023b).

Cities in particular have benefited and increased their power and importance over the last 15 years (Millard, 2017). They are at the 'sweet spot' being, in general, sufficiently large to possess significant political power, financial, and other resources, while at the same being sufficiently small and close to their populations and businesses to understand their needs, collaborate meaningfully with them, and take and implement appropriate decisions on the ground. Cities constitute the new locus of power in the 'new localism' that is needed to solve the critical challenges of modern societies: economic

competitiveness, social inclusion, and opportunity; a renewed public life; the challenge of diversity; and the imperative of environmental sustainability (Millard, 2017). New localism is not a replacement for the vital roles of national governments, but instead can and should be the ideal complement to an effective overall governance, so the urban dimension does deserve particular attention (Katz & Nowak, 2018; Alberti et al., 2019). However, following the mantra of 'leaving no one behind' and also considering the important functions of rural areas, the interconnectivity between all sub-national entities, including cities and communities, has to be accounted for, independent of the density of human population.

There is thus a clear return to an understanding that social, economic, and cultural structures and competences at local level have huge value and are crucial in building wider concepts of socio-economic and environmental development in general. This understanding is, however, not a return to earlier notions of localism based largely on hierarchical and even deferential structures, but instead closely mirrors the objectives and desired impacts of open innovation in meeting real societal needs in new ways, as shown in many of the examples in this chapter. This approach is increasingly focused on the daily needs of people in their communities for work, education, health, and prosperity in local contexts and in ways they themselves have some control over so they can also contribute to strengthening how their localities work.

This illustrates the dialectic between, on the one hand, a more macro, top-down, and sometimes rigid structural one-size-fits-all approach but that can provide necessary minimum standards, better cohesion, and the 'joined-up-governance' necessary in promoting equity, and, on the other hand, a more locally embedded, nuanced, as well as socially and culturally aware agency approach that more precisely takes account of local needs and promotes diversity, empowerment, flexibility, and accountability. The danger of too much localism can be that it adds complexity to governance, multiplying the numbers of actors and relationships so that it potentially adds to the 'silo' problem, resulting in a postcode lottery. However, although the locality has become more important in recent years, it has not yet seriously threatened the continued dominance of statism. Amidst this mix of systemic societal change, new conglomerations of this structure–agency dialectic approach are emerging (Millard, 2023a). Many are attempting to build new economic models based on shared value and social value often derived from and embedded in localities (for example, as described by Porter and Kramer, 2011), alongside an increased concern for addressing inequality, poverty, and social distress.

However, this is not only a simple model of top versus bottom as there are many layers and levels dependent upon the national, historical, and cultural context. There can be hierarchies within hierarchies. For example, taking a 'new localism' approach also means recognizing that the largely top-down structures and policies of many smart city initiatives, in which the city authorities and other organizations deploy sensors, networks, data, and data

analytics to improve the efficiency of urban systems, like transport, utilities, and services, important as these are, form only half the story. From this perspective on its own, there is the danger of a one-size-fits-all, top-down view of local development. The diverse needs of city inhabitants as individuals, households, neighbourhoods, communities, organizations, and businesses, that bring a locality to life, are just as important. Thus, any adequate governance model for the locality/city must also focus on the engagement and knowledge of its citizens and encourage the processes, and especially social and cultural processes, that make these places important: those that sustain very different, sometimes conflicting, activities. Cities, in particular, are in their nature engines of diversity, so focusing solely on efficiently streamlining utilities, transport, construction, and unseen city administration processes can be massively counterproductive. Instead, localities will be successful, innovative, and smart because their citizens have found new ways to craft, interlink, and make sense of their own and each other's assets, data, and other resources (Millard, 2023b).

Current and near-future city governance developments

There are several city governance developments around the globe that are having significant impacts despite, in most cases, being far from becoming mainstream. Chief amongst these is 'smart cities' that use information and communications technology (ICT) to provide, interconnect, and improve the efficiency and effectiveness of basic urban infrastructures and human settlements more generally. The integration of ICT solutions to govern, support, and manage a city's assets, buildings, institutions, utilities, organizations, and people is emerging, for example, to coordinate and thus optimize transportation systems, hospitals, power plants, water supply networks, waste management, law enforcement, and other community services to increase both the efficiency and effectiveness of services. Using sensors integrated with real-time monitoring systems, data are collected from both people and things through the Internet of Things (IoT) and then processed and analysed to enhance the quality, performance, and interactivity of urban services, which thereby reduces both costs and resource consumption (Millard, 2017). More recently, new artificial intelligence and digital twin technology now promise even greater efficiency and impact.

A specific example of a smart city is the fabrication, or 'fab-city', which uses distributed digital manufacturing to make a decisive shift away from mass production and consumption towards a society characterized by 'mass customization' (Fab City Global Initiative, 2023). The use of additive technology tools like 3D printers can design objects as virtual 'bits' which can be shared globally, and then fabricate these as physical things ('atoms') which manifest themselves locally, thereby individualizing and customizing products and services. This new business model enables manufacturers to restructure

supply chains and completely reorganize their business and operations at a city, even neighbourhood level, as is happening in Barcelona, the global leader. This changes the current linear industrial production model, which imports raw materials and products and exports waste and pollution, towards a spiral innovation ecosystem in which materials flow within cities using circular economy principles whilst information and data circulate globally (Diez et al., 2019).

Climate change, biodiversity loss, and other stresses on nature are having profound impacts on the functions of cities around the world and on the lives of their inhabitants. This is all too often increasing environmental stress in a downward mutually damaging spiral that can run out of control. Numerous challenges result, like poor air quality, heat island effects, increased flood risks, increased frequency and severity of extreme events, as well as rises in crime, social exclusion, inequality, and a degraded urban fabric. All these have deleterious impacts on human health, quality of life, well-being, and security, and hit the less privileged and marginalized the hardest of all. To address these serious challenges, there is increasing evidence that nature-based solutions in so-called 'green cities' can significantly enhance the ability of cities to chart a successful course towards a healthier, more prosperous, and liveable city (Millard et al., 2019a).

Another recent approach to sustainability governance is Kate Raworth's 'doughnut economy' (Raworth, 2017). This suggests a visual framework for sustainable development, shaped like a doughnut or lifebelt, combining the concept of planetary boundaries (Steffen et al., 2015) with the complementary concept of social boundaries and the associated essential human needs. The model provides an overall framework and strategy for evaluation derived from all the SDGs, plus integrated tools, methods, and models showing where basic needs are not being met and where 'planetary boundaries' overshoot. The central hole of the model describes and evaluates the proportion of people that lack access to life's essentials: food, health, education, income and work, peace and justice, political voice, social equity, gender equality, housing, networks, energy, and water. The outer crust evaluates ecological ceilings as planetary boundaries that life depends on and must not be overshot – climate change, ocean acidification, chemical pollution, nitrogen and phosphorus loading, freshwater withdrawals, land conversion, biodiversity loss, air pollution, and ozone layer depletion. The 'dough' of the doughnut itself indicates the safe and just space for humanity to develop a regenerative and distributive economy. Doughnut economics has, to date, mainly been implemented at city level, including Amsterdam (Doughnut Economics Action Lab, 2020), Berlin, Brussels, Copenhagen, and Melbourne.

A good example of city development is the Community Wealth Building (CWB) movement as a system-changing approach that works to produce broadly shared economic prosperity, racial equity, and ecological sustainability through the reconfiguration of institutions and local economies. This is undertaken based on greater democratic ownership, participation, and

control. It creates a new model of economic development for cities and communities that offers real, on-the-ground solutions to localities and regions battered by successive waves of extraction, dis-investment, dis-placement, dis-empowerment, and now by the many post-2019 shocks (CLES, 2022). This is done, for example, by designating local anchor institutions (public, private, and civil) that invest and procure locally where possible, and by increasing local, employee, and community ownership and control. An anchor institution is a place-based organization that is invested in its local area and cannot relocate to another part of the country. Examples include local councils, universities, colleges, local housing associations, local emergency services as well as local civil and community organizations. By their very nature, these organizations also spend substantial amounts of money that is retained within the local area, and focus their significant procurement and investment spend locally. Most CWB examples are currently in the UK (including Preston, Newham, and the Ayrshire and Arran Region in Scotland) and the USA (Cleveland, Denver, and Chicago) (Democracy Collaborative, 2022).

City investment, privatization, and who benefits

Collaborating with multiple actors

As Noring et al. (2019) point out, city governance and financing are typically missing pieces of the urban development jigsaw puzzle that stand between grand visions and plans, however necessary and laudable these are, and actual realization on the ground. Making the right decisions is only halfway towards achieving success, with the other half being implementation. It is thus imperative to unravel the varying, sometimes complementary, and sometimes conflicting, roles and relationships of the public, private, and civil sectors in city development. The question is how the interests of the different actors are best aligned and marshalled to achieve successful results, which is ultimately down to governance, the politics of governance, and finance. On the one hand, collaboration brings many benefits, not least in terms of additional finance and other resources, as well as through the consideration of a wider set of competences, ideas, and experience. However, on the other hand, too many city actors can slow decision-making, lead to conflict, increase bureaucracy and organizational inertia, and thereby degrade implementational efficiency and effectiveness. Importantly, public, private, and civil interests do not always align, and the public sector must serve all local actors, including civil society which tends to have the least power and resources, while the private sector must consider return on investment and profits. Further, the needs and benefits of the natural environment as an actor in its own right, and on an equal footing with all other actors, must also be prioritized.

A balance thus needs to be found between the potential benefits and drawbacks when negotiating and collaborating with multiple actors, as well as

between the efficiency and effectiveness of the outcomes. The battle is often about the rights different actors have over the value appreciation created by cities. Value is co-created through the collective efforts of public, private, and non-profit investment, as well as through local governments re-zoning and repurposing land, regulation, and other governance initiatives. It is thus also important to understand the different cultures of local governance and financing and how they deliver public value to all who live and work in the locality. All these trends are reinforced at city scale where all the actors tend to have much greater leverage over each other than at national level, given their mutual proximity and shared understanding of local opportunities and challenges, as well as their abilities to quickly mobilize local assets (Katz et al., 2017). A huge challenge and often missed opportunity, however, is that it is difficult to measure public value, or to use this to try to become more efficient or effective. We rarely ask questions about where we duplicate, nor do we try to co-plan the spending and activities of public, private, and civil sectors. This could be much more effective if we could find a way to view the city as a system and to see it as part of wider systems within the nation-state as well as globally. Indeed, research by McKinsey (2017) shows that, if governments globally, including city governments, just did what was already demonstrably working successfully elsewhere as status quo good practice, there would be savings of US$3.5 trillion each year. This book aims to at least partially address this shortcoming.

Privatization and outsourcing

Since the 1970s and 1980s the privatization and outsourcing of public sector functions in almost all countries has become increasingly pronounced, although this varies greatly depending on the governance culture of each jurisdiction. Without deep knowledge of local, regional, and national-level governance structure and cultures, it is not possible to understand how to engage private and civil actors (Katz et al., 2017). For example, the ability of city government to take a leading role in public service delivery relies on deeply ingrained cultural characteristics, so that for example mainland European cities collect and allocate on average 50% of all taxes, whereas UK cities collect just 5% of all taxes. Expenditure extending beyond this 5% stems from the national government and usually comes with strings attached. In this way, devolution to local government of political and fiscal power is closely linked to the long-standing traditions of self-governance, or lack of such, by cities (Noring et al., 2019).

With the extensive privatization of public goods and services, especially while New Public Management and small governance models are prominent, the question of who will care for the most vulnerable in society becomes paramount given they typically do not offer good investment propositions for private investors and developers. Similarly, the question remains of who will

invest in necessary social, economic, and environmental solutions that do not offer convincing returns on investment. Solutions include regulation and standards, although this in practice can prove ineffective if not part of the mandate of the city authorities, although mandates can also be an excuse for inaction. City governments might also legislate themselves out of these dilemmas by, for instance, mandating private investors and developers to reserve a certain percentage of their developments for social housing, or obliging energy providers to offer a certain percentage of their energy from renewable sources. However, intervening in the private market can hamper businesses' ability to compete, especially internationally.

By privatizing public goods and services, the risk is that investment only takes place in solid business propositions with high returns on investment (McGreal et al., 2000), thereby increasing the possibility that the vulnerable population segments in society are neglected. This also leads to the public sector being starved of competencies and resources that it needs for servicing these segments of the population, while the private sector becomes less engaged in the city's shared vision and less efficient in its actions and spending on corporate social responsibility (CSR) and on ESG assessments designed to include non-financial factors like environmental, social, and governance issues. Through extensive privatization of public goods and services, the public sector's ability to define and pursue future visions and solutions is reduced, such as climate resilience where the return on investment is uncertain (Noring, 2018). Also, companies that are either fully or partially owned by public sector institutions have a role to play. A historical overview of the legitimacy and business models of publicly owned companies has recently been provided by Lauesen and Bjerre (2020). The authors underline dilemmas between the quality of the services and products that those services provide and price-setting policies. Whereas the provision of clean water is used as an example, findings might equally be projected, for example, to the provision of energy.

Advocates of the private ownership and management of public service delivery argue that market competition leads to price equilibrium and that more prosperity will thereby be generated. However, this assumes that monopolies do not develop and that the necessary legislation and regulation do not distort markets, which in practice are rarely the case. For example, Jerch et al. (2016) contend that full privatization of local government transit services in the USA "could result in cost savings of $5.7 billion … and that the gain in economic efficiency from more closely aligning bus fares with production costs would be worth at least half a billion dollars" (p. 4). Others point out that this ignores a broader view of the impacts, including societal impact, operational effectiveness, as well as resource savings when measuring success. Without sufficient redistributive mechanisms, such wealth would remain in private hands rather than serve public value (Noring, 2018). This is ultimately a political question, and in many ways, the jury is still out. Politicians most often address the issue of privatization with promises of sweeping

cost savings, but what do they mean when they say 'efficiency'? According to Stone (2013, p. 6):

> the word 'efficiency' is often misunderstood or misused, leading to decisions that cause waste. In our day-to-day lives, all of us have experienced similar 'false economies', decisions intended to save time or money that end up costing more than they save. In public services the two most common kinds of false economies are: inappropriate cuts or savings, and inappropriate privatisation or outsourcing.

Instead of focusing only on the efficiency side of the equation, it is important to examine the direct relationships between government effectiveness and the population's well-being (Garcia-Sanchez et al., 2013).

Who benefits from public investment and rising asset values?

In a local development context, the privatization of ownership often leads to the privatization of 'profits', primarily reflected in land value appreciation, with corresponding public ownership of 'losses' (Noring, 2018; McGreal et al., 2000). Another risk is that when the private sector takes over expensive public infrastructure it often does so under a monopoly blanket which erodes benefits to consumers, such as with airlines and telecoms in Canada. This prevents the public from accessing and reinvesting the revenue stemming from public asset value appreciation that local government helps to create through measures such as land use, zoning, and local infrastructure investments. Ingram and Hong (2012) explain that private land and property owners tend to believe that they are entitled to the entirety of the future gains from their assets, including the value appreciation generated from re-zoning or public infrastructure investments, and that this can lead to political conflict if denied. However, this should be seen in relation to the original productivity of the land combined with the bargaining power of public authorities vis-à-vis private owners. Whereas this is an issue emerging from the ownership of physical assets, the challenges also affect virtual assets, such as innovative digital services provided by the public sector (Mergel et al., 2022; Kuziemski et al., 2022).

The above reflects the many challenges and opportunities facing local governance generally, which are particularly acute in cities. Cities are often highly constrained by national legislative frameworks, block grants, and tax systems. They often thus struggle with governing the needs and interests of highly diverse actors that tend to be more intense at the local level given that communication channels are shorter and expectations higher than at national level. These important issues about the centralization/decentralization of governance power and resources often mean that localities are likely to struggle with the lack of political and fiscal devolution necessary to fulfil both their statutory and desired roles. Some exceptions are, however, derived from

northern European examples where significant success has been achieved resulting in relatively high standards of urban regeneration. In general, however, there are clearly many pitfalls between the potential, the obligations, and the capacities of localities (Noring et al., 2019). On the positive side, research on smart specialization strategies is steadily progressing as part of this place-based approach to innovation policy (Marques Santos et al., 2021; Nakicenovic et al., 2021).

Political economy

Another important consideration is the nature of the political economy of each city and to what extent this contributes directly or not to local economic, social, and environmental development, also at national and international levels. The argument still rages, on the one hand, between the market adherents of New Public Management and small government with its focus on the primacy of economic ends and means and on efficiency, and, on the other hand, a more political interventionist approach which wishes to intertwine social, economic, and environment policy objectives in a local context in order to achieve a more inclusive and sustainable place that will also prosper economically (Millard, 2023b). It is also contended that this market–political dichotomy approach may only be valid in terms of short-term thinking, even though such short-termism tends to be paramount in most countries and localities. In terms of both local and national politics, the main target is the next election, and for the private sector short-termism shows in their obsession with short-term returns on investments, quarterly results, or the next shareholder meeting (Porter & Kramer, 2011). In the longer term, if both politicians and private investors can reorientate their priorities and mindsets, there is strong evidence that economic, social, and environmental outcomes are mutually reinforcing and can all be positively achieved within the context and scope of the locality (Noring et al., 2019). This requires a strong public sector that can direct and support progress towards inclusive and sustainable localities that prosper economically.

The role of civil society

Traditionally, local governance and financing have been in the competence and power of both the public sector and the private sector, each playing various roles, sometimes cooperating, sometimes competing, as exemplified above. In recent years, however, there has been an increasing involvement of civil society in this mix, often in cooperation with these two actors, but also sometimes taking place without reference to them and even under their perception radar. Civil society is composed of a very large number of diverse organizations and institutions, ranging from very informal to formal, including individual citizens, families, neighbourhood groups, communities, non-

governmental organizations (NGOs), social entrepreneurs, and the like and where the concept of community is important, which means their roles and impact are highly diverse and dependent on the local context. Their activities encompass both direct monetary as well as in-kind initiatives, so measurement and impact assessment can be challenging. It is clear that local public value is co-created both through the collective efforts of public and private investment as well as through the myriad socio-economic and cultural activities of civil society.

Millard (2014) finds that the involvement of the civil sector can increase inclusion, trust, the quality of decisions, and overall effectiveness, through the consideration of a wider set of ideas and access to additional assets. In some instances, this can include extra revenue for local development, as well as retaining finance and revenue within the locality rather than seeing this seep away. To date, however, these effects are relatively small compared to the impacts the public and private sectors make, although they can be significant on the ground and in highly specific contexts. It might be argued that one reason why civil activities flourish in the developing countries, especially in urban areas, is that there is a wide gap between a relatively small public sector and citizens' much higher expectations that the civil sector is able to address and fill, particularly by providing very basic services for the most vulnerable in society. In contrast, in cities in the more developed countries, civil society activities are also flourishing but tend to be different in character with a tendency to focus more on cultural, recreational, and environmental activities, although since the financial crisis of 2008, here too there is now more focus on addressing relative poverty and vulnerability (Millard et al., 2019b).

Participatory city governance

Participation, including e-participation, is very important given that, although city governments are not omnipotent, their actions affect millions of citizens' lives. As citizens we have a right to know how our institutions are making decisions, who participates in preparing them, who receives funding, and what information is produced or underlies the preparation and making of decisions. Without this, there is increased danger that high levels of corruption (including perceived corruption) and lack of trust in the city government will undermine their ability to act effectively. A useful generalized approach to participatory governance, proposed by EPA (2023), consists of five levels of engagement from passive to proactive approaches, each of which requires various execution levers to be successful:

1. Inform: encouraging attendance at meetings, providing communication.
2. Consult: asking citizens to contribute to surveys, focus groups, and issue-oriented research.
3. Involve: ongoing contributions to strategy, discussion forums, and budgets.

4. Collaborate: citizen participation on projects, decision-making infrastructures.
5. Empower: co-production where participants make substantial resource contributions, and a regular long-term relationship is developed between decision-makers and service providers and members of the community.

A prime example is participatory decision-making and budgeting that allows citizens or residents of a locality to identify, discuss, and prioritize public spending projects, and gives them the power to make real decisions about how money is spent, which almost always takes place at city or even neighbourhood level. The first and archetypal example is the city of Porto Alegre in Brazil, now recognized internationally as a ground-breaking initiative at the local level where, since 1989, the city government has engaged over one million residents in its multi-channel (online and offline) participatory decision-making in the provision of a whole range of public services and utilities. Participatory budgeting processes are typically designed to involve those left out of traditional methods of public engagement, such as low-income residents, non-citizens, and youth. A comprehensive case study of eight municipalities in Brazil analysing the successes and failures of the concept has suggested that it often results in more equitable public spending, greater government transparency and accountability, increased levels of public participation (especially by marginalized or poorer residents), and democratic and citizenship learning (Wampler, 2007).

A more recent example currently gaining recognition around the world is citizens' assemblies (sometimes termed citizens' juries) as a form of deliberative democracy, i.e. processes through which citizens can engage in open, respectful, and informed discussion and debate with their peers on a given issue, informed by expert evidence, facts, and possible solutions. Although there are numerous examples of citizens' assemblies at national level, most take place within cities and sometimes even in city districts. They are typically made up of a representative group of around 50–200 citizens, who are chosen at random from the general public, like a jury. The selection of members is normally stratified to ensure that participants are as representative as possible of the overall city population according to certain criteria – usually gender, age, ethnicity, education, occupation, geographical location, and social background. Members of the assembly normally meet over several weekends – from 2 weekends to 12 or more – to learn about, deliberate upon, and make recommendations in relation to a particular issue or set of issues. This is typically supplemented by online digital material and discussion. The topics debated by an assembly are generally set by the city government, although members can sometimes choose their own agenda as can the general public through online petitions and similar (Electoral Reform Society, 2019). Examples include the Singapore Citizens' Jury on Data Sharing with Private Industry in Precision Medicine[4] and in Musashino City, Tokyo on the climate.[5]

The sharing and collaborative economy

The current market system is extremely good at 'sweating' assets on the supply side, so that commercial producers are incentivized to squeeze to the maximum possible extent their financial, human, and other assets, and thereby increase productivity and performance. However, on the consumption and demand side, there is huge economic waste resulting from the widespread practice of exclusive asset ownership. In the last decade this has started to be challenged by a new sharing economy growing from a small base, in which mainly individuals and families share with others in their localities an increasing range of their assets, such as time, skills, competences, tools, buildings, clothes, vehicles, spaces, repair and other facilities of all types, organizational capacities, and even financial resources. Much of this sharing is communicated by digital tools, especially the internet and mobile devices that can very efficiently match idle assets with new forms of demand, which is not otherwise possible, thereby increasing the efficiency of asset use. Given the need in most cases for physical access to assets, the sharing economy is strongest in cities and even city districts and neighbourhoods. It supplements exclusive ownership with new forms of common, collective, and collaborative ownership that typically results in non-monetized, in-kind transactions at the local scale (Sundararajan, 2014; Hatzopoulos & Roma, 2017).

The issue is how to create (new) value especially at the local level and how to measure it, especially around existing assets, many of which are physical and anchored in localities. Does the sharing economy not only hijack and destroy parts of the existing urban market, but also create new forms of demand and thus new market value around these existing assets? Whatever the balance between centralizing and decentralization tendencies, and of cannibalizing existing demand and creating new demand, there is no doubt that radically new business models based on new forms of value creation, and new ways for people to interact around economic and social goods/services are being created, especially in localities and cities. The sharing economy is currently at the stage where this is a critical issue and seems to be having the most profound implications for local governance and financing, as well as ushering in new business models. However, many, such as Uber and Airbnb, have become global commoditized private companies that are starting to undermine and transform many of the traditional tenets of governance, regulation, and taxation, especially at local level. Viswanath (2020) has shown how Uber and Airbnb through corporatization and such commoditization often create a parasite economy by sucking value out of localities away to global corporations which pay little tax and do not reinvest in the city. What was once hailed as a new way to find and use local value locally is in danger of parasitically transferring value elsewhere and/or concentrating all value in the hands of a few.

There is a tension between the more traditional, locally grounded and bottom-up social innovation approaches to the sharing economy curated by

civil society that is largely non-monetized and has its main focus on participation and community building, on the one hand, and the more recent large-scale highly monetized and profit-seeking 'sharing economy' companies, on the other. Perhaps both types will continue to thrive side by side, although there is evidence for a clear shift towards monetization. Thus, the emerging sharing and collaborative economy is not only a phenomenon with potential and real positive social and economic effects but also a set of public problems, such as on the labour market and for existing economic structures. This requires intervention by city governments, probably supported by national governments as well as at international level (Koczetkow & Klimczuk, 2022).

At its core, the more traditional sharing economy is social innovation aimed at transforming how some of the fundamentals of our political economy are practised (Selloni, 2017). At present, property ownership rights, while including the right to use and consume, are configured around the right to exclude. The sharing economy is characterized by the organized practice of exercising the rights to include and to share. The common realization driving these initiatives was one of under-utilized assets, later sometimes superseded by profit-seeking. Whereas the traditional problem of the commons was the overuse and thus depletion of assets because of the 'free rider' effect, the problem of private property ownership as the right to exclude is the systematic under-utilization of assets. In the early days of the sharing economy movement, and this remains true today, phrases such as 'under-utilized assets equal waste' and 'waste can be turned into value' helped to build its active following and to scale the sharing economy. Currently, this has had its greatest manifestation in circular economy initiatives, most of which take place at local level through collaborations between public, private, and civil sectors through monetized and non-monetized exchange.

Trust and community are at the heart of the non-monetized sharing economy, and this promotes personal and long-term relations in new ways creating loyalty and community around the shared economy service that is resilient to commoditization. The shift from selling a product once in a market transaction, to selling access many times when needed, already leads to a relationship. There seem to be two main impacts of this. First, on human empowerment by giving people access to goods and services in ways and on a scale not possible before, and second on economic and social value creation by exploiting the 'idling capacity' of unused assets which can now be unlocked through shared access. There are also very important impacts on sustainability, given that when scarce assets become shared assets, they become less scarce, so more value can be obtained from fewer assets (Millard, 2023a).

Changing behaviours

A relatively new set of initiatives, typically undertaken in cities and initiated or supported by city governments in close collaboration with the private and civil sectors, attempts to change the behaviour of individuals towards

activities that are beneficial both to themselves as well to the wider society in which they live, work, and play. Whereas social innovation focuses mainly on collective and cooperative action, behavioural change focuses more on individual action, although this also needs to be seen in its social context and in the relationships between individuals. There is thus an important complementary relationship between social innovation, new social practices, and behavioural change. A pragmatic approach to changing behaviours is, first, to recognize that all behaviours and decisions are to an important extent framed by the existing choice architecture in a given context and the psychological responses that are triggered. This choice architecture creates the environment that influences decision-making and includes, for example, visibility, awareness, communication, costs (price, effort), ease of use, transparency, prompts and incentives, feedback and reinforcement, appealing to social norms, rules and regulations, etc. Once this is recognized, changes to the choice architecture can be implemented to 'nudge' people towards personally and socially desirable behaviours, like choosing healthier foods, reducing food waste, opting for public rather than private transport, repairing assets rather than discarding them, etc. (Thaler & Sunstein, 2008).

Nudging also recognizes that a very powerful influence on an individual's behaviour is linking this to what other people are doing, for example through social networks, both offline and online and typically at local level. A focus on an individual's peer relationships can be important as they often wish to conform with the behaviours of people close to them or whom they admire. Experience also shows that people will make better decisions, like purchasing an electric car, not only because of concern for air pollution but as this also gives them a better quality of life and lifestyle, reduces stress, and improves health and well-being as part of an overall value-set. Thus, appealing to individual benefits and especially to people's overall values, rather than only saying this is the 'right thing to do', can be critical. Nudges towards good decisions should also include making them as easy as possible to do by reducing complexity and the number of steps, by highlighting the disadvantages of the status quo, and by making the benefits very concrete and clear even if they may only materialize over the medium- to long-term. Thus, there is a need to look for win-win-wins in terms of behavioural change across multifaceted but related issues, and removing, or at least reducing, 'sludges' as the opposite of nudges as existing built-in barriers to making good decisions (Thaler & Sunstein, 2021). The danger of nudging behavioural change is that it can become manipulative like some of the worst aspects of commercial advertising and social media, but this can be largely mitigated through full honesty, transparency, and dialogue about the purpose and changes made to the choice architecture, as well as accurately and fully reporting the benefits and any downsides.

Human societies are complex systems in which tipping points can occur that change behaviour when a small perturbation transforms a system.

Crucially, activating one tipping point can increase the likelihood of triggering another at a larger scale, and so on (Sharpe & Lenton, 2021). Based upon multiple empirical examples, Centola et al. (2018) showed that a critical behavioural and mindset tipping point threshold is passed when the size of a committed minority reaches roughly 25% of a given population. At this point, social conventions suddenly flip, if this 25% is highly proactive, uses effective communication, and recognizes the above good practices. When these conditions are met, between 72% and 100% of the people in experiments are likely to swing round, destroying apparently stable social norms. This seems to show that the power of small groups comes not from their authority or wealth, but from their commitment to the cause. An example that tended to follow this pattern was the relatively rapid flip in most countries since the 1970s towards decriminalizing homosexuality and, more recently, the now widespread acceptance in most developed economies of same-sex marriage. In the last five years, Greta Thunberg's school strikes in 2019 snowballed into a movement that led to unprecedented electoral results for Green parties in many cities and also sometimes at national level. Survey data revealed a sharp change of attitudes, as people began to prioritize the environmental crisis. *Fridays for Future* came close, the researchers suggest, to pushing the European political system into a critical state. It was interrupted by the pandemic, so the tipping point was not quite reached at that time (Wilkelmann et al., 2022).

Conclusion

To take account of the above discussion of city governance and resourcing in localizing the SDGs, the following iterative steps to action can be proposed:

1. **Vision and mission:** Outline an overall idea and a draft vision and mission for SDG localization in the city, to be undertaken by the main initiator(s), normally led by the city government. This will typically reflect and align with the existing policies, needs, opportunities, resources, and powers the city's stakeholders have.
2. **Governance structures:** Fully map governance structures that both provide opportunities but also address barriers in terms of governance levels, roles, powers, and resources within which SDG localization can take place – both external to the city (region, national, maybe international) and internal (districts, neighbourhoods, communities, blocks, streets, etc.). These structures are normally well appreciated by the city government but may need to be adapted and/or developed, depending on the vision and mission which itself may need to be revised in light of this mapping. The city government stakeholder (see below), depending on its particular powers, mandate, and resources, needs to find the balance between, on the one hand, an appropriate top-down framework that can provide necessary minimum standards, better cohesion, and 'joined-up-

governance' and, on the other hand, hyper-local and stakeholder sensitivity that more precisely takes account of local needs and promotes diversity, empowerment, flexibility, and accountability.

3. **Legitimate stakeholders:** Fully map all legitimate stakeholders (both within but also potentially outside the city) that are affected by the vision and mission, in order to understand and determine their different roles and the financial and other resources they might contribute (e.g. HR, infrastructures, assets, knowledge and expertise):[6]
   - i The city government has the democratic mandate to balance all stakeholder interests, and some legal and regulatory powers (plus exploiting possible powers and resources from other governance levels). Its role should also include facilitating and orchestrating strong stakeholder involvement, providing data and tools for this to happen, managing assets across the city, and normally having prime responsibility for ensuring the successful implementation of the city's SDG localization.
   - ii The private sector has strong legally determined shareholder and other commercial interests, but must also take account of legitimate community, employee, and customer interests in order to be commercially successful.
   - iii The knowledge, research, and educational sector can provide expertise and research capacity.
   - iv The civil sector, both formal and informal, comprising NGOs, social enterprises, charities and voluntary organizations, community groups, individuals, etc.
   - v The natural environment, both living and non-living, providing essential life-support systems, plus materials, land, biodiversity, innovation potential, etc.
4. **Stakeholder agency and involvement:** Determine how all identified stakeholders can be adequately involved in achieving the vision and mission to get as many as possible on board to ensure full inclusivity and collaborative potential. The interests of relevant non-incorporated stakeholders must also be considered. A balance must be found between the overall number and diversity of stakeholders and the requirements of appropriate good governance to most efficiently and effectively achieve the vision and mission, which may need to be revised at this stage.
5. **Objectives and action plans for SDG localization:** Draw up detailed objectives and action plans for SDG localization amongst all relevant and onboard stakeholders to meet the vision and mission. These should include the specific roles, actions, and resources assigned to each stakeholder, the governance structure(s) required, the need for measurement and monitoring tools, and appropriate timetables, taking account of both the value of exploiting low-hanging fruit but primarily the need to achieve the medium- to long-term objectives that contribute to the overall vision and mission.

6. **Implementing SDG localization:** Activate, measure, and update the action plans; monitor their contribution to the SDG localization objectives; and ensure their outcomes and impacts directly contribute to the overall vision and mission.

It must be stressed that all steps 1–6 are simply components of an iterative, spiral process that is likely to require a careful and inclusive balance between ongoing updating, on the one hand, and sufficient continuity and certainty that avoids unnecessary disruption, on the other, to optimize the overall achievement of SDG localization in the city.

Notes

1 www.fixmystreet.com.
2 www.sensornet.nl/english.
3 www.schoolforlifegh.org/.
4 www.youtube.com/watch?v=6oy9WNsv_JA.
5 www.city.musashino.lg.jp/gomi_kankyo/shoene_eco/oshirase/kikoshiminkaigi/kikoshiminkaigi_kekka/index.html.
6 The following list is also known as the quintuple helix of stakeholders, e.g. see UNESCO (2016).

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3

UN VOLUNTARY LOCAL REVIEWS BY CITIES

Sylvie Albert and Manish Pandey

Introduction

We started this book because we wanted to show the many kinds of projects that are possible to solve each of the United Nations (UN) Sustainable Development Goals (SDGs) and to understand the forms of collaboration that are needed and perhaps being used by cities and their stakeholders. This chapter is a stocktake of activities being undertaken by cities we studied who completed an English[1] Voluntary Local Review (VLR) report[2] between January 2021 and December 2022, and we added a few cities from the 2023 submissions to improve underrepresented regions.[3] As shown in Table 3.1, 40 reports from 40 cities were analysed, extracting the projects that cities have undertaken under the 17 UN SDGs and classifying these projects into common groups and themes. The sample geographic distribution is dependent on the cities providing a VLR and heavily weighted towards Asia and Europe. This chapter is not the only reference point – we also have chapters written by cities throughout the world explaining their experience and perhaps giving more 'why' and explanations on implementation including resourcing, which will be useful to other cities thinking of undertaking a VLR or increasing their footprint in sustainable development.

We read each VLR report with a view to extracting the projects being undertaken under the UN SDGs. We found good evidence of measuring progress along individual indicators, but we know that most of the SDGs are interrelated, and it was difficult to understand coordination between the goals. Poverty and hunger as an example are influenced by and impact health, work, gender, and inequality.

The interdependence between projects and goals is not the only challenge – there isn't always a description of the stakeholder approach to solving

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TABLE 3.1 Size and number of cities by region

Size	*Africa*	*Asia*	*Europe*	*Middle East*	*N. America*	*S. America*	*Grand total*
Small: less than 100K			1			1	2
Medium: 100K to 1M		5	12		2	1	20
Large: more than 1M	2	9	3	1	1	2	18
Grand total	**2**	**14**	**16**	**1**	**3**	**4**	**40**

Source: Author calculations.

complex issues or a description of the sustainability of these initiatives which requires governance mechanisms that support coordination. As a result, we cannot explain the 'why' or delve deeper into patterns and its influencing factors – what is mandated or not, what is not being done due to resourcing issues, how stakeholders are used to help fix system-wide problems. Still, there is much to be learned about how cities are responding to the SDGs, what tools they are using, commonalities, and innovations, and this is what we hope to convey in this chapter.

About 58% of cities choose to work on a larger number of goals (10 or more goals) with those attempting to have an impact on all 17 UN SDGs a significant number in the sample (9 cities or 23%). This does not mean that cities aren't working in all areas of the UN SDGs; they choose to highlight goals that have been identified as priorities. If we choose to work on many goals, we probably need coordination, particularly if several stakeholders have a role to play in the outcome of each goal. Also, we need coordination to understand how individual SDGs relate to one another and what kinds of collaborations are needed to effect a change.

In business strategy we apply the rule of three – a smaller number of goals, an average of three as a starting point, allows for better understanding, engagement, a manageable number of projects to achieve under each of the goals, as well as successful monitoring/evaluation processes. There are arguments for and against choosing a smaller number of goals – resources (talent and financing) are an important consideration, but also politics and accountability may be strong incentives for cities to undertake projects in more areas. When cities choose to work on more, due to political requirements and timeframes, a sense of urgency around many of the goals, or citizen demands, it may signal the importance of dividing up the responsibility for working on these goals – the coordination requirement we mentioned already. However, cities may be reporting on more goals without necessarily having a clear community vision – they are reporting on the work of local stakeholders as well as those of the city, which is exactly what we hope will happen because

more engagement can lead to better results, however, and ideally, setting collaborative goals and a shared plan for action is better. Unless the city has large enough resources to tackle many priorities, and the political strength to continue working on goals beyond politically mandated timeframes, involving more stakeholders and coordinating between multidisciplinary actors allow a city to be more effective and sustainable.

Figure 3.1 provides an overview of the proportion of cities in our sample that are working on each SDG. Table 3.2 gives a comparison between regions of the intensity of work being done on individual SDGs. For some regions, the sample is small and therefore not indicative. For other regions, it may paint a picture of the focus that tends to be placed on specific SDGs and less so on others. For example, in Asia, less than 50% of cities were working on SDGs 6, 14, and 16 whereas in Europe there was almost full billing for all SDGs. There may be political, economic, or social reasons for this, which could be further investigated in future studies.

Even if a city is well endowed from a resource perspective, engagement of stakeholders is needed for more significant achievements. Otherwise, the sustainability initiative risks providing 'surface' coverage, or achieving a minimum of results in many of the goals. Good strategy development and implementation requires significant engagement – whether it is at the organizational level where employees and leaders need to work together to accomplish goals, or within a geographical area where many stakeholders have a reason to be engaged, or perhaps a mandate to do so. Unfortunately, we tend to build silos and perhaps our desire to specialize has encouraged us to do so. Yet we cannot achieve individually nearly the sorts of outcomes that could be achieved collectively. Regardless of whether we are working on the UN SDGs, or other measurement methods on sustainability such as smart cities, intelligent communities, wellness indicators, resilient cities, the International Organization for Standardization (ISO), and others – these are a call to

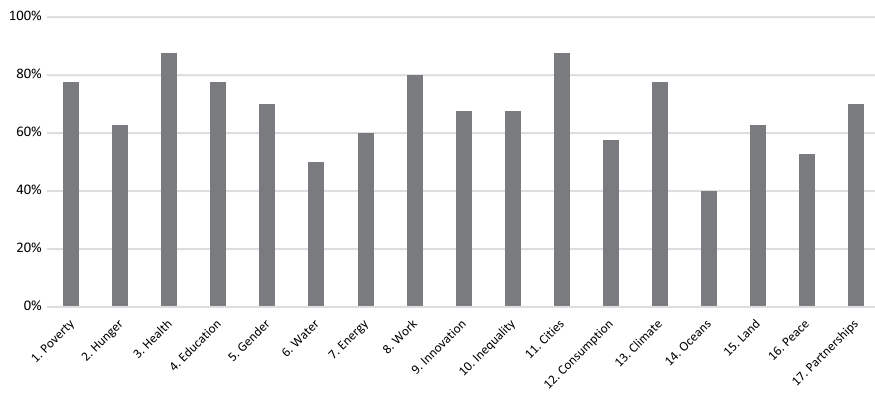

FIGURE 3.1 Percentage of cities in the sample working on each SDG (N = 40)
Source: Author calculations.

TABLE 3.2 Regional contributions to individual SDGs

	Regions						
SDGs	*Africa*	*Asia*	*Europe*	*Middle East*	*N. America*	*S. America*	*Grand total*
#1	2	12	12		2	3	31
#2	1	7	11		3	3	25
#3	1	12	14	1	3	4	35
#4	1	10	14		2	4	31
#5	1	9	13	1	1	3	28
#6	2	6	10		2		20
#7		8	13	1	2		24
#8	1	13	13	1	3	1	32
#9	1	12	10	1	1	2	27
#10		10	12		3	2	27
#11	2	14	13	1	3	2	35
#12		10	11		2		23
#13	1	11	14	1	3	1	31
#14		4	10		1	1	16
#15		11	11		2	1	25
#16	1	6	11		2	1	21
#17	2	10	13		2	1	28
Sample size	2	14	16	1	3	4	40

Source: Author calculations.

resolve a host of interconnected problems that require collaboration. They are often described as 'wicked problems' (Camillus, 2008) that require innovation and diversity of thought.

Have we seen this level of implementation planning and coordination in our VLR evaluations? Not often enough. Some cities do set goals and programmes to achieve these goals; most report on projects they are working on without a vision of how this will improve the challenges that they face. How will we know if we have been successful if we are not working towards a set goal or monitoring achievement? Even if we can improve our goal setting, we have a lot to learn from each other (internally and externally to the city), which is why we are providing insights on what some cities are doing to meet sustainability challenges; this evaluation of 40 VLRs internationally is meant to begin this sharing of information.

We have made a distinction in our reporting below between programmes and projects. According to Weaver (2010), programmes are a larger undertaking over

time, perhaps with several projects under them or with several organizations working towards achieving specific goals. Projects on the other hand are created to achieve specific deliverables, and can be smaller in scope or in duration. These terms are often used interchangeably by organizations and we apologize if we have classified some of these wrongly, but we have attempted to delineate where possible.

SDGs 1 and 2: Eliminate Poverty and Hunger

Seventy-eight per cent of the 40 cities analysed had one or more programmes to alleviate poverty and 63% are working to address hunger.

Of the cities tackling these two issues, 74% had *financial support* programmes for poverty, but only 32% for hunger. These include direct financial aid provided by the city, foundations, or partnerships with various stakeholders, in the form of poverty funds, income supplements, basic income, child benefits, food grants, or service cards for food access. Some choose to target seniors or children whereas others provide broader support to various segments of the population. Among some of the targeted aids are funding programmes to support fishing or farming, and training and public land use for citizen farming as systematic tools to deal with poverty and hunger.

Poverty

Housing programmes are the second most prevalent tool for dealing with poverty with cities providing affordable housing programmes; seed financing for housing development for the poor; encouraging cooperatives; providing free utilities; shelter or warm places for the energy-poor; or safe parking for people living in cars. Of the cities reporting on poverty initiatives, 13 of the 31 (42%) had affordable housing and housing for the homeless; however, there were another 5 who reported these initiatives under SDG 11, which would bring the total of cities reporting on affordable housing to 18 of 33 cities (2 cities did not indicate they were working on poverty and chose to report on affordable housing in SDG 11 only), representing 55% of cities working on affordable housing through SDGs 1 and 11. The problem with SDGs being interrelated is that people may interpret and report on initiatives in different categories; in this case, some 7 cities of the 13 reported on their affordable housing initiatives in both SDG 1 and SDG 11 (double counting). Others reported in one of these two goal areas only, but 5 of the 18 interpreted differently where it belonged which makes comparisons difficult.

The various assistance category includes utility bill reductions, safe places for the unsheltered, mobility subsidies, free education, free access to utilities, subsidized recreation and cultural activities, family centres, and free medical services.

Innovation includes programmes that require rental lessors to consider requests from the homeless first (City of Helsingborg, Sweden, 2021), rent aid for youth (Basque Country Government, Spain, 2022; City of Kuala Lumpur, Malaysia, 2022), and various housing payment schemes and first house support (Municipality of Sepang, Malaysia, 2023; City of Toyota, Japan, 2022).

Several cities provide jobs through public works or other public–private partnerships, and some implement prevention and forward-looking policies on entrepreneurship by providing training and support for micro-enterprises amongst at-risk populations which build self-sufficiency through the sale of surplus agricultural yields initiated on public lands.

Hunger

Provision of food is an initiative by 72% of the cities that report working on SDG 2, and perhaps more since this may be an area that is already embedded into most cities and therefore not fully reported. Food is provided through mobile food banks; donation programmes; meal vouchers; community food centres; schools; food aid vouchers; and surplus food collection and delivery (Region of Lombardy, Italy, 2022). Several cities place a focus on children and seniors, and some (City of Bristol, United Kingdom, 2022) identified that they doubled their efforts around the summer holidays for students, showing how data can help make decisions around need.

Seodaemun-gu (District of Seodaemun-gu, South Korea, 2021) identified that they are collecting data on their food systems and creating family-to-family matching for food sharing. Ghent (City of Ghent, Belgium, 2021) is working with universities on research, developing co-ops, and providing food-saving platforms. The importance of understanding local issues is highlighted with Winnipeg (City of Winnipeg, Canada, 2021) rebuilding culturally relevant food systems such as for indigenous communities, and Orlando (City of Orlando,

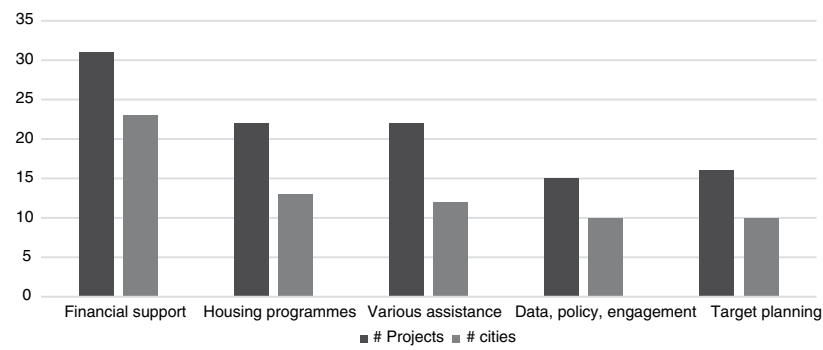

FIGURE 3.2 SDG 1: cities working to reduce poverty (N = 31)
Source: Author calculations.

United States, 2021) maps the distance that residents need to travel to obtain food. Almost one-third focus on education – nutrition, school programmes on farming, and education/promotion of organics.

Finally, 64% of the cities that report working on SDG 2 are involved in or concerned about sourcing and production of healthy foods (16 of the 25). Some are promoting urban farms, rooftop farming, and even starting city-owned farms. Food system sustainability is the object of policies on biodiversity and monitoring of production systems. Ghent (City of Ghent, Belgium, 2021) explained that they developed a cooperative website and are working with universities on food-saving strategies; several cities are involved in developing better frameworks for food production for more resilient agriculture and land use policies that support healthy food production at the local level.

Bristol (City of Bristol, United Kingdom, 2022) faces financial challenges as many cities do with reductions in government funding and they have met these through strong partnerships between the public sector, private sector, civil society, unions, and academia. Child poverty has increased over time in Bristol, most of it due to the rising cost of housing. The "One Bristol" collaborative strategy includes making courses and education more accessible, providing easier access to financial advice and benefits, channelling youth into apprenticeships, and supporting families with affordable housing. Bristol is working to improve access to food through meal vouchers and holiday activity funds as well as bringing together over 70 organizations to tackle a food equality strategy. This includes a comprehensive urban growing and procurement plan, food education, and a food infrastructure and governance system. Finally, Bristol is collaborating with various credit unions/banks and business associations to double the number of living wage–accredited employers and raise workers out of poverty.

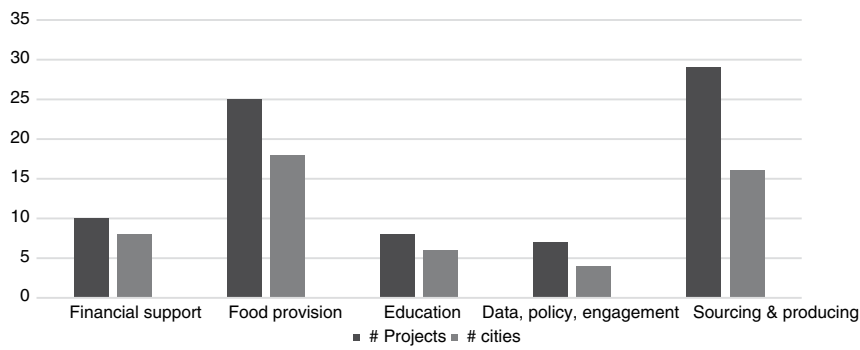

FIGURE 3.3 SDG 2: cities working to reduce hunger (N = 25)
Source: Author calculations.

SDG 3: Health

Thirty-five of the 40 cities reported working on addressing issues related to health and well-being. The most popular initiatives were preventative care programmes (69% of the cities working on SDG 3), closely followed by physical activity promotion (63%). These two categories also accounted for more than 50% of health-related projects reported by cities. Since provision of healthcare in most countries is a national or state government responsibility, it is not surprising that few cities report projects on developing health infrastructure or offering financial assistance for health-related issues. This does not stop some cities from getting involved in health and signalling strong leadership, an understanding of the interrelatedness of the goals, and the importance of engagement.

Several projects reported by cities on improving health included introducing or improving the use of technology to address access to health services and monitoring the health of citizens. These include encouraging use of electronic infusion devices to reduce the demand for hospital beds for treatments (Region of Lombardy, Italy, 2022); developing heat maps to help address heat-related health problems and their impact on increased mortality among high-risk groups (City of Stockholm, Sweden, 2021); and offering health apps to promote positive healthy habits (City of Yokohama, Japan, 2021), among others.

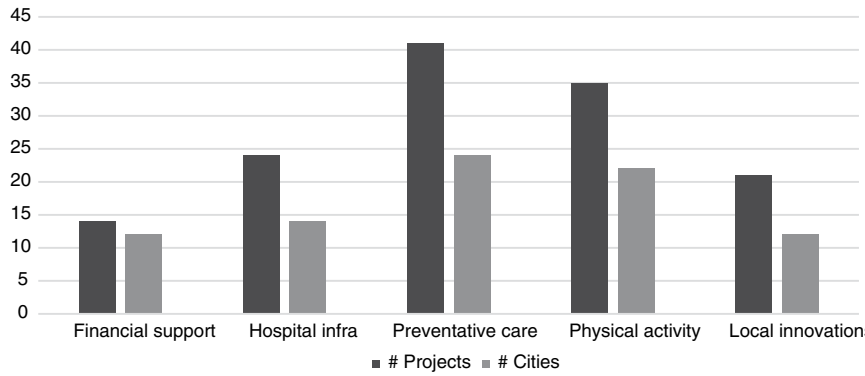

FIGURE 3.4 SDG 3: cities working to improve health (N = 35)
Source: Author calculations.

Among the cities that we analysed, Amman (City of Amman, Jordan, 2022) provides one of the most comprehensive descriptions of their work on SDG 3. The VLR for Amman not only presents the current state of health of its citizens and their access to health services but also addresses the challenges that it faces in provision of healthcare. The assessment concludes with stating,

> Amman's performance on the targets under SDG 3 reveals the need for further modernization of the healthcare system to address the financial,

> organizational, and managerial challenges that lead to inefficiencies in service delivery. A shift towards disease prevention and reduction of relevant disease risk factors is needed, specifically a focus on mental health, healthcare surveillance, efficient monitoring and evaluation of healthcare programme implementation, and healthcare insurance system modernization. *(p. 73)*
>
> Healthcare is provided by a number of national and international agencies, with a limited role for the city of Amman. However, the city monitors progress in healthcare provision and has developed plans for improving accessibility and providing more preventative care.

SDG 4: Education

Thirty-one cities (78% of the overall sample) report working on quality education. Of these, a significant number of cities work on skills programmes (81%) and the most popular programmes are those that link education to work, particularly in providing information and communications technology (ICT) and science, technology, engineering, and mathematics (STEM) skills. We also noted efforts on providing more education on sustainability. Less popular but worthy of note are programmes to prepare students for future international challenges, or in learning entrepreneurial skills such as how to make things through digital maker hubs, and how to innovate.

The strategy next most widely used is improvements to educational systems – 58% of cities report working on this SDG. These cities are concerned about the quality of education and several are engaging stakeholders to review their educational systems for improvements: increasing the ratio of teachers to students, providing more training to teachers, and focusing on literacy and educational completion. Tokyo (Tokyo Metropolitan Government, Japan, 2021) as an example had an innovative perspective on the role of education starting with a strategy they call "putting smiles on the faces of children". Their implementation of this goal starts with the parents by ensuring they are provided with the tools to support and raise children. Within schools, the core actions include learning through nature experiences and free tutoring, workshops hosted by athletes, promotion of model companies that support students, and more.

Safety is addressed by some cities, and it includes safe walks to schools, diversity programmes, and actions against bullying – several cities are monitoring and getting involved in making improvements.

In the 'other' category, there are programmes being made available in libraries or outside the city for easier access, for example, Bristol regional university programmes (City of Bristol, United Kingdom, 2022), and educational programmes being developed with industry such as for farmers to improve resilience.

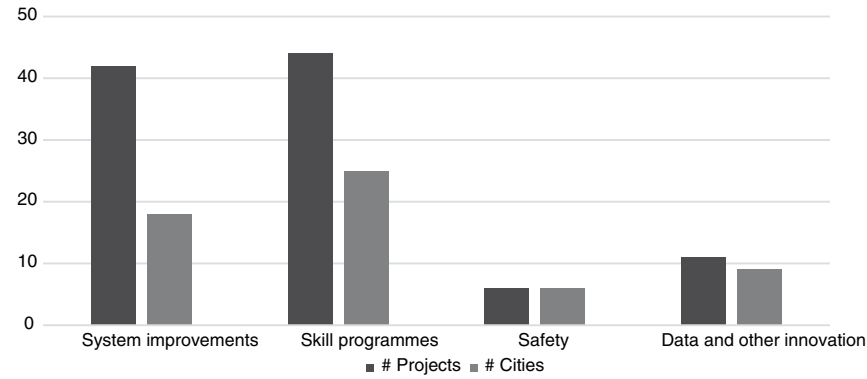

FIGURE 3.5 SDG 4: cities working on education (N = 31)
Source: Author calculations.

Buenos Aires (City of Buenos Aires, Argentina, 2022) set out to transform its education system after a difficult pandemic period. Theirs is a plan to improve school infrastructure, modernize content, incorporate more technology, reinforce English teaching, and promote teacher training. They started with reconnecting with students, reaching 98% of children, and they added weeks in the school year to give students more time to learn the content that they had missed. What is most interesting is the extent of the commitment to sustainability through such strategies as bringing students in their last year of secondary school closer to the labour world via specific and mandatory pedagogical experiences. Some 500 public and private organizations are committed to educational training and work environments and 6,800 students have completed their internship. They provide financial education to all, a fundamental skill in modern society, essential to inclusion and to promoting resilience in the long term. They engage students as change agents in green schools, promoting sustainable behaviours. Students and teachers are trained on sustainability, and they live the talk, recovering recyclable materials, developing gardens in hundreds of schools, and implementing automatic power cut-off systems as well as transforming infrastructure to advance renewable energy.

SDGs 5 and 10: Gender and Inequality

There were similarities in the intent of SDG 5 and SDG 10 to make improvements to systems that disadvantage different members of society but the ways that cities choose to deal with these two goals are quite different. Gender-related goals are met mostly through policy and employment, whereas inequality goals have a rich variety of efforts with many innovative projects.

Gender

Policies are the favourite tool, used by 86% of the 28 cities that report working on SDG 5. This includes public education on gender issues, empowerment of women in politics and governance, and commissions to better understand women's issues. Education and access to jobs and opportunities rank second with 54% of cities engaged in either entrepreneurship support, or encouraging business networks and employment for women. Among the more interesting examples are efforts to encourage gender balance in the workplace such as awards for companies demonstrating gender balance (City of Yokohama, Japan, 2021), and the engagement of 60+ private sector companies in mainstreaming gender equality in the workplace (City of Buenos Aires, Argentina, 2022).

Under support programmes we see expanded nurseries, breastfeeding sites, advisory services, fathering groups (City of Ghent, Belgium, 2021; City of Helsingborg, Sweden, 2021), and support for parental leave. Youth and/or LGBTI inclusion programmes are also implemented by some cities (City of Ghent, Belgium, 2021; City of Helsinki, Finland, 2021; City of Amman, Jordan, 2022; City of Francisco Morato, Brazil, 2023).

Finally, several cities are also providing protection from harassment, domestic violence, crisis support, child shelters, and gender-based violence programmes.

Inequality

Most of the cities working on inequality choose redress policies (82% of cities engaged in SDG 10) where they institute programmes to protect tenancy or support housing affordability, open all-day schools, encourage living wage initiatives, provide digital skills, launch rights education programmes and training for targeted personnel, provide basic healthcare, target youth for

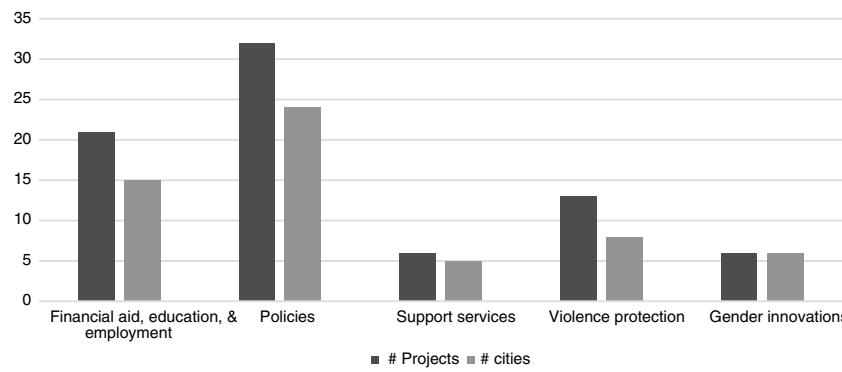

FIGURE 3.6 SDG 5: cities tackling gender issues (N = 28)
Source: Author calculations.

inclusion, and encourage anonymous recruitment initiatives. In short, there are wide variations in the strategies employed to redress inequality. Housing features again under SDG 10 with affordability goals, for example Orlando (City of Orlando, United States, 2021) and Toyota (City of Toyota, Japan, 2022), and protected tenancy (Basque Country Government, Spain, 2022).

Support programmes are the second most popular at 57% and this includes wellness, aging support, citizen engagement, and targeted programmes for the disabled or disadvantaged. Again, lots of innovation and different methods are used to address inequality by cities with some demonstrating engagement initiatives from neighbourhoods, households, and partnerships with the private sector. Mobility efforts for the aging and disabled are enhanced with on-demand deliveries, as in Toyota and Tokyo, and with improved transportation facilities, for example Vantaa (City of Vantaa, Finland, 2021) and Sepang (Municipality of Sepang, Malaysia, 2023).

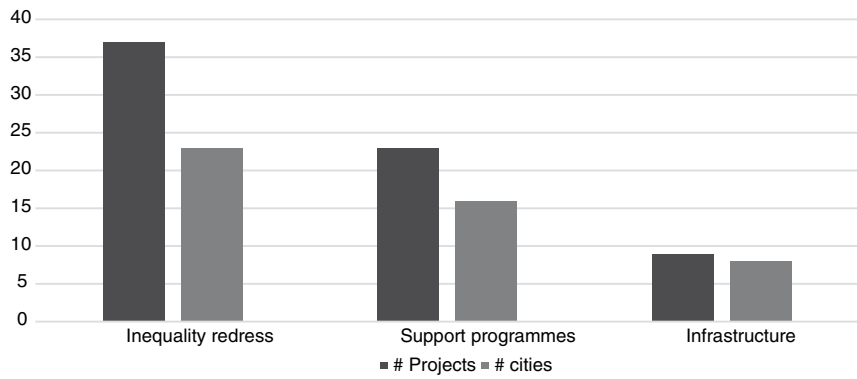

FIGURE 3.7 SDG 10: cities working on inequality (N = 28)
Source: Author calculations.

The most significant examples of gender violence programmes are described in Chapter 4 on Mexico City and worth noting for its engagement of citizens in prevention and protection.

In our VLR assessments, we note the work of Tampere (Finland) which has organized an international gender equality prize and gala since 2018. The city established a multidisciplinary network of more than ten operators from public administration and tertiary sector actors who work to prevent domestic violence, support persons belonging to sexual and gender minorities, and promote equality.

On the inequality front, Bonn (City of Bonn, Germany, 2022) provides significant contributions under a comprehensive 'Social City' concept which includes the expansion of education networks; professional integration of the older, long-term unemployed; programmes for social cohesion; boosting self-confidence in

children and young people; and greater involvement of students in neighbourhood life. There are several examples in the VLR report worth exploring, including a competence centre for women and work as a joint effort with the private sector (90+ small and medium-sized enterprises (SMEs)) to promote family- and child-friendly structures. Similarly, their equal opportunities office is involved in Girl's and Boys' Day, Equal Care Day, and cooperation programmes against sexualized violence. Another example is a network to support an inclusive labour market and a 'Bringing inclusion to life' network project.

SDG 6: Water and Sanitation

Only half of the cities in the sample are reporting on clean water and sanitation programmes – we know that this is most likely a concern for all but probably considered an ongoing agenda. Planning and monitoring are undertaken by all cities reporting on SDG 6 including efforts to reduce waste and contamination, monitoring of water quality and drainage, and programmes to improve efficiency in water use. Innovation is likely to help in managing aging infrastructures and improving water management, for example in the design of sewer systems (City of Helsingborg, Sweden, 2021) and in using storm water (City of Helsingborg, Sweden, 2021; City of Helsinki, Finland, 2021; City of Orlando, United States, 2021; City of Suwon, South Korea, 2021; Government of Yiwu, China, 2021; City of Melbourne, Australia, 2022). Cities such as Yangzhou (City of Yangzhou, China, 2022), that have waterways to protect, are focusing on cultural heritage protection, sustainable development, and water quality.

About one-third are involved in public education and engagement to reduce usage and replacing harmful practices such as reducing chlorine and replacing with ozone-friendly products. Among some interesting initiatives are storm water storage for irrigation (City of Melbourne, Australia, 2022) and biodiversity programmes, for example in Helsingborg and Orlando.

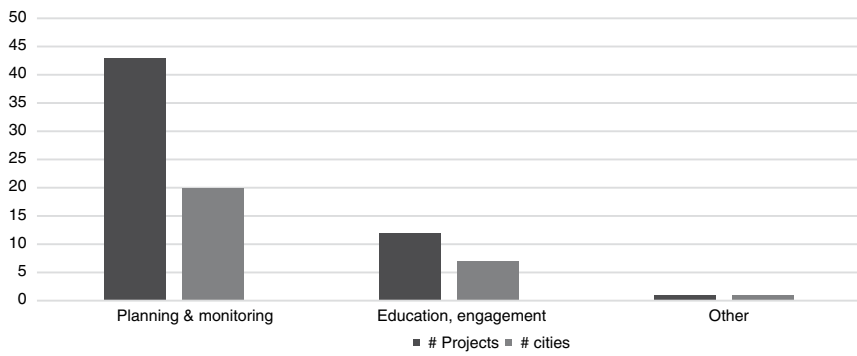

FIGURE 3.8 SDG 6: cities working on water and sanitation (N = 20)
Source: Author calculations.

Access to safe drinking water, sanitation, and hygiene are still a struggle for much of the world. Cities such as Mwanza (City of Mwanza, Tanzania, 2022) are reporting significant improvements and have undertaken with courage to combat the challenges of an aging infrastructure and growth in population. Even with citizen engagement there is a large proportion of the population that does not have access to these basic human rights.

Cape Town (City of Cape Town, South Africa, 2021) has lived the countdown to Day Zero where water might become unavailable. The city had to engage citizens in a severe behavioural change and although it was rain that saved the day, their experience in building engagement to combat an important sustainability goal is an excellent case example.

Bristol (City of Bristol, United Kingdom, 2022) provides a good demonstration of business and citizen engagement to reduce usage, waste, and improve efficiency. Bristol Water and Wessex Water provide guidance to residents on reducing their water usage as well as work to improve water efficiency in the region.

SDG 7: Energy

Projects dealing with alternative energy are de rigueur for 88% of the cities working on SDG 7. These include solar/photovoltaic projects, various green and renewable/alternative fuels including wind, algae research, hydrogen, clean energy, and efficiency programmes.

Not surprisingly, some significant efforts are undertaken on consumption management by 44% of cities including incentives, advice, retrofit, and challenges.

In the innovation category, electric vehicles and research to reduce reliance on coal stand out as well as some collaborative activities to decarbonize.

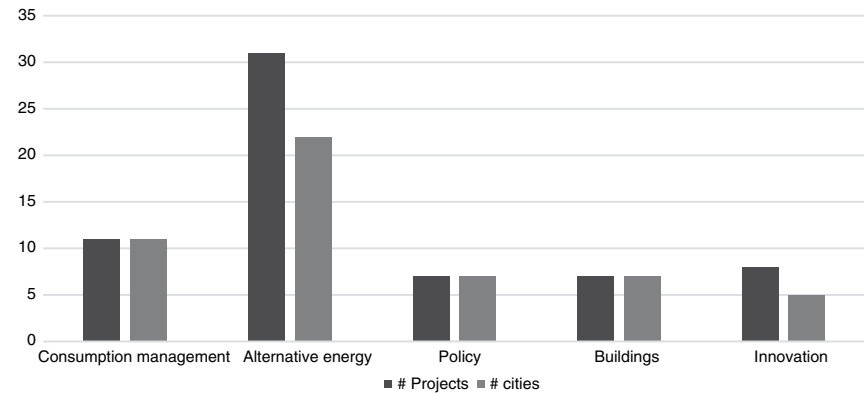

FIGURE 3.9 SDG 7: cities working on energy projects (N = 25)
Source: Author calculations.

Incentives occur with push and pull strategies, for example, transformations imposed through tariffs (City of Amman, Jordan, 2022), or proposed regulatory changes to reward savings and surplus power from solar photovoltaics (City of Melbourne, Australia, 2022).

Lombardy (Region of Lombardy, Italy, 2022) is an interesting case example loaded with initiatives aimed at encouraging the production of energy from renewable sources and reducing energy poverty. There are over 900 subsidized interventions for the installation of photovoltaic systems and storage systems and over 4,200 installations of electrical energy storage systems which allow for an increase in shared energy among 6,000 energy communities. This is accomplished through a combination of legislation, an investment fund, and coordination by the Lombardy Regional Energy Community, which is working with civil society in expanding its work to reach its 2030 goal of reducing consumption by one-third and doubling energy production from renewables.

Winnipeg (City of Winnipeg, Canada, 2021) is one of the few locations internationally boasting a 97% green hydro environment well on its way to becoming completely carbon-neutral and working to increase the number of homes drawing energy from geothermal and other green sources.

SDGs 8 and 9: Work and Innovation

We brought SDGs 8 and 9 together since they included several initiatives to improve the environment for economic growth, particularly in terms of government influence and involvement.

Work and economic growth

It is probably no surprise that improving job opportunities and economic growth is among the top three goals chosen by cities under SDG 8. Cities are targeting rather than applying blanket strategies, with 72% reporting on programmes focused on specific industries for sustainable development.

Some cities are working collaboratively with business and industry to engage support on general topics of sustainability (City of Bristol, United Kingdom, 2022; Viken County, Norway, 2021; Municipality of Sepang, Malaysia, 2023), whereas others apply more focused efforts such as on building sustainability in the tourism industry (City of Buenos Aires, Argentina, 2022; Region of Lombardy, Italy, 2022; City of Yokohama, Japan, 2021), developing a *green economy* (City of Cape Town, South Africa, 2021; City of Vantaa, Finland, 2021; Viken County, Norway, 2021; Government of Yiwu, China, 2021; Municipality of Sepang, Malaysia, 2023; City of Yangzhou, China, 2022), and a *circular economy* (Basque Country, Lombardy, Seodaemun-gu, Subang Jaya, Sepang,

Yangzhou) (City of Subang Jaya, Malaysia, 2021). Businesses are being engaged for *smart agriculture* (Orlando, Penang, Tokyo, Yangzhou), creative and culture industries are engaged in innovation and sustainability execution (Basque Country Government, Spain, 2022; City Council of Penang Island, Malaysia, 2021; City of Tampere, Finland, 2022; City of Yangzhou, China, 2022), and even service sectors such as finance are seen as important contributors (Tokyo Metropolitan Government, Japan, 2021).

Skills development is a second favourite at 50% with initiatives to prepare workers for jobs and inclusive growth strategies to promote opportunities for women and race equality. Some are encouraging social enterprises, others reaching out to shore up skills amongst immigrants. Industry is also involved in skills development at the K-12 level, working hand-in-hand with the educational sector to curb dropouts (City of Amsterdam, Netherlands, 2022), providing tech curriculum (City of Amman, Jordan, 2022; City of Cape Town, South Africa, 2021; City of Buenos Aires, Argentina, 2022), providing language training for immigrants (City of Helsinki, Finland, 2021), and of course providing workplace co-op and entrepreneurship experiences to students.

The impact of businesses and industry is and can be harvested for further impact – funding support for example is significant, with the private sector donating each year to causes including those that promote work and entrepreneurship, to social bonds (City of Toyota, Japan, 2022), to support of SMEs (City of Amsterdam, Netherlands, 2022; Municipality of Sepang, Malaysia, 2023; Tokyo Metropolitan Government, Japan, 2021; City of Vantaa, Finland, 2021), or to climate adaptation infrastructure (City of Melbourne, Australia, 2022). Several are contributing to fair trade town concepts (City of Dusseldorf, Germany, 2022; City of Surabaya, Indonesia, 2021; Municipality of Sepang, Malaysia, 2023) – the economic and political power of industry is an important lever for cities and their engagement is vital in achieving goals. The power of

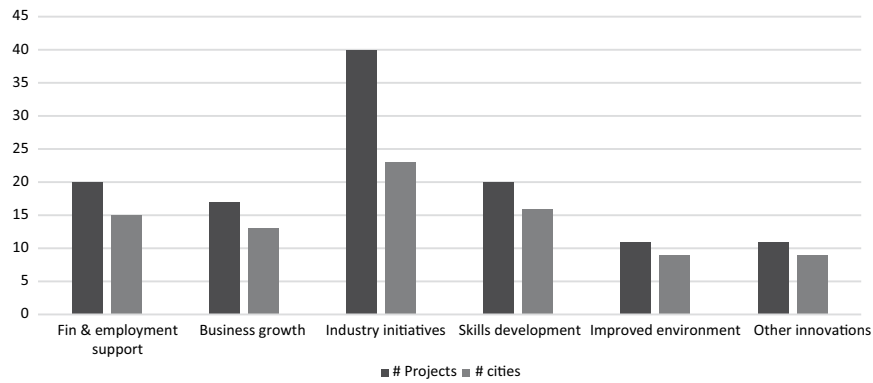

FIGURE 3.10 SDG 8: cities working to improve work and economic growth ($N = 32$)
Source: Author calculations.

cities to support SMEs also is an important factor via land access, providing vacant storefronts (City of Melbourne, Australia, 2022), reducing red tape, drafting sound policies, and supporting networks that can promote the further development and growth of businesses.

Innovation and infrastructure

Supporting R&D, living labs, and specific innovation initiatives is the most popular strategy choice for cities in this sample with almost two-thirds choosing to invest in this area. Some are more general with entrepreneurship and innovation spaces and supports including the development of clusters. Others are specific to sectors or projects such as in mobility improvements, biological treatment of waste, green/smart systems, or hydrogen vehicles.

Innovating the infrastructure of a city is the most predominant programme being discussed in VLRs. This includes conversion to green buildings and infrastructure planning for lower carbon emissions (City of Amman, Jordan, 2022; City of Bonn, Germany, 2022; City of Bristol, United Kingdom, 2022; City of Kuala Lumpur, Malaysia, 2022). Green strategies are again cited under SDG 9, with circular economy programmes (City of Tampere, Finland, 2022; City of Yangzhou, China, 2022), green employment programmes, recycling programmes such as in retooling computers for those in need (City of Bristol, United Kingdom, 2022), and industry recognition programmes for their involvement in green strategies (Tokyo Metropolitan Government, Japan, 2021; Municipality of Sepang, Malaysia, 2023).

Perhaps the more interesting innovation programmes are those that are attempting to find alternative energy (Municipality of Sepang, Malaysia, 2023), waste-to-energy conversions (City of Amman, Jordan, 2022), using alternative fuels such as hydrogen for public transportation (Region of

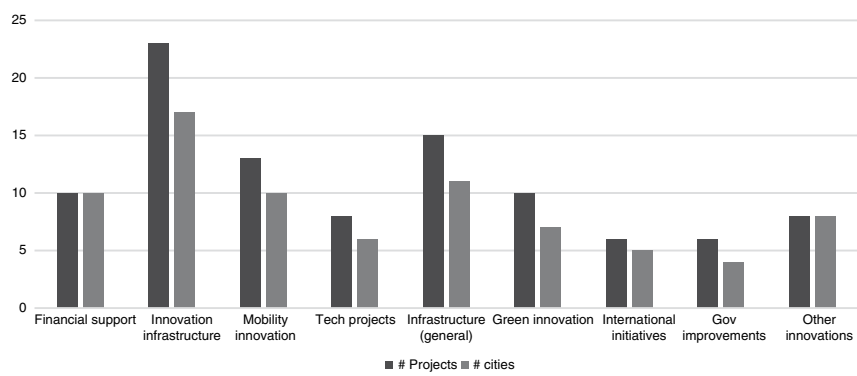

FIGURE 3.11 SDG 9: cities improving infrastructure and the innovation environment (N = 27)
Source: Author calculations.

Lombardy, Italy, 2022), innovating on future cars (Tokyo Metropolitan Government, Japan, 2021), and treatment of waste (City of Amman, Jordan, 2022; City of Kuala Lumpur, Malaysia, 2022). In Helsingborg, waste from gardens is burned and conserved as biochar which avoids releasing carbon into the atmosphere and they are innovating around other sewage that could be transformed into biochar and how it could be used for soil filtration.

Sepang (Municipality of Sepang, Malaysia, 2023) took a proactive stance to support SMEs starting with a trader programme to showcase successful traders and improving their well-being by launching a market event held each week and providing them with training to improve business acumen. On a longer-term agenda, Sepang is developing new business sites for SMEs strategically located and marketed, providing a centre for native craftsmen, and designating areas for temporary hawkers as well as supporting home-based businesses. Digitalization has become a key strategy, with Sepang helping local businesses to provide products and services online to expand their market reach. The city has been land banking and is now ready to promote investment and innovation in designated sectors such as in becoming an aero industry gateway. It is getting involved in alternative energy production (implementing solar panels on reservoirs, buildings, and private land), and smart infrastructure for greater resiliency in equipment maintenance, road systems, and warning systems.

SDG 11: Cities

Thirty-five of the 40 cities (88%) report working on this SDG. It is a bit surprising that this SDG was not a priority for all cities since they are the ones submitting a VLR but perhaps it points to the focus being led or influenced by other actors in the community.

Housing and neighbourhood development is the most commonly used development tool for these cities with 57% of them working on affordable housing, building standards, new residential areas, and to some extent densification and landscaping. This is followed closely by 54% of cities that report working on greening and preservation including developing more green spaces, trails, and protecting biodiversity and regeneration.

Affordable housing is the largest policy tool chosen by cities but there is one that stands out as an innovative system: the Düsseldorf housing exchange programme. At first glance, it is a home rental or swap system for holidays, but it is also part of a Housing Anywhere programme for mid- to long-term rental for students, and for sharing and access for remote or travelling workers. Cities in Finland have been successful in reducing homelessness with their housing first strategy and their model is being considered by other cities (Bergeron, 2023).

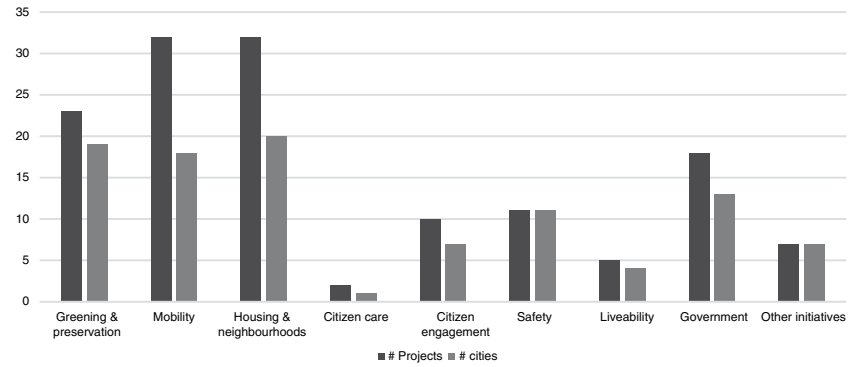

FIGURE 3.12 SDG 11: inclusive, safe, resilient cities (N = 35)
Source: Author calculations.

In transportation, sustainability is at the heart of most projects with efforts to increase public and green transportation by 51% of the cities in those reporting on SDG 11 (identified under Mobility in Figure 3.12). Mobility innovation is being undertaken in rail, tramways, energy used in vehicles, and in Toyota (City of Toyota, Japan, 2022) in the development of ultra-compact vehicles.

Fifty-four per cent of cities are enhancing green spaces, ensuring that citizens have nearby access to parks and green areas, that regeneration is undertaken in vulnerable neighbourhoods, in encouraging green roofs, and working with citizens on conservation.

Citizen engagement is an important question since many sustainability goals are not achievable without their contribution. We see some efforts to engage citizens in decisions, in recycling, and communication to citizens about programmes, but little more in terms of involving them in significant change.

Kuala Lumpur (City of Kuala Lumpur, Malaysia, 2022) identified three main challenges to answer with input from citizens: policies and management; social; and infrastructure and utilities. Each of these is linked to several SDG goals that need to be met in their 2030 agenda. These include urban housing programmes repurposing commercial buildings as affordable transit housing for new graduates and young professionals. Another example is the creation of a network for urban farming managed by resident associations and NGOs that supplies fresh food in community gardens, rooftop gardens, and vertical farms as well as rearing chickens, fish, and other small livestock in urban areas. They are restoring waterfront areas and engaging residents in the maintenance and upkeep of parks alongside waterfronts. They instituted a 'no segregation, no collection' policy to incentivize residents to increase recycling and separate their waste into four types – in return,

residents are given points that they can use to exchange for necessities such as food. A blue bicycle lane network is being expanded and provides better parking facilities, bike-sharing schemes, and cyclist-friendly traffic signals. Kuala Lumpur brings together community members, business representatives, and city hall internal departments and technical agencies to discuss progress on sustainability and engages stakeholders in prioritizing and implementing programmes and projects.

SDG 12: Consumption and production

Only a little over half the cities are reporting on responsible consumption and production. Of those, cities seem to be equally concerned over consumption and production, with 91% and 87% of the 23 cities reporting working on programmes to address these issues, respectively.

To reduce consumption, cities are first involved in campaigns to persuade residents to live without waste. To further emphasize the importance of consumption management, cities are placing taxes on plastics and single-use products, working with the private sector to reduce carbon and consumption, and forming coalitions to reduce waste.

To improve production, cities are implementing procurement policies, launching green initiatives, securing commitments to circular economy concepts, and encouraging recycling.

There are a few interesting examples of special initiatives including promoting fair and local trade (Municipality of Sepang, Malaysia, 2023; City of Tampere, Finland, 2022), the development of tiny homes (City of Orlando, United States, 2021), and clean-ups of value chain activities (Amsterdam working with the cocoa industry).

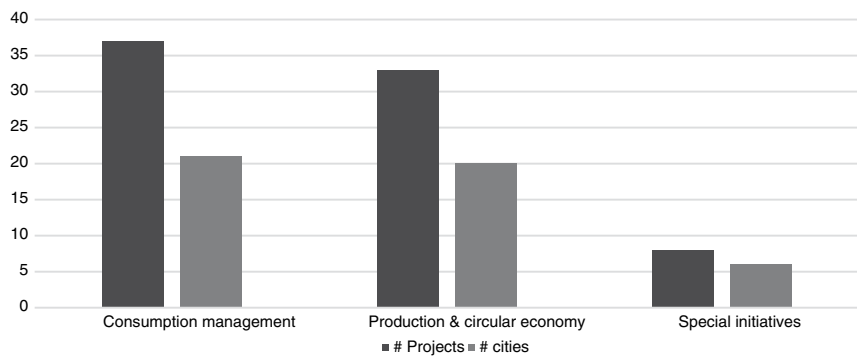

FIGURE 3.13 SDG 12: cities working on consumption and production management (N = 23)
Source: Author calculations.

Helsingborg (City of Helsingborg, Sweden, 2021) identified SDG 12 as a difficult goal to answer since waste in consumption and production is a problem of prosperity and entrenched within more affluent societies. The city recognizes that it has a role to play in its procurement to invest in sustainable products and fair production methods for the benefit of society. As such, the city pushes for new innovations, a circular economy, and phasing out dangerous substances in products. Helsingborg sorts its waste into eight factions and processes as much as it can for circularity. But the focus needed to turn to households and the city set goals toward a maximum of 320 kilos of waste per person by 2024 with citizen engagement and education.

SDGs 13, 14, and 15: Climate, Oceans, Land

Three goals relating to the environment have been combined to show similarities and differences in the programmes and projects and policies used to make improvements.

Climate

By far the largest policy tool used by cities that report programmes for SDG 13 is climate action initiatives (87%) such as carbon offsets, positive energy districts, and carbon capture. Public campaigns for carbon reduction and climate pacts with industry are also popular. There are several innovative projects around green school awards, blue-green roofs initiatives, climate watch programmes with residents, and nature-based solutions.

The second largest tool used at 39% of cities is innovations and there is a significant mixed bag of initiatives ranging among green loans financing, repurposing industrial areas, drought-resistant agriculture, storm water management, and others.

Engagement, although surprisingly a less-used instrument, takes a wide variety of forms: weekly vegetarian days (City of Vantaa, Finland, 2021), car-free mornings (City of Kuala Lumpur, Malaysia, 2022), leadership awards (City of Bristol, United Kingdom, 2022), and micro-forest building by citizens (City of Amman, Jordan, 2022). Clearly there are interesting innovations and an opportunity to build further citizen engagement in programmes of sustainability.

Oceans

Of the 20 cities in the sample that are near a larger body of water, 16 (80%) report being active on SDG 14. Marine protection and rehabilitation is the largest initiative, undertaken by 69% of these cities. This includes port and transportation management, cleaning, and wastewater treatment.

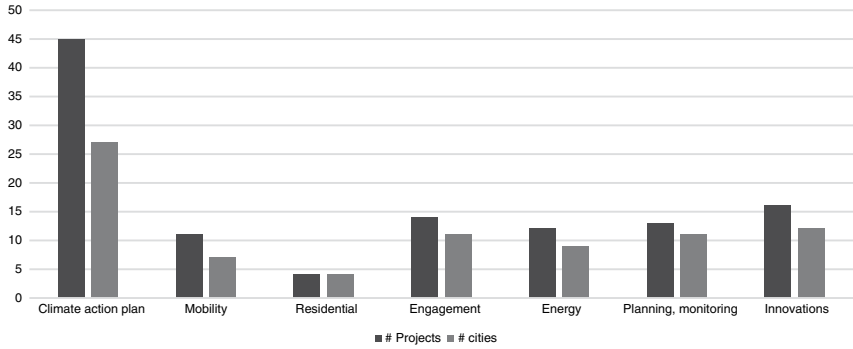

FIGURE 3.14 SDG 13: cities tacking the climate goal (N = 31)
Source: Author calculations.

Among the more interesting initiatives we found carbon capture credits (City of Bristol, United Kingdom, 2022) and clean autonomous marine technologies (City of Kiel, Germany, 2022). In Melbourne, permeable pavement, raingardens, and tree pits are used to filter pollution before it gets to waterways.

Land

The greatest number of initiatives are around biodiversity protection (88%) which includes growth in conservation areas. Many cities have undertaken tree planting and are encouraging the growth of their forests. Some are working to improve soil conditions, drainage, and controlling pesticide use.

The idea that the number of trees needs to be increased is prevalent in many cities; Bristol (City of Bristol, United Kingdom, 2022) for example plans a 25%+ expansion and is engaging every household to plant a tree; Orlando hopes to boast one tree per person in the city.

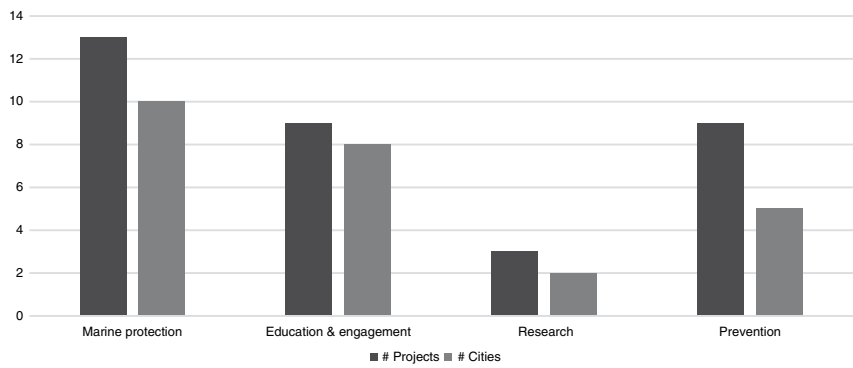

FIGURE 3.15 SDG 14: cities working on the preservation of oceans (N = 16)
Source: Author calculations.

Much of the engagement of citizens however is through education – events on biodiversity, declaring ecological emergencies, organizing advisory boards to help residents understand and support nature, including biodiversity curriculum in schools, and promoting the development of more community gardens. Responsibilities are slowly being delegated but will it be fast enough to make a significant change to climate issues and lay a sustainable foundation for future generations?

Asker (Asker Municipality, Norway, 2021) zero-emission construction sites must be free of fossil fuels and emissions, which means electrifying machinery and equipment. The municipality built a new competence centre for vocational training and work inclusion to support fossil-free construction sites. In addition, Project NADA aims to reduce waste in the building and construction industry. The Omattatt Association works with residents to identify recycling and circular economy opportunities, teaching citizens to see the resources in waste and transform materials into something new. Citizens are engaged in all facets of climate change, from daycare centres where new ideas are encouraged for new initiatives to monitoring and incentivizing citizen engagement in larger efforts.

Kiel (City of Kiel, Germany, 2022) developed a green belt to improve citizen health and well-being as well as produce food. The green belt has remained an important recreational area that also serves as a key local nature and species conservation site. Citizens require a license to fell trees of a certain size; 133 large and old trees have been identified as natural monuments and are protected. Kiel is working to identify climate-resilient tree species for resilience but also to green new urban sites and locations that have current or future challenging environments.

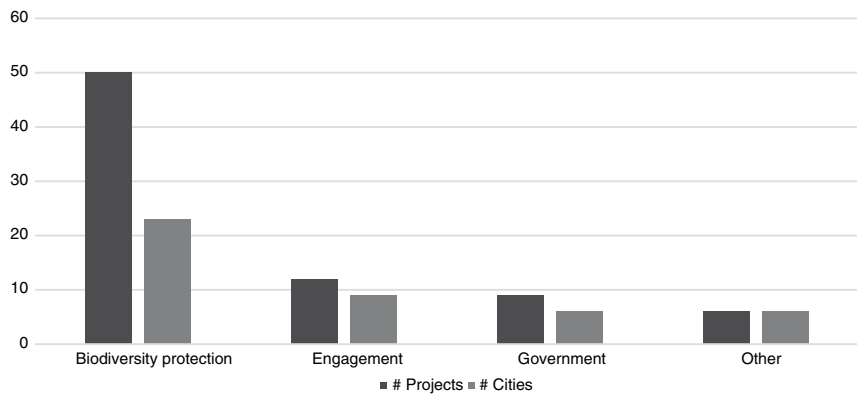

FIGURE 3.16 SDG 15: cities protecting biodiversity and land (N = 25)
Source: Author calculations.

SDG 16: Peace and Justice

Among the cities that report programmes for SDG 16, the largest number (81%) engage citizens in the democratic process. This includes citizens' dialogues, building citizen networks, policy discussions, and platforms for complaints and contributions. Among the more innovative ideas we found the use of spirit law as a decision-making framework[4] (Government of the State of Hawai'i, United States, 2023), prisoner-public awareness[5] (Basque Country Government, Spain, 2022; Region of Lombardy, Italy, 2022), and the adoption of a generation manifesto[6] (Region of Lombardy, Italy, 2022).

Basque Country (Basque Country Government, Spain, 2022) has developed many legislative initiatives aimed at protecting personal data, religious diversity, social rehabilitation for prisoners, and various provisions to ensure good governance by the Basque Government and its agencies. Amidst these regulatory instruments, the targets include actions by a taskforce and the government to reduce all forms of violence and related death rates; promote the rule of law and ensure equal access to justice for all; and develop effective, accountable, and transparent institutions at all levels. The acts and policies include road safety pacts with 14 entities, associations, and public institution contributions; centralized procurement towards 100% renewable electricity for the public sector; cross-cutting procedures between courts and police systems; and cybersecurity and cyber-crime management plans.

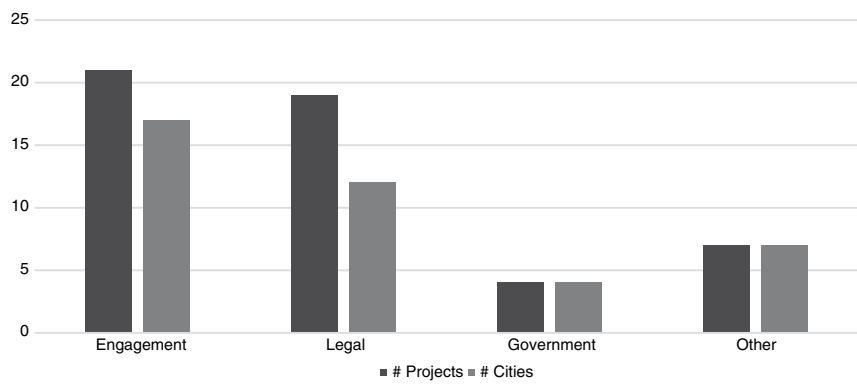

FIGURE 3.17 SDG 16: cities involved in peace and justice improvements (N = 21)
Source: Author calculations.

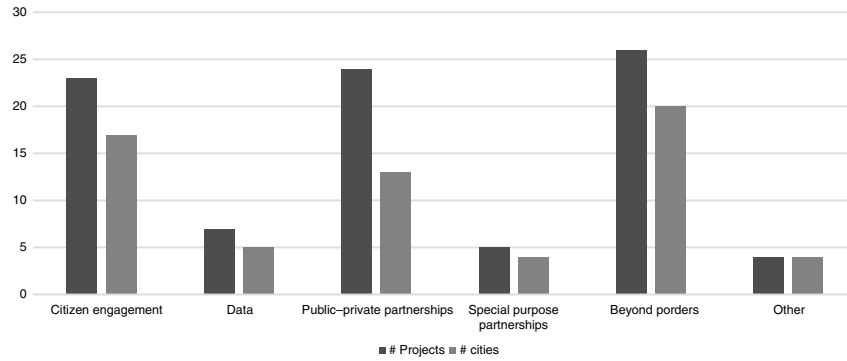

FIGURE 3.18 SDG 17: cities working in partnership (N = 30)
Source: Author calculations.

SDG 17: Partnerships and Collaboration

Collaborating beyond borders is reported by 67% of the 30 cities reporting projects for SDG 17. This includes city-to-city, national, and international collaborations and partnerships on programmes including in climate accords, resilient cities, and other like networks.

The second highest (57%) is citizen engagement where cities mentioned consulting on sustainability and to a smaller extent calling on neighbourhood and citizen volunteers to help carry out projects.

Third on the list are a number of public–private partnerships to share the cost of projects, to build careers, to engage in SDGs, or even to decentralize an energy network (City of Bristol, United Kingdom, 2022).

> Bristol (City of Bristol, United Kingdom, 2022) has developed a voluntary network for stakeholders, the Bristol SDG Alliance. The aim for the network is to drive policy development, engage, and increase awareness for the work on SDGs being undertaken by the city. The group is free to join and has 170 members that represent all three dimensions of sustainability: economic inclusion, environmental protection, and social justice. For additional details see: https://globalgoalscentre.org/project/sdg-alliance/.

Conclusions

We analysed VLR reports submitted by 40 cities. Whereas some cities report activities that they undertake for each of the 17 SDGs, others focus their activities on some of the SDGs. These differences relate to the size, income, and location of cities. Large cities have the capacity to engage in activities on

all SDGs; however, smaller cities may not have the required resources for it. Similarly, cities that have high per-capita incomes may not need programmes to reduce poverty or cities that are not coastal will not have programmes related to oceans or water bodies. For each SDG we highlight some of the innovative projects being undertaken by cities. These provide examples of projects that other cities could consider.

VLRs are a great resource to learn about programmes and projects for each SDG that are being undertaken by cities around the world. However, they do not provide insights into the strategy of implementation of sustainable policies and projects at the city level. To develop a better understanding of implementation of sustainability strategies and policies, we worked with authors with expertise and knowledge of these for different cities. The chapters on individual cities that follow provide for a more in-depth understanding of the work being done by cities in accomplishing the SDGs.

Notes

1 There were a significant number of reports submitted solely in Spanish or other languages which would have taken significant resources to translate given their size and therefore were not included in our sample.
2 We would like to acknowledge the work of Rotimi Adeniran Owoade who read and compiled the initiatives in the 40 VLRs on our behalf, allowing us to classify and analyse these for this chapter.
3 We chose English reports from regions that were underrepresented in the sample, one from each of Africa, Asia, and North and South America. Some regions such as Europe are significantly more active in submitting a VLR on the UN site.
4 Spirit law for decision making is described as a methodology that considers ethical dimensions and self reflection.
5 Basque as one example passed three fundamental laws – the Gender Equality Act; Income Guarantee System and Inclusion Act; and Equal Treatment and Non-Discrimination Act – to ensure that the principle of non-discrimination is mainstreamed in the institutional agenda. Social reintegration of inmates is an important component and new prison models were devised.
6 Lombardy made a financial commitment and developed a charter of values where the main needs, expectations, and requests of institutions for young people would be included as a priority and supported by law.

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4

MEXICO CITY, MEXICO

Diana Alarcón and Rocio Canudas

Introduction

Mexico City is a global city and accepts the commitment of the Mexican Government to sustainable development, climate change, and the construction of resilient societies in compliance with the international agreements signed. The government in Mexico City works in coordination with the National Council for the 2030 Agenda and is committed to a vision of development that emphasizes the creation of an egalitarian society through exercising human and social rights for all citizens. Accordingly, SDG 10, calling for reducing inequalities, has been an essential reference for implementing government programs.

Two Voluntary Local Reports (VLRs) (Mexico City Government, 2019; Gobierno de la Ciudad de México, 2021) illustrate the alignment of the Government Program for 2019–2024[1] (Program 19–24) to the global development frameworks, including Agenda 2030, in implementing policies oriented to reduce inequality and build a sustainable development track in a city of 9.2 million people, which is also part of a larger metropolitan area with around 22 million people.

Both the national constitution in Mexico and the local constitution in Mexico City establish the responsibility of governments to guarantee equal rights for all people. Yet, much more must be done to ensure universal access to people's rights. Significant inequalities still challenge government policies. In the administration of Mayor Claudia Sheinbaum, the focus has been ensuring that all government programs tackle underlying disparities. This approach to policy implementation requires significant investments in infrastructure, a systematic review of results,[2] strengthened coordination among government agencies, new forms of citizen participation, and association with the private sector.

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In the first section of this chapter, we go into the challenge of incorporating citizens' participation in implementing some of the most significant programs of the City Government. The second and third sections summarize actions to guarantee the reduction of inequalities in two sensitive fields: women's rights and environmental sustainability. We also point out the alignment with the Sustainable Development Goals (SDGs) related to the city's public policy.

Guaranteeing equal rights for all (SDG 10)

In Mexico City, high inequality remained in the access to education, health, housing, mobility, cultural activities, parks, recreation, and so on, despite this access being enshrined in the national and local political constitutions. In December 2018, Claudia Sheinbaum was sworn in as Mayor of the largest city in Mexico. She adopted the slogan *Innovation and Rights* to describe her Program 19–24: a plan that would advance universal access to people's rights through new, innovative actions to accelerate progress; and a proposal to address people's concerns by implementing innovative public policies to guarantee all rights for all people as the basis for an equal and inclusive society.

Construction of infrastructure and the delivery of public services, such as education, public transportation, water, housing, etc., are aimed at addressing entrenched inequalities in the city: providing the best services for the least served. A few examples help to illustrate this point.

1. In the first year of this administration (2019), a small stipend granted to children with the best school grades was transformed into a universal scholarship to all children attending public schools (from kindergarten to ninth grade). As a result, the program *Bienestar para Niñas y Niños, Mi Beca para Empezar*[3] benefits 1.2 million students today. The resources are directly credited to families through a debit card to avoid intermediation and to promote financial inclusion.
2. From early on, the City Government allocated substantial resources for constructing the infrastructure necessary for expanding educational opportunities. For example, the construction of six additional campuses of the *Instituto de Educación Media Superior* (IEMS) allows access to secondary schools for teenagers from the most marginalized areas of the city. Also, the creation of a new university – *Universidad "Rosario Castellanos"* (URC) – has expanded college education to more than 38,000 students who did not get those opportunities before. In addition, a second university, *Universidad de la Salud*, was built to accelerate the training of medical doctors and nurses, a sore deficit revealed by the COVID-19 pandemic.
3. An unprecedented investment was made to strengthen social cohesion by creating community centers called PILARES (Spanish acronym for Points of Innovation, Freedom, Art, Education, and Knowledge). Built

in the most marginalized areas of the city, close to 300 community centers help to guarantee the right of people, especially young people, to free education, culture, arts, sports, and recreational activities. The location of PILARES was defined through a Social Development Index (SDI), where a high population density, the proportion of young people (between 15 and 29 years old), and high crime and violence rates define areas for priority attention.

4. The operation of PILARES requires substantive coordination efforts among several governmental offices to meet community demands. Five social programs interact in PILARES: Cyber-schools, Education to promote Women's Economic Autonomy, a Grant for teenage students, Cultural Activities, and a Community Sports program called *Ponte Pila*. Active participation of the community in identifying the type of programs they want to have in each PILARES is the key to the successful operation of the programs. Not only is it the community that defines the programs they want to have but tutors and trainers are also recruited among the community.
5. Investments have also been made in infrastructure to provide health services in areas of the city that lack such essential facilities. For example, the City Government built two General Hospitals in remote regions (Cuajimalpa and Topilejo) and a *Comprehensive Care Clinic for Trans People*, specializing in medical care services for the LGBTTTIQA+ population.

Most investments have been made with the City Government's budget. However, coordination with the private sector to invest in infrastructure has also been critical in expanding public service delivery. One example of this was the partnership between the City Government and Grupo Modelo to finalize the operation of *La Pastora General Hospital*. The initial objective was to provide care for patients with COVID-19. However, once the pandemic emergency had passed, the city's Ministry of Health became responsible for its operation as a General Hospital in an area that did not have easy access to health services.

Organization of citizenship to contribute to solving specific problems they face is most important. One example of active civic engagement is the program *Bienestar en tu Escuela, Mejor Escuela*.[4] The program was created to address infrastructure deterioration and the renovation of school equipment in public schools. The school community – parents, teachers, and administrators – is organized into a committee to determine maintenance and equipment needs. Parents' associations get resources yearly to define priorities and the modality for repairing or purchasing equipment. The program has been very successful in promoting the active involvement of parents in their children's schools, identifying appropriate repairs needed in each school, and promoting local employment for small vendors that may not have the scale to contract directly with the government.

The community is involved in many other government programs to design and deliver public works and services. There are community committees to address health issues, the renovation of parks and public spaces, and challenges related to security, among many others. Local committees involve government agencies at different levels and citizens.

Mechanisms for effective coordination between the government and various social actors are present in the policies to promote gender equality and substantive empowerment of women and the actions that are part of the Environmental and Climate Change Program, 2019–2024 (PACC 19–24, for its Spanish acronym), as described in the following sections.

Women's rights (SDG 5)

Guaranteeing women full access to their rights is a priority in Program 19–24. Around 52.2% of people in Mexico City are women (Mexico, 2020); as a result, building a city of rights is only possible if women enjoy complete autonomy in all relevant physical, economic, political, and decision-making areas.

Early in the administration, Mayor Sheinbaum decided to elevate the then-Women's Institute ranks into an entire Secretariat (*Secretaría de las Mujeres*) as the best way to strengthen its attributions with resources and authority. Priority areas for the Secretariat are the promotion of women's rights in three crucial areas: promoting gender equality at all levels, from school attendance to access to jobs, housing, sports, and so on; upgrading the care and protection systems to release the burden of family care; and strengthening the institutions and the services needed to eliminate gender-based violence. Three programs have been of great relevance for this purpose: the implementation of the Territorial Units for Attention and Prevention of Gender Violence (*Lunas*), the creation of a group of *Women's Lawyers*, and the *Network on Alert for You*. Furthermore, in response to the demand of feminist organizations and in view of high rates of gender-based violence, the Government adopted an *Alert for Violence against Women*.

Territorial Units for Attention and Prevention of Gender Violence (Lunas)

The 27 Lunas have a presence in each of the 16 boroughs that exist in Mexico City. These community centers are the window for women to access all the specialized services offered by the government, including a comprehensive strategy to prevent femicides. The plan includes an early warning system to detect violence against women and measure femicide risk. In addition, the Lunas offer psycho-emotional, legal, and social assistance as needed, as well as financial support for up to six months for women living in a life-threatening environment. In the two years of implementation, based on results, the level of risk for women decreases on average six months after joining the programs.

A dedicated line (*765), the *Women's Line*, is a first-contact telephone service to provide immediate assistance to women facing any violence, 24 hours a day, 365 days a year. This service informs, guides, and provides legal and psychological assistance to women. In case of need, women are referred to specialized lawyers to advise and accompany women through legal procedures.

Women's Lawyers Strategy

In 2019, a group of lawyers specialized in human rights and gender was posted into each one of the Territorial Investigation Agencies and Specialized Investigation Agencies, both part of the Attorney General's Office (FGJ, for its Spanish acronym) that serves the city. Women lawyers provide legal guidance, accompaniment, and representation for women who report gender violence and crimes. This program is part of the principle of zero tolerance for violence against women.

The *Women's Lawyers Strategy* has helped to avoid the re-victimization of women when filing a complaint. Lawyers assess the level of risk experienced by women and provide alternatives for their protection, integrity, and security. In addition, they support female applicants in procedures to gain legal emergency protection measures before judges and provide advice on protection measures for the physical and mental integrity of women and their children.

In 2019 Mayor Sheinbaum sent a proposal, later approved by the local Congress, to reform the *Law on Women's Access to a Life Free of Violence* to ensure that, in Mexico City, it is the aggressor that leaves the residence where the family lives, regardless of the ownership of the house.

Violence against women within the family requires well-thought strategies to overcome the silence barrier surrounding it. Therefore, the government promoted the creation of community networks that help women reduce the fear and the psycho-emotional stress that prevent women from making complaints.

Network of Women on Alert for You

To promptly identify cases of violence within the family, organized groups of neighbors facilitate the promotion of women's rights in house-to-house visits in those areas that have high complaint rates. The Network becomes a support group with friends and trusty neighbors that help to reduce the fears of reporting domestic violence and educate women on their rights.

The Network carries out prevention actions and timely identification of femicide risk situations, channeling cases to available services. Committing to eradicating all forms of violence against women, the government decided to extend actions and awareness through the *Alert for Violence against Women*.

Alert for Violence against Women in Mexico City

A zero-tolerance policy is critical to eradicating violence against women and girls. On November 25, 2019, the government declared an *Alert for Violence against Women in Mexico City*. This decision made it possible to accelerate the programs and processes to protect women and girls and to expedite access to justice for those who fall victim to violence. The Alert creates incentives to improve the infrastructure for forensic investigation, expedites actions both for the prevention of violence and for protection in public spaces and the public transportation system, and fosters a culture of service delivery concerning the dignity of women. The Alert has also accelerated institutional changes, mainly in the office of the FGJ and the Police Department. Reducing impunity and increasing confidence in institutions have been the focus of efforts to introduce a gender-sensitive perspective in the administration of justice.

The declaration of the Alert against women's violence includes 11 actions reviewed in monthly meetings to assess programs and identify implementation gaps. The FGJ created the *Public Registry of Sexual Offenders*, which facilitates the collection of personal and genetic information of sex offenders and helps expedite investigations for sexual crimes. In addition, it helps to prevent violence against women, girls, and boys, the primary victims of these crimes.

On September 12, 2019, the "Olympia Law" was presented to the Mexico City Congress. Under this new law, disseminating intimate, erotic, or sexual content without the person's consent is classified as digital violence. Upon modification and approval on January 22, 2020, the city's Criminal Code includes crimes related to sexual harassment, threat, and extortion within the non-consensual dissemination of private sexual content.

The *DNA Bank for Forensic Investigation* generates scientific evidence to enable adequate access to justice for a life free of violence. Accreditation of technical competencies concluded in 2022 and the DNA Bank is now used to protect women's rights.

There has been a comprehensive program for the training and certification of public officers, legal advisers, and personnel in charge of services to victims of gender violence to avoid the reproduction of stereotypes and the re-victimization of women, teenagers, and girls who were victims of violence. In addition, a specialized technical team developed a new *Model for the Care of Victims of Sexual Violence*. The model introduces a gender perspective into the attention paid to victims, placing women at the center of attention.

The number of "Walk Free, Walk Safe" safety corridors across the city increased with the development of 491 trails totaling 920 km. Safe public corridors have significantly contributed to improving safety in public spaces and guaranteeing people's right to a life free from violence. In addition, digital technology, including security cameras and installing totem poles with panic buttons, guarantees secure, emergency contact with the *Command, Control, Computing,*

Communications, and Citizen Contact Center (*C5*) to expedite attention to cases of violence in the public space.

The "2019 Gender and Mobility Plan, a Vision for 2024" was created to promote safety in public transportation and reduce sexual violence and assaults against women. There has been a comprehensive program for training the operators of the public transportation system, and all public units have designated spaces for the exclusive use of women. In addition, many private units that provide public transportation have installed surveillance cameras, GPS, and panic buttons.

A *Comprehensive Training Strategy for Police Forces with a Gender and Human Rights Perspective* has been established, with the double objective of reducing the re-victimization of women who go through legal procedures and promoting a culture of effective and diligent law enforcement. Under this framework, respect for and protection of human rights are the values that must drive police performance.

The FGJ established a *Social Audit Process for the Procurement of Justice*, which helps to review, supervise, and sanction the personnel who, through omission, abuse, or negligence, hinder victims' access to justice. Police must act with due diligence and a gender perspective for adequate attention to cases of violence against women.

The Police Department created the *Specialized Gender Unit* (UEG, for its Spanish acronym) to prevent gender violence within the corporation. The Unit has 93 police officers who completed the Diploma in Police Action and Care for Victims of Gender Violence. The UEG promotes, protects, and guarantees women's right to a life free of violence, providing immediate attention and dignified treatment to victims of harassment, sexual and labor harassment, and any other act that undermines their dignity, with full respect for their human rights.

The design of a Communication Strategy has helped bring awareness of the various forms of violence against women. For example, the communications campaign "*Date Cuenta*" addresses two types of violence: situations of control in loving relations and sexual violence. The "You Are Not Alone" campaign informs women about the existence of care services to address cases of gender violence. "The Responsibility is Ours" publicity began to raise awareness about behaviors, mainly by men, that account for sexual violence against women.

Implementing these programs is building a new norm of respect for women, improving understanding of the many forms of violence against women. Policy coordination among all government agencies has been challenging. Much more needs to be done to eradicate gender violence. Still, policies of zero tolerance to violence and zero impunity for offenders are essential to guarantee women's fundamental right to a life free of violence.

PACC 19–24

The city's policies, led by Mayor Sheinbaum, are guided by the commitment to a development model to recover the balance between economic growth, well-being, and the environment – a model of sustainability for the construction of an innovative, sustainable, and rights-based city.

PACC 19–24 consists of seven lines of action:

1. Revegetation of the city.
2. Rescue of rivers and water bodies.
3. Sustainable water management.
4. Creation of a zero-waste cycle.
5. Improvement of air quality.
6. Promotion of solar energy.
7. Integrated and sustainable mobility.

Implementing actions in these seven areas has already led to the yearly mitigation of 1,810,489 tons of carbon dioxide equivalent, comparable to the reforestation and care for half a century of 4,606,805 pine trees. Through all these actions, the city is already 81% of the way towards achieving the goal to reduce its emissions by 10% by 2024, relative to the last inventory of emissions in 2016.

Revegetation

The City Government, together with the National Commission for Biodiversity (CONABIO, for its Spanish acronym), undertook one of the most ambitious revegetation efforts to have been done worldwide. As a result, in early 2023, we planted over 38 million trees and bushes in parks, avenues, urban forests, Protected Natural Areas (ANPs, for its Spanish acronym), and canals.

Pollinating gardens

Preserving the natural environment requires the survival of pollinators in charge of transporting seeds across the territories. From 2019, 708 gardens for pollinators have been created in different parts of the city to attract hummingbirds, bees, bats, and other species that keep vegetation growing. In addition, the program has trained close to one thousand women and municipal gardeners to develop the skills to continue the health of these gardens' recovery of biodiversity in the city.

Planting parks

Sixteen public spaces have been created, with green infrastructure and services that provide safe recreational opportunities and improved security in ANPs,

urban forests, linear parks, and other public parks, especially in areas of the city that lacked green areas.

ANPs

ANPs have been restored and transformed into public spaces where recreational activities and a sustainable natural environment can live together. The rehabilitation of five ANPs with comprehensive socio-environmental interventions and educational programs promotes a culture of respect and care for wildlife and the preservation of the environment.

Rescue of rivers and water bodies (SDG 6)

A comprehensive program to rescue the rivers, canals, and bodies of water that run through the city is aimed at restoring their ability to provide essential environmental services for the city, such as controlling water flows to prevent flooding, regulating temperatures, preserving the living conditions of different species, and capturing air pollutants. In 2019, we started a program for the gradual recovery of four rivers through revegetation, cleaning of water bodies, sanitation of channels, and construction of infrastructure to retain soil and water.

In the last three years, we have been living through a prolonged drought with a sharp decrease in the primary water source for the city, coming from the Cutzamala system. Accordingly, substantial resources have been invested for the rehabilitation of wells, the recovery of water treatment plants, and maintenance of the water network. More outstanding efforts to restore wetlands have also been necessary for water sanitation and replenishment of water mantles.

Efforts to improve coordination with neighboring states and the Federal Government have been substantial. For example, with the governor of the State of Mexico, Mayor Sheinbaum decided to invest resources in the State of Michoacán, where the Rio Cutzamala originates. Investments in improving water use in Michoacán agriculture will increase the flow of water that goes to the metropolitan area with its 22 million people.

Sustainable water management (SDG 6)

For the first time in this city, there is a holistic approach to water management considering all aspects that evoke this natural resource: its environmental, social, cultural, economic, and political dimensions. An integrated approach to water management has at the center the care for water, its availability and quality for its multiple uses, and the sustainable use of this resource. Constant and effective communication with people and stakeholders is vital to promote the sustainable use of water and the importance of allowing ecosystems to recover for the proper recharge of aquifers.

The strategy for water management implemented by the City Government has three components: the reduction of leaks in the water distribution system across the city, investment in and adequate maintenance of the water distribution system, and the development of new water sources.

Sectorization and measurement of water flows

Mexico City was built in a valley with different elevations across it. The pressure required to pump water in low parts of the city is entirely different from the pressure needed to reach the hillsides and the peaks, where there is a large concentration of lower-income families. Eliminating leakages in the water distribution system, which took up to 40% of the water injected into the network, required a significant investment in building 800 sectors for a real-time macro-measurement management system to effectively monitor water distribution. Ultimately, such a significant investment aims to make an equitable and fair allocation of potable water across the city and prevent water waste for sustainable management of a precious natural resource.

In addition, there has been a considerable effort to modernize, rehabilitate, and replace the aging hydraulic infrastructure to prevent leaks, improve drinking water quality, and expedite investment in wastewater treatment and rain harvesting. In early 2023, the City Government installed over 40,000 rain harvesting systems in poor and middle-income households that need proper water access.

Major maintenance of the systems that supply the city

The program has implemented the modernization, rehabilitation, and substitution of hydraulic infrastructure. By 2024, the modernization and improvement of the city's water system will allow the recovery of 2,000 liters of water per second and the cancellation of up to 50 poor-quality wells. The objective is to provide good-quality drinking water to all households in the city, 7 days a week, 24 hours a day.

One of the most significant challenges for water availability in Mexico City is coordination across states. A large proportion of the water consumed in the city is produced elsewhere in the high mountains, in a different state. In 2022 Mayor Sheinbaum signed a historic agreement between the State of Michoacán, the State of Mexico, and the federal government: a Comprehensive Project for the Efficient Use of Water. For the first time, two states (the State of Mexico and Mexico City) are investing in a third state (Michoacán) to modernize the irrigation of 2,300 hectares of agricultural land in Michoacán and provide potable water to 17 communities in the area. As a result, as many as 1,200 farmers from 13 *ejidos* will receive, for the first time, legal rights for the use of water in the Cutzamala River, and communities, for the first time, will receive drinking water in their houses. The governments of Mexico City and

the State of Mexico are investing $300 million in a project designed with a human rights approach to guarantee access to water for the farmers and their communities while improving the flow of water reaching the metropolitan area of Mexico City.

Zero waste (SDGs 9 and 12)

The Zero Waste Plan proposes moving towards a garbage-free city by reducing the amount of waste produced and increasing recycling. Building a garbage-free city requires fundamental cultural changes and the development of a market for the separation, recycling, and reuse of materials. The projects undertaken in the last few years in Mexico City are establishing the basis of a more robust waste-management sector that will undoubtedly contribute to creating employment. PACC 19–24 aimed to reduce the amount of waste transferred to sanitary landfills from 8,600 tons per day to 2,000 tons per day. By 2022 the amount of waste sent to sanitary landfills was slightly more than 6,512 tons per day.

Prohibition of single-use plastics (SDGs 12 and 14)

On January 1, 2020, the new regulation prohibiting the commercialization, distribution, and use of single-use plastics came into force. The first stage consisted of banning the use of disposable plastic bags. In January 2021, the second stage banned all other single-use plastics. A communication and education campaign accompanied the introduction of the new legislation. The campaign was to inform about the plastics that have been discontinued and the importance of reducing waste generation in the city. As a result, the entire population, businesses, service providers, public servants, chambers, and trade associations were presented with alternatives to allow them to continue their daily activities but with reusable containers.

In June 2021, Mayor Sheinbaum inaugurated the transfer station and urban solid waste selection plant, which can receive around 1,200 tons of waste daily. A second similar plant is under construction.

The City Government built a hydrothermal carbonization plant to transform organic waste into charcoal pellets that can be used both for the generation of energy with net zero greenhouse gas emissions and as fertilizer. Expected to process 72 tons of wet organic matter per day and approximately 25 tons of dry organic matter, the TerraNova®ultra project is the largest plant of its kind as of 2024. As opposed to biochar, which is produced with dry, mostly wood material, the organic waste can be used without drying, saving energy.

Air quality (SDG 13)

Addressing issues related to air quality in the city is a complex challenge. The metropolitan area houses around 22 million people, where dynamic economic

activities and 6 million automotive vehicles produce large emissions of contaminating gases. Furthermore, the topographic and atmospheric conditions of the metropolitan area tend to concentrate pollutants. Therefore, improving the air quality in the city requires implementing comprehensive actions with a metropolitan scope. Several programs are in place to strengthen air quality monitoring and the prevention, control, and reduction of emissions.

Atmospheric Monitoring System of Mexico City (Simat)

Simat monitors air quality and provides hourly reports of the Air Quality Index, which issues early alerts to the population when air quality poses risks to people's health. In addition, there are provisions to reduce the circulation of contaminating vehicles and the operation of high-polluting economic activities when the Index exceeds certain thresholds, as well as recommendations to people to reduce outdoor sports.

Solar City (SDG 7)

Mexico City is investing significantly in transitioning to alternative energy sources, especially solar energy.

With financial support from the Government of Mexico, a Solar Park is being built on the roofs of Central de Abastos (Ceda), the largest wholesale market in the metropolitan area and perhaps the largest in Latin America. In an area of about 230,000 m^2, the solar plant will generate 25 GWh a year. This plant will position Ceda as the world's largest urban solar power generation center. The energy generated will feed part of Ceda's demand for energy, estimated at 85 GWh per year. At the end of this project, Ceda will have the largest solar farm established in a Latin American city, larger than the installed capacity in Rio de Janeiro, Brazil, which is currently the largest solar energy plant in the region. The Photovoltaic Power Plant was inaugurated in February 2024.

In addition, the City Government promotes installing photovoltaic systems in public buildings with high energy consumption. For micro, small, and medium-sized enterprises (Mipymes), there is a system of incentives to promote the installation of solar water heaters and photovoltaic panels to reduce their exposure to changing energy prices.

Integrated and sustainable mobility (SDGs 7, 10, 12, and 13)

One of the city's most significant investments in infrastructure since 2019 has been in public transportation, with a double purpose: to improve public transit and reduce emissions. The plan to modernize mobility systems is intended to reduce social inequalities by investing in areas lacking modern mobility systems. Modernization of public transportation is reducing traveling

times around the city and the traffic congestion and resulting emissions that contribute to air pollution and climate change.

The mobility plan is organized around three areas:

1. First, integrate the infrastructure, operation, collection, and image of the different transport systems of the city. The objective is to facilitate transfers across various transportation modalities: by foot, bicycle, and the various public transportation systems.
2. Improve the infrastructure and transport services to reduce transfer times, improve travel conditions, and have transparent management.
3. Protect the people who use the different transport systems by providing inclusive, dignified, and safe infrastructure and services.

Integrated mobility

A single prepaid card accepted in most transportation modalities – metro system, public buses, cablebus, etc. – is one of the signals of the public transport system's integration. Introducing this card makes payments easier for drivers and customers, decreasing transportation times. This initiative was recognized with first place in the Calypso Awards, as an example of innovation in public transportation systems.

Improved infrastructure

Public transportation conditions had deteriorated after years of lack of proper maintenance. This government has worked to improve the existing infrastructure and services, including one of the city's first transportation systems: the vast network of trollies that was dilapidated and underused.

The City Government built a new cable car system for massive public transportation. Line 1 of Cablebus is a 9.2 km line in one of the city's poorest areas in the north. Line 2 runs for 10.6 km (with a Guinness record for being the most extensive line of its kind[5]), connecting the population living in another poor area with the city's public transport system. The third line is under construction. Cablebus is a non-polluting system, comfortable and safe, serving the city's poorest areas. Investing in the best transportation system for marginalized communities is the best way to reduce inequalities.

Metrobus is an efficient modality of public transportation running in a confined line across some of the longest avenues in the city. The government expanded this system by 33 km in the last four years and replaced 239 Metrobus units. Nowadays, Line 3 of the Metrobus is fully electric. Overall, this system is transporting 1.7 million people daily, 21% more passengers than in 2018.

After years of neglect, the city's most traditional public transportation system – trolleys, an old electric mobility system – was about to cease operations. The government decided to recover this transport. At the end of 2023,

there were 500 new trolleys in circulation, plus an elevated line for trolleys. This unique project consists of 8 km of a high road reserved for trolleybuses.

Modernization of the Public Transport Network (RTP)

This public transportation line covers the routes from the city's poorest areas to the subway and other transportation modalities in the most central areas of the city. So far, the government has renewed 517 units of the 800 established as a goal.

- Light rail: an old train for transportation to the south, once the city's rural areas, was modernized to reduce travel times by 40%. Not only the rails themselves were renewed, but ten new units are being incorporated.
- Concessioned transport: private providers of public transportation were operating with ancient, contaminating units. Owners can buy less polluting modern vehicles with financial support from the City Government.
- Active mobility: accelerated by the pandemic, the City Government expanded biking lanes to add 225 km of new infrastructure between 2019 and 2022, becoming one of the most successful cities in multimodal transportation. Six bicycle parking lots have been built in some of the most popular transfer sites to facilitate movement between the subway and Metrobus systems. Ecobici, the bike-share system, also expanded to over 600 stations and provides more than 9,000 bicycles (Herbert, 2023).
- The Metro system: the first subway lines in Mexico City are over 50 years old. The City Government is making one of the most significant investments to improve the safety and efficiency of the system, including the following. (i) A complete refurbishing of Line 1, the oldest and longest line in the system. The tunnel is the only thing that remains from the old line; everything else, from the rails to the passenger cars, is being replaced for a comprehensive modernization of the line. (ii) Investing in an electrical substation to improve energy efficiency for considerable energy savings. The new electrical substation will be the most modern and prominent in the country. (iii) A new command and control center for Lines 1–6, with state-of-the-art monitors and digital systems for improved efficiency and greater security. (iv) The extension of Line 12 to the west of the city. (v) The reinforcement of Line 12 after a tragic accident in 2021.

Protected rights

To meet a constitutional mandate to guarantee the rights of people to safe mobility, the City Government introduced the Comprehensive Road Safety Program 2020–2024, defining actions to reduce deaths and serious injuries caused by traffic events. The program includes a comprehensive monitoring and security plan through a GPS monitoring system to improve public road

safety. In addition, these video surveillance cameras and mobile applications support emergency assistance when needed. By July 2023, 18,076 transport units, exceeding the goal established by the City Government, had already installed GPS devices.

As part of the program, a permanent campaign, #ProtegealCiclista, has helped improve safety conditions for people on bicycles. The campaign includes guidelines for motor vehicle drivers to care for cyclists.

Identification of dangerous intersections on the road network is facilitating geometric adaptations, reprogramming of traffic lights, and speed reducers; all are leading to a substantive reduction of traffic events.

Bloomberg Philanthropies recognized the contribution of these programs to increase road safety. In 2023, the Secretariat in charge of mobility received the Partnership for Healthy Cities Awards.

Conclusions: lessons learned

In December 2019, the current administration made a commitment to make the transition towards an innovative city based on people's rights. Responsibly, Program 19–24 responds to the international agreements signed by the Government of Mexico, especially the SDGs.[6] This Program was the result of broad consultations and collaboration between government and society. Together with citizens' consultations, we involved experts in all relevant areas. The point of departure for the development of the Government Program was the commitments made by the Government of Mexico vis-à-vis the global development agenda. Through this process, close consultation and coordination with the Mexican National Council for Agenda 2030 was important.

Public policies are always implemented in contexts of conflicting interests among multiple actors, communities, and citizens' groups. In this sense, Program 19–24 has been a guide, but not a rigid prescription for the implementation of public policy. Flexible procedures and actions, based on constant measurement and monitoring of results, were key to addressing emerging problems and the needs of different population groups. The clearest example of adaptation to change was decision-making to redirect resources, both human and material, to deal with the COVID-19 pandemic.

The problems we face are complex and require multisectoral solutions. A second key aspect of public policy implementation has been the establishment of coordination between agencies. As an example, we have highlighted the coordination among government agencies and citizens for the implementation of the Alert against Gender Violence.

The participation of the community and various actors has also been a key guideline to promote the innovative and rights-based city envisioned in Program 19–24. Our examples of the *Bienestar en tu Escuela, Mejor Escuela*, the PILARES, and PACC 19–24 show citizens' participation not just as collaborators, but in the decision-making process as well.

Experiences from the formulation of Program 19–24 were used for the formulation of the General Development Plan 2020–2040 for the city. This is the first long-term plan that will guide the development of the city. By constitutional mandate the long-term plan has been prepared by the Institute for Democratic Planning, a decentralized public body, with technical and management autonomy.

Much remains to be done, but a successful implementation of programs is yielding important results. The city administration has received 67 national and international awards in the last 5 years. The acknowledgments granted by various organizations account for the effort made to build an egalitarian city of Innovation and Rights with a commitment to the environment. Almost half of them are related to environmental policies.

Through significant investments in infrastructure, constant monitoring of results, coordination between the different government agencies, new forms of citizen participation, and association with the private sector, the city government is making sure no one is left behind.

Notes

1 Work groups were developed with participation from hundreds of people familiar with the problems of the city. Through dialogue, criticism, and informed debate, proposals for policies, programs, and lines of action were enriched to define public policy. Likewise, multiple mechanisms were established to listen and to establish permanent dialogue with the various constituencies to identify the population's needs and priorities. Together with citizens' consultations, we involved experts on various themes. A point of departure in these consultations was the commitment made by the Government of Mexico to advance the global agendas.
2 Most policy monitoring has been made with Management Indicators; this is related to the difficulty of observing development results in short periods of time. When available, we use Results Indicators to keep track of the objectives planned.
3 A literal translation of the program's name would be *Welfare for Boys and Girls, My Scholarship to Start.*
4 The literal translation of this program would be *Welfare at School – Better Schools.*
5 The Guinness Record for the longest cable car in the world. Cablebus in this area is also a policy of social justice; it provides the best transportation system for the most remote and vulnerable population areas in the city.
6 In this chapter, we highlight some of the programs that contribute towards these objectives in relation to programs for the advancement of women's rights and the environment. Programs in other areas can be found in the various documents published by the Mexico City Government to track progress.

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5

MEASURE, MOBILIZE, CONNECT

Los Angeles and the United Nations Sustainable Development Goals

Madeline Baer and Heidi Nichols Haddad

Introduction

The City of Los Angeles is at the vanguard of localizing and implementing the United Nations (UN) Sustainable Development Goals (SDGs), also known as the 2030 Agenda for Sustainable Development. Los Angeles, in 2019, was the second US city to submit a Voluntary Local Review (VLR) on *city-level* progress on implementing the SDGs to the UN High-Level Political Forum on Sustainable Development – a review process originally conceived for reporting by national governments (not cities). Moreover, at every step of the SDG localization process, Los Angeles has innovated and piloted new approaches: from partnering with local colleges and universities, to providing a transferable model of data localization, to reimagining what a VLR could be.

This chapter traces the impetus for localizing the SDGs to the local level in Los Angeles; the process of localizing the 17 goals and 169 targets,[1] including the methodologies used to adapt the goals to the local context; the main outputs of the SDG project, including data collection and reporting, and the publication of two VLRs; and the evolution of collaborations with other cities, networks, international organizations, and local partners. The VLRs explain the process of adapting the original goals and targets to the local context; provide detailed mapping of city programs, policies, and actors that contribute to the goals; report on progress; and highlight connections with community partners. By innovating and piloting new approaches to SDG implementation, Los Angeles emerged as a leader in the burgeoning city-to-city networks and convenings related to city implementation of the SDGs, and city participation in global governance more generally.

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Impetus for SDG localization

In 2017, Mayor Eric Garcetti announced that with the support of the Conrad N. Hilton Foundation and the Mayor's Fund for Los Angeles, Los Angeles would begin localizing the SDGs in the city. Why did Los Angeles choose to implement a set of development goals created by, and aimed at, national governments? A variety of events, actors, and agendas both internal and external to the city government coalesced in 2017 and 2018 to put Los Angeles on the path toward globally inspired sustainable development.

Los Angeles is a global city with local problems. The city's over 4 million residents come from all over the world, the city is home to the busiest port in the Western Hemisphere, and it is the nation's top international trade center. Alongside these global realities lie the inherently local problems of homelessness, environmental degradation, and gender inequity that residents experience daily. The decision to implement global goals around sustainable development makes sense in a city that bridges the local and the global in multiple and complex ways. This decision reflected a desire to align Mayor Garcetti's vision of making the city work for "people, the planet, and prosperity" with the SDG promise to "leave no one behind" (https://sdg.lamayor.org). It reflects a recognition that sustainable development is "not just something that happens in faraway places," but close to home (Los Angeles VLR, 2019). The SDGs provide a way to advance a primary initiative of the mayor's team: to be more data-driven, transparent, and accountable in pursuing progress. As Mayor Garcetti has been known to say, "We can't change what we can't measure."

Under the Obama administration, the US created a platform for reporting on the SDGs (https://sdg.data.gov/) but there was little updating or reporting on the SDGs in the US (Kim, 2022). Donald Trump entered office in 2016 with an explicitly anti-globalist agenda, and the withdrawal of the US from the Paris Agreement marked a time of US disengagement and lack of leadership in the global arena. This catalyzed cities all over the world who were not politically aligned with their national governments. As former SDG Program and Data Manager, Angela Kim, recalls, "For us, our involvement came out during the Trump presidency." This was a time when cities not aligned with their national governments began to think about "how they can come together to continue to protect equity and international engagement and democracy and human rights and civil rights vocally" (Kim, 2022).

This disconnect and sharp opposition to the national government's priorities in part inspired the idea that local governments could "own and implement the goals" in the absence of national leadership (Bromaghim, 2022). Former Director of Olympic and Paralympic Development and Conrad N. Hilton Foundation Fellow on the Sustainable Development Goals in the LA Mayor's Office, and current Deputy Mayor of International Affairs for the City of Los Angeles, Erin Bromaghim, recalls that within the context of the

Trump presidency "it became kind of clear that cities, and in particular, Los Angeles … could be a leader in helping carry forward this success … in terms of achieving the [SDG] agenda" (Bromaghim, 2022).

The decision to implement the SDGs grew out of existing commitments and plans at the city level. Los Angeles published its Sustainability Plan, later renamed the Green New Deal, in 2015. Los Angeles had been participating in the C40 Cities network on climate change since 2005 (www.c40.org), and as co-chair of the C40 Steering Committee since 2014. It had hosted a climate summit with cities in China in 2017, showing LA's commitment to climate action in the wake of the Trump administration's disengagement. This is when LA began to consider: "What would it mean for a city to engage, but also, how can Los Angeles position itself as a global leader in climate and sustainability?" (Kim, 2022).

A series of funders, partners, and event conveners catalyzed this effort. The Conrad N. Hilton Foundation approached the City of Los Angeles with the idea of piloting the implementation of the SDGs in LA. Then-Vice President of Grant Programs, Ed Cain, had worked for decades in the UN, and he viewed the SDGs as having the potential for universal application not limited to nation states (Conrad N. Hilton Foundation, 2018; Bromaghim, 2022). Conversations between Cain and others at the Hilton Foundation, including CEO Peter Laugharn, and meetings with Mayor Garcetti revealed a "shared understanding around the opportunity that the SDGs provide" (Bromaghim, 2022). The Hilton Foundation provided the initial grant to hire Bromaghim to be the Conrad N. Hilton Foundation Fellow on the Sustainable Development Goals in December 2017. Additional funding came from the Mayor's Fund, a private, nonprofit 501c3 that exists to pilot and test innovative policy-making ideas. The SDG localization work is housed within the Mayor's Office of International Affairs (MOIA) and was initially under then-Deputy Mayor of International Affairs, Ambassador Nina Hachigian, who was the first such Deputy Mayor for Los Angeles and the only one in the US at the time.

Individual people with global connections, experience, and vision were crucial to the decision to begin adapting and localizing the SDGs in Los Angeles (Kim, 2022). Prior to her appointment as the Hilton Fellow on the SDGs, Bromaghim had been meeting with people in the community about the possibility of implementing the SDGs in LA, including with Dr. Sanjeev Khagram, then the John Parke Young Professor of Global Political Economy at Occidental College in LA. Khagram previously led the creation of the Global Partnership for Sustainable Development Data in partnership with the UN Foundation. In February 2018, Khagram hosted a conference at Occidental College with cities including New York and Bristol, UK among others, where Mayor Garcetti launched the SDGs in Los Angeles project.[2] This 2018 conference sparked two key aspects of the SDG work in Los Angeles: the idea to conduct a VLR, which had never been attempted before; and the idea of forging academic partnerships with area colleges and universities for research support.

Mayor Garcetti himself was a unique mayor in several ways. As a former professor of international relations at Occidental College whose research focused on international development, Mayor Garcetti came to the mayor's office with a global perspective on local issues, and with an understanding of "development" as something that happens locally (Bromaghim, 2022). His creation of the MOIA is evidence of that vision for the city of Los Angeles, as a global city that engages directly in international affairs. Other individuals in the Garcetti administration played key roles in launching the SDG work. Jeanne Holm, now the Deputy Mayor for Budget and Innovation, came to the mayor's office with a background at the World Bank and worked on the online source of the US government's open data under the Obama administration. She worked directly in support of Bromaghim and Kim's work on the data aspects of SDG localization.

Various foundations and organizations also provided key early support. The Hilton Foundation was already funding a $5.4 million project to train University of California Los Angeles (UCLA) students on evidence-based approaches to achieving the SDGs (Conrad N. Hilton Foundation, n.d.). This served as a model for development of academic partnerships with Occidental, UCLA, University of Southern California (USC), Pomona College, and Arizona State University. The Brookings Institution convened an international meeting of city leaders in Bellagio, Italy in 2019 to allow cities to discuss in person their work on the SDGs. The UN Department of Economic and Social Affairs organized a series of convenings for city practitioners.

The decision to localize the SDGs to the city level in Los Angeles was the result of the alignment between local priorities and many of the global goals, the catalyst of the Trump administration's withdrawal from global commitments, and the influence of individuals inside city government, including a globally minded mayor, and various partners across the public and private sectors. These individuals formed partnerships and developed an innovative vision for adapting the global goals to address local problems in LA.

Process of SDG localization

The process of localizing the SDGs in Los Angeles reveals the challenges and opportunities raised when attempting to implement a set of targets created by and for national governments at the subnational level. Mayor Garcetti's team chose to address all 17 SDGs, including all 169 targets – a daunting task even with the dedicated MOIA staff. This approach was distinct from state-based voluntary reporting, wherein the High-Level Political Forum on Sustainable Development highlighted a few SDGs for states to report on each summer. VLRs were so new that there were no standards for how to report on the goals. MOIA staff chose to report on all the goals, as they viewed the goals as complementary and intersecting. To buttress MOIA staff and resources, the mayor's office partnered with faculty and students at Occidental College,

Arizona State University, UCLA, and USC.[3] Eighteen students from these schools were brought to Los Angeles in the summer of 2018 to form a Task Force working directly with MOIA. One of the pioneering innovations that the Los Angeles SDG team developed was a four-phase methodology for implementing the SDGs at the local level (Los Angeles VLR, 2019).

Phase 1: mapping and alignment

This phase entailed mapping local activities that were already taking place in the public, private, and non-profit sectors of Los Angeles onto the SDG framework. The goal was to map all the "plans, policies, initiatives, measures of impact, services, or business areas" in place in Los Angeles that align with the goals (Bromaghim & Comer, 2019; Los Angeles VLR, 2019, pp. 5–7). The purpose was to identify the relevant stakeholders for each SDG target, and to establish a baseline of current activities on each target, including progress made and challenges that remained.

Phase 2: gap analysis

While identifying gaps in the current activity at the city level on each target, Task Force students quickly flagged that some of the goals and targets were not consistent with city priorities and jurisdictions. For example, public health falls under the purview of the County of Los Angeles, which comprises 88 cities including LA. The Los Angeles Unified School District (LAUSD) has jurisdiction over K-12 education and is independent of both the county and city of Los Angeles. The SDGs reference international obligations of countries with higher economic development to developing countries, such as foreign aid and preferential trade status, which the city has no authority to execute (Bromaghim & Comer, 2019, p. 7). Therefore, the next step was to determine the applicability of the SDGs – the targets and goals set for national governments – to the city level.

Phase 3: localization

The localization phase represents an evolution of the idea of "*implementing* the SDGs" at the local level to "*adapting* the SDGs, their targets, and indicators to fit a local context and setting" (Los Angeles VLR, 2019, p. 6; emphasis added). This phase included an extensive review and evaluation of all goals and targets, which is described below. Once the targets were identified and, in some cases, revised, the SDG team focused on how to best measure progress on the targets. Creating a quantitative baseline of progress toward meeting the goals and targets required identifying existing data sources, establishing appropriate indicators to measure progress, disaggregating data by demographics and geography when possible, and identifying gaps in existing data (Los Angeles VLR, 2019).

Phase 4: mobilization

Mobilization is key to implementing the goals at the city level. This phase refers to the ongoing work to marshal support for the project, share ideas about best practices, and create new partnerships within and outside the city. From working with local universities and colleges, to building bridges across policy leaders within the city governance structure, to networking with other cities all over the world, the mayor's team prioritized outreach and connection to strengthen the work.

To systematically assess the applicability of the SDGs to the local level (Phase 3 above), students developed a five-step methodology:

Step 1: Sort
Step 2: Apply "the golden rule"
Step 3: Revise or replace target language
Step 4: New targets
Step 5: Validation

The students created a 0–4 scoring rubric to reflect the extent of revisions necessary and the type of action required for each goal (see Table 5.1).

Step 1 was to sort and evaluate targets for applicability. Students sorted all 169 targets into a simple binary of "not applicable" (0 in the rubric) and "applicable as written" (1 in the rubric). They determined that 69 targets were applicable as written, leaving 100 to either be revised or excluded. Those that were not applicable included targets outside the city's legal or structural purview, such as the granting of preferential trade status (associated with SDG 10: Reduced Inequalities) or Target 10.5: Improve the regulation and monitoring of global financial markets (Bromaghim & Comer, 2019, p. 7; Los Angeles VLR, 2019, p. 9). Targets that were applicable as written included

TABLE 5.1 Los Angeles's SDG target applicability and revisions

Rubric number	*Description*	*Number of targets*
0	Not applicable (SDG target does not apply at local level)	13
1	Literal (SDG target applies exactly as written)	69
2	Target revised (SDG target can be revised by adjusting terms)	82
3	Target revised (SDG target requires a replacement target)	5
4	Target added (A new target should be added)	1

Source: adapted from Bromaghim and Comer (2019, p. 14 and Annex A).

Target 3.5: Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol (Los Angeles VLR, 2019, p. 9).

Second, students assessed the necessary revisions to the 100 targets that were found to be "not applicable" as written. They applied what they called "the golden rule" to determine which might be applicable with revised language or context, with the goal of maintaining the original intent and vision of the goals where possible. Step 3 entailed revising and replacing the language of targets to make them applicable to the city context. Students noted that some required a numeric adjustment, such as for SDG 1 (End Poverty), Target 1.1, which sets the marker of extreme poverty at US $1.25 per day, which is too low for residents of Los Angeles and therefore not helpful in addressing the goal of ending poverty. Others required replacement language, such as SDG 6 (Clean Water & Sanitation), Target 6.A, which calls for expanding international cooperation with developing countries. As this is outside the scope of the city's actions, the language was changed to expanding "local and community" efforts related to improving water and sanitation (Los Angeles VLR, 2019, p. 9).

A total of 82 targets were revised. Five targets were replaced in cases where the SDG as written did not apply but could be replaced and rewritten in a way that preserves the intent. For example, SDG 8 (Decent Work & Economic Growth), Target 8.10: Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance, and financial services for all. This target was rewritten to call on the city to: "Encourage the expansion and greater access for all to banking, insurance, and traditional and emerging financial services" (Los Angeles VLR, 2019, p. 9).

The fourth step entailed developing new targets to ensure inclusivity. One target was added: "SDG 5, Target 5.x: End all forms of discrimination against LGBTQIA+ persons and ensure that LGBTQIA+ persons have equal access to services, education, and employment opportunities" (Los Angeles VLR, 2019, p. 9). SDG 5 does not explicitly mention these communities; therefore, a new target was created to bring attention to these marginalized groups and to allow for the creation of specific indicators to capture discrimination and exclusion of LGBTQIA+ persons in LA.

The result of this process was a set of 157 targets that were applicable to the Los Angeles context. These targets were used to identify the appropriate indicators and data sources to measure the goals. The fifth and final step was to coordinate with the mayor's office to "validate" the proposed revisions. This remains an ongoing process of determining how these proposed revised goals align with policies and plans within the city and identifying the relevant "policy leads" within the city's governance structure to work on specific goals. Returning to the example of the global metric of $1.25 per day for SDG 1 (End Poverty), the mayor's office considered how might extreme poverty be measured accurately in LA? During this validation phase, the team

considered other measures such as the minimum wage and cost of living measures to better capture this goal.

When Los Angeles began this project, there was no template for adapting and localizing the SDGs to the city context. New York City had begun work on their own VLR process; however, they had a unique process that involved adapting a pre-existing citywide plan for development (which Los Angeles did not have). The MOIA staff considered several approaches for localizing the SDGs. The four-phase methodology the MOIA office ultimately created (map and align, gap analysis, localization, and mobilization) provides a template for other cities seeking to implement the SDGs. Although other cities may not have adopted Los Angeles's methodology step-by-step, Bromaghim (2022) notes that the hope was that sharing the methodology would "make it acceptable for folks to reinterpret the targets to reflect their respective place-based contexts without losing the intent of the goals."

Overall, this process fits under the broader strategy that MOIA describes as: "Measure, Mobilize, and Connect." MOIA focused on measuring progress using data, mobilizing partners within and outside the city governance structure, and connecting with partners internationally (Kim, 2022).

Data collection and VLRs

Los Angeles's implementation of the SDGs resulted in three main outputs, all of which include data collection, reporting on progress, and sharing tools and methodologies used in the process: (1) The SDG Local Data Reporting Platform, (2) The SDG Activities Index, and (3) VLRs in 2019 and 2021. Locating data and reporting on the targets were the first steps toward identifying gaps in goal achievement, which could then be used to inform policy.

SDG Local Data Reporting Platform

The SDG Local Data Reporting Platform (https://sdgdata.lamayor.org) is a demonstration of the city's commitment to transparency and accountability around progress on the SDGs. The platform was created by MOIA with support from the City of LA's Information Technology Agency, the Hilton Fund, and the Mayor's Fund for Los Angeles. Launched in 2019, the platform is available on an interactive website that presents indicator data for each of the SDGs in Los Angeles. Users can search by Goal to find current data on each Target. For example, for Goal 3 (Good Health and Well-being), Target 3.1 calls for reducing the global maternal mortality ratio for every race and ethnic group. One of the indicators for this Target is: 3.1.1 Maternal mortality ratio. The data for the county are provided, and these data can be disaggregated by race/ethnicity to show the maternal mortality rate for various ethnicities as it compares with the county rate.

The overall reporting status for all 247 indicators shows that Los Angeles is reporting on 70% of the indicators online, is exploring data sources for 21.5%, and 8.5% of the indicators are not applicable to the platform (https://sdgdata.lamayor.org/reporting-status/). The platform itself is available for free use by other cities who wish to publicly track their progress.

SDG Activities Index

Launched in 2020, the SDG Activities Index (https://sdg.lamayor.org/get-involved/sdg-activities-index) is a searchable online portal of all the people and organizations working to advance the SDGs in Los Angeles. Partners include the nonprofit sector, private sector, philanthropy, and government projects and offices. Users can search by the relevant SDG, by themes such as Food & Health, Environment & Economic Opportunity, and Homelessness & Housing, among others, or by sector, such as Academia, Private Sector, or Government. The database can select Projects or Organizations to expand upon. For example, a search for SDG 5 (Gender Equity) and Organizations reveals eight nonprofit organizations conducting work that advances gender equity in the city. A search for SDG 5 and Projects reveals nine projects, including initiatives by governmental actors including the Department of Recreation and Parks, the Mayor's Office, and the Los Angeles Fire Department.

VLRs

The 2030 Agenda for Sustainable Development encourages member states to regularly complete a Voluntary National Review (VNR) to be presented at the annual High-Level Political Forum meeting hosted by the UN Economic and Social Council (ECOSOC). The 2030 Agenda does not specifically call for local actors, such as cities or other subnational governments, to report on their progress or conduct reviews. Los Angeles was an early innovator in reporting on SDG implementation at the city level. In addition to the data sharing documented above, Los Angeles completed two VLRs in 2019 and 2021. The first VLRs were completed by three cities in Japan (Kitakyushu, Shimokawa, and Toyama), and by New York City in 2018 (Ortiz-Moya & Kataoka, 2022). By 2019, 25 cities had completed VLRs. By 2021, that number rose to 49, and there are currently close to 100 cities, towns, and other forms of local government that have completed VLRs (Ortiz-Moya & Kataoka, 2022, p. 2). While there were no official templates or guidelines for these early VLRs, there was support for the process from the C40 network, the Brookings Institution, the Hilton Foundation, and UN-Habitat, among others. In 2019, 22 cities signed a declaration led by New York City called the "Voluntary Local Review Declaration" to conduct a VLR and present it at the High-Level Political Forum. The number of signatories has grown to 68 local and regional governments. Brookings launched its SDG Leadership

Cities Network as a forum to share best practices. Several UN agency-sponsored guidelines for conducting VLRs were published in 2020.

For Los Angeles's first VLR in 2019, MOIA staff drew inspiration from New York's 2018 VLR, a somewhat comparable US city, and from Ireland's 2018 VNR, which provided an example of a report that was well structured and organized (Bromaghim, 2022). New York's VLR was instructive as it documented how the SDGs mapped onto and aligned with existing city policies and plans, as outlined in New York's One City Plan. Los Angeles also chose to begin with this mapping and alignment exercise (see Phase 1 above) with existing city actors, policies, etc. in its first VLR. The extensive Annex to the Los Angeles VLR maps all SDG goals and targets against three categories of actions: Los Angeles's Green New Deal (https://plan.mayor.lacity.gov/), Resilient Los Angeles (https://resilientcitiesnetwork.org/downloadable_resources/Network/Los-Angeles-Resilience-Strategy-English.pdf), and the various policy actions and initiatives of the Garcetti administration.

The MOIA team chose to report on initiatives and programs for all 17 goals, as revised using the methodology described in the previous section, with a focus on eight goals. Two of these eight were priority goals for the mayor's administration: SDG 5 (Gender Equality) and SDG 11 (Sustainable Cities and Communities). Five of the eight goals are under review by the High-Level Political Forum on Sustainable Development: SDGs 4, 8, 10, 13, and 16. The VLR also includes a brief case study of SDG 15 (Life on Land) and how this overlaps with LA's work on biodiversity in the city.

Although SDG 5 was not under review at the High-Level Political Forum, gender equality was a policy priority of the Garcetti administration and there were several programs already in place to meet the goal of reducing gender inequity and discrimination. For example, the mayor's office worked previously with the Los Angeles Commission on the Status of Women and Mount Saint Mary's University to establish baseline measures for gender equality in 2013. This work informed the first Report on the Status of Women and Girls in Los Angeles in 2014. Los Angeles was also the second city in the US to adopt the Covenant on the Elimination of All Forms of Discrimination Against Women (CEDAW) in 2003, which Garcetti advanced through several Directives that institutionalized city programs toward gender equality.

The 2019 VLR details a sampling of the various initiatives, Executive Directives, and policies both within the city governance structure and across the city, with explanations of how these programs map onto the gender-related SDG targets. An example of a program that cuts across several targets is the Family Justice Center, which provides resources for survivors of domestic abuse, elder abuse, and sexual assault (Los Angeles VLR, 2019, p. 16). Executive Directive 11, "Gender Equity in City Operations," created a coalition that includes a liaison from every city department and coordinates the city's responsibilities under CEDAW. The directive also created a Gender Equity Action Plan to increase gender parity across all levels of governance.

Gender parity was reached early in Garcetti's administration on all Boards and Commissions, and half of all city department heads were women (Los Angeles VLR, 2019, p. 17).

The one added target to the SDGs was Target 5.x – End all forms of discrimination against LGBTQIA+ persons and ensure LGBTQIA+ persons have equal access to services, education, and employment. The VLR highlights the work of the Transgender Advisory Council (TAC), a community-led group that advises and serves as a liaison between the transgender community and the mayor's office, City Council, and other governance bodies. Its Housing and Homelessness Committee advocates around housing and homelessness issues in the transgender community (Los Angeles VLR, 2019, p. 20). In total, the VLR presents over a dozen events, programs, and initiatives that map onto SDG 5 targets.

The VLR also documents initiatives around SDG 11 on sustainable cities, such as the mayor's efforts to reduce homelessness and improve transportation, among others. Although education is not under the jurisdiction of the mayor's office, the city reports on various education-related programs related to SDG 4, from providing funding for community college students, to paid summer jobs for low-income youth, and college and career advising programs for marginalized communities. Achieving greater economic equality (SDG 10) includes Los Angeles's decision to raise the minimum wage to $15 per hour. And Los Angeles's Green New Deal, announced in April 2019, maps onto SDG 13 as well as the city's commitment to the Paris Climate Agreement.

Los Angeles's 2021 VLR touches on several interrelated themes:

> Our efforts to realize the SDGs are rooted in community-based action, building tools and partnerships as enablers and multipliers, centering the lived experience of our residents to leave no one behind, and engaging with a growing, global community of practice.
>
> *(Los Angeles VLR, 2021, p. 9)*

According to Angela Kim (2022), part of the goal for this report was to show that VLRs "can be anything cities want them to be – whatever works for their specific government." While some guidelines on how to report local progress on the SDGs were produced by various international organizations by this time, Kim emphasized that cities are not constrained by rules or resolutions about how to conduct the review; cities have the autonomy to evaluate and report in a way that makes sense for their local context.

The 2021 VLR was created within the context of the global COVID-19 pandemic. The report highlights how the pandemic exacerbated inequalities within the city, and notes the steps taken by the administration to respond quickly, including setting up one of the first and largest COVID-19 testing programs in the world, and providing vaccines at city-run sites to millions of residents (Los Angeles VLR, 2021, p. 13). The report includes details about

how the pandemic impacted local communities in the areas of housing, health, and hunger; how the pandemic exacerbated challenges within many of the 17 goals; and how the crisis disproportionately impacted women. This is a prime example of viewing the SDGs as a set of interrelated goals.

The 2021 VLR highlights the intersections of the SDGs with other plans and programs in the city. Since the launching of the SDG project in LA, four city departments adopted the SDGs into their planning and mapped the work they do onto the relevant SDGs. For example, the Los Angeles Public Library created a chart showing how their programs and services map onto each of the 17 goals (Los Angeles VLR, 2021, p. 13). The Los Angeles Green New Deal outlines targets for energy, water, air quality, and food waste, among others, and these targets are aligned with the SDGs in the Green New Deal documents.

The report details how Los Angeles organizes its SDG work into three areas: Measure, Mobilize, and Connect. Measure refers to the extensive data collection that informs the city's progress on the goals. Los Angeles was the first city to report SDG data at the level of indicators using an open-source platform. As of 2021, Los Angeles reports on 159 indicators using data from a variety of sources (Los Angeles VLR, 2021, p. 19). Another key innovation of the Los Angeles work is the call for disaggregating data to capture differences across demographic and geographic categories. Over 30% of the indicators provide disaggregated data by race, gender, age, and other categories. The report also incorporates qualitative data, such as personal narratives, to provide a more robust picture of the goals in action.

LA's approach to implementing the SDGs relied heavily on mobilizing support both within the city governance structures and through partnerships with academic institutions. The SDG Advisory Group brought together ten departments and eight mayoral policy teams, including the Department of Water and Power, the Tourism Department, and the Bureau of Street Lighting, among others (Los Angeles VLR, 2021, p. 19). The launch of the SDG Activities Index was another way to connect and mobilize visibility for the SDGs in the city. As documented in the next section, the ongoing collaboration with academic institutions was a key element in advancing the work. MOIA staff organized and coordinated a student cohort of 54 students in 2020, and seven more student groups in 2021 for a total of 25 student-led Task Force groups over four years (Los Angeles VLR, 2021, p. 17).

Before reviewing actions and progress of each of the 17 goals, the 2021 VLR spotlights three initiatives that overlap with the goals: People, Planet, and Prosperity. The People section (SDGs 1, 10, 11, 17) spotlights an individual story of a Los Angeles resident experiencing housing insecurity. The story presents a timeline of her story, tracing how she came to struggle with the lack of affordable housing, and it lists interventions that could have helped her and her children to stay housed. The Planet section (SDGs 7, 11, 13) details the mayor's targets for energy, water, housing, and waste, among

others, including a target to supply 100% renewable energy by 2045. The Justice Budget is presented in the Prosperity section (SDGs 1, 8, 10, 16), with elements of the city's budget that aim to address income inequality and poverty. For example, the budget earmarks $1 billion to the homelessness crisis, $300 million for racial and economic justice efforts, and resources to assist those residents hardest hit by the pandemic. These three sections of the VLR showcase the efforts of the administration to address the content of some of the goals and highlight the interrelated nature of the goals.

The report documents key data points, progress made, and a snapshot of programs and policies that address each of the 17 goals. The report also notes where Los Angeles has adapted or added new targets or indicators. As noted above, SDG 1 Target 1.1 sets the marker of extreme poverty at US $1.25 per day; Los Angeles instead uses the federal poverty level ($26,200 for a household of four) as the measure of poverty. A few programs to address SDG 1 (No Poverty) are highlighted in the 2021 VLR, including emergency rental assistance during the pandemic, the Safe Parking program which provides services and a safe place for people living in their cars at night, and a Children's Savings Account program that provides every first-grader in the LAUSD a savings account and $50 to start their savings (Los Angeles VLR, 2021, p. 37).

The city expanded its data reporting on SDG 5 (Gender Equality) to include indicators that capture the gender pay gap, access to childcare, and inclusivity for LGBTQIA+ residents. Mayor Garcetti issued Executive Directive 11, which focuses on gender equity within city operations by creating a reporting and accountability structure in all city departments. The 2020 summer cohort of student researchers conducted extensive research on best practices from other cities on LGBTQIA+ inclusivity and representation. As a result, Los Angeles modified the SDG targets to include indicators that measure this level of inclusion and worked to disaggregate other data by sexual orientation and gender identity. Los Angeles also co-founded an international coalition of cities committed to achieving gender equity called City Hub and Network on Gender Equity (CHANGE) (https://citieschange.org). This is a prime example of the "Connect" aspect of the work, in which the city seeks out opportunities to share knowledge and collaborate with other cities.

In the section on SDG 10 (Reduced Inequalities), the VLR notes how systemic inequalities and discriminatory housing policies contribute to economic inequality by looking at disparities in household wealth. To capture this, the VLR provides data showing that in 2016, white households in Los Angeles had 90 times the wealth of black and Mexican-origin households. In response, the report notes how Mayor Garcetti's Executive Directive 27, "Racial and Equity in City Government," appointed a Chief Equity Officer, established Racial Equity Officers in each city department, and tasked each department with creating a Racial Equity Action Plan that reviews and provides data on

hiring, training, and promotions, among other areas. A student Task Force in 2021 worked with the Chief Equity Officer to explore how Los Angeles can use truth-telling practices to recognize, take responsibility for, and repair past racial harms (Los Angeles VLR, 2021, p. 55).

Los Angeles was truly at the vanguard of the burgeoning movement toward city-level implementation of and reporting on the SDGs. There was no model for conducting VLRs or reporting on city-level progress when they began. Mayor Garcetti's team produced two VLRs that are unique and innovative in their structure and content. The 2019 VLR provides a thorough and detailed mapping of existing city programs, policies, and involved actors, and it presents the results of the extensive process of revising and adapting the goals and targets. The 2021 VLR highlights the city government's connections with community partners, the impact of the pandemic on local communities, and it uses storytelling to provide a human face for the goals. Both reports present a vision of the SDGs as integrated, interdependent, and closely aligned with local policy goals.

Collaborations

Collaborations with other cities, think tanks, foundations, and local colleges and universities have been central to Los Angeles's SDG localization efforts. These partnerships are not focused on achieving particular goals or targets, but rather on working collaboratively to gather data and build capacity for continued monitoring and reporting. Such collaborations helped spark the initiative, supported it through funding and capacity-building, and served as channels of knowledge sharing. Further, the collaborations themselves demonstrate the real impact of the SDG localization initiative: hundreds of local university students became invested in the City of Los Angeles and in implementing the SDGs. Cities across the world have reached out to Los Angeles to seek their expertise on how to localize the SDGs in their own cities.

City networking

Prior to Los Angeles's first VLR in 2019, the city was already informally liaising with other global cities on what it would mean to localize the SDGs and how it could potentially be done. In February of 2018, Occidental College hosted a multi-day conference with city leaders from Los Angeles, New York, and Bristol, among others, during which the idea of a "voluntary metropolitan review" or "voluntary municipal review" came up during discussion (Bromaghim, 2022). Following this conference, city-to-city relationships among staff working on the SDGs continued. Los Angeles's 2019 VLR specifically acknowledges that the VLR was "enriched by conversations and sharing" with individuals from New York City, Bristol, and Madrid – these cities being some of the first major cities to develop VLRs and submit them to the UN High-Level Political Forum (Los Angeles VLR, 2021, p. 56).

Following its 2019 VLR, Los Angeles's collaborations, communications, and knowledge sharing with other cities vastly grew, with Los Angeles serving as a critical hub of expertise and technical know-how. Through LA's Chief Data Officer, Jeanne Holm, who had previously worked on Data.gov in the Obama administration, Los Angeles was able to connect and collaborate with a Washington, DC-based nonprofit, Center for Open Data Enterprise (CODE), to retool the open-source data platform, Open SDG, for use by local governments (Kim, 2022). According to Open SDG, at least ten other local governments now use the data platform (https://open-sdg.org/community). Also through a previous association of Jeanne Holm, Los Angeles connected with the Thematic Research Network on Data and Statistics (TRENDS). In 2018–19, Los Angeles was awarded a Local Data Action Solutions Initiative Microgrant, which allowed Los Angeles to prepare a "guidance brief" outlining their SDG localization methodology and accompanying data solutions to serve as a reference for SDG localization efforts globally (Bromaghim & Comer, 2019). Los Angeles has been frequently invited to, and participated in, various convenings of city practitioners by the UN Department of Economic and Social Affairs (UN DESA), UN Habitat's Urban Monitoring Framework, Brookings SDG Leadership Network, and the Japanese-based Institute for Global Environmental Strategies (IGES) (Kim, 2022). Such city-to-city meetings both fostered new relationships across city personnel and solidified Los Angeles as a leader in the SDG space. Since 2019, approximately 50 cities have reached out to Los Angeles asking how to localize the SDGs in their own cities. For these cities, liaising with Los Angeles is a source not only of expertise but also of legitimacy: saying that they met with Los Angeles helps them build momentum with stakeholders in their own cities (Kim, 2022).

Los Angeles's 2021 VLR, in reporting on SDG 17 (Partnerships for the Goals), shows a map with nodes from Los Angeles spanning out to 50 countries across the world, on all continents save Antarctica. These nodes represent Los Angeles's city-to-city partnerships related to the SDGs as well as those related to climate, gender, and migration through C40 Cities, CHANGE, the Mayor's Migration Council, and the Urban 20 (U20), among others (Los Angeles VLR, 2021, p. 73). Los Angeles does not see localization of the SDGs as isolated from these other city-level global initiatives but as part of a broader vision for city participation in global governance. In the VLR, Los Angeles "call[s] on our and other national governments to increase the recognition and participation of cities and local governments as essential contributors to inclusive global partnerships for the Goals and our networked, multilateral future" (Los Angeles VLR, 2021, p. 73).

Partnerships with universities and colleges, foundations, and think tanks

As previously mentioned, Ed Cain, Vice President of Programs at the Los Angeles-based Conrad N. Hilton Foundation, was one of the initial drivers of

Los Angeles's SDG localization. Having spent 30-plus years at the UN, Cain saw great potential in the SDGs as the first truly universal shared agenda (Bromaghim, 2022). In 2017, the Hilton Foundation provided an initial grant to the Mayor's Fund for Los Angeles – a local nonprofit with the mission to pilot innovative ideas that align with mayoral leadership – to hire a steward to test SDG localization in the Mayor's Office. The grant was part of a larger foundation focus on the SDGs: between 2019 and 2022, the Hilton Foundation granted $6,740,000 related to the SDGs with three grants specifically related to city localization.[4]

One such grant was to the Brookings Institution in 2020 to support a "Cities Playbook and Advocacy Plan for Advancing the SDGs." One year earlier, Brookings – with philanthropic support from Robert Wood Johnson Foundation, the Charles Stewart Mott Foundation, and Rockefeller Bellagio Center – built out the Local Leadership on the Sustainable Development Goals project, of which Los Angeles has been a key member and contributor (Brookings, n.d.). Los Angeles has participated in the annual convening of the SDG Leadership Cities Network – a meeting of 17 ambitious cities working on SDG localization – and has written a "how to" guide on building city–university partnerships on the SDGs for Brookings's "City Playbook for Advancing the SDGs" (Brookings, 2022). Further, Los Angeles Mayor Eric Garcetti gave the keynote address at the second annual event, "American Leadership in Advancing Progress on the Sustainable Development Goals," hosted by Brookings and the UN Foundation, during which US mayors, governors, philanthropy organizations, private investors, business leaders, universities, and civil society met during the UN General Assembly to discuss ways to advance the SDGs in the US (Brookings, 2020).

In addition to financial support, city SDG efforts require local capacity. Although Los Angeles is one of a few US cities with departments of international affairs, there is no staff member that exclusively works on the SDG initiative. All wear multiple other hats. Because of this, research partnerships with local colleges and universities – including Arizona State's Thunderbird School of Management, Occidental College, Pomona College, UCLA, and USC – have provided critical capacity to Los Angeles's SDG initiative (Bromaghim & Kim, 2020). The partnerships take two forms: student summer internships under the supervision of a faculty member or city staff member and small Task Force courses offered during the academic year. Since 2018, Los Angeles has partnered with faculty and more than 160 students on 25 projects that relate to 13 of the 17 SDGs and the localization methodology (https://sdg.lamayor.org/our-work/projects).

Some of the projects include developing a methodology to measure biodiversity metrics in Los Angeles (SDGs 11, 13, and 15), evaluating funding allocations of Community Development Block Grants (SDGs 1, 8, 10, 11, and 16), and researching and proposing a list of indicators to measure gender equity at the local level (SDGs 5 and 10).

The benefits of these academic partnerships extend beyond capacity. College students often have diverse identities, life experiences, and broad theoretical knowledge and can push research initiatives to be more inclusive or consider alternative perspectives (Chen & Shinners, 2022).

Having such recommendations come from students, who are outsiders and the voice of youth, can serve as a "political shield" for those piloting and implementing the initiatives within the local government (Kim, 2022). For the students, participating in a real-world research project builds their research and professional skills and enables them to apply their theoretical knowledge to policy questions (Baer & Haddad, 2023). Such partnerships also cultivate local, civic engagement and provide the opportunity for young people to see themselves as stakeholders in the implementation of the SDGs (Chen & Shinners, 2022).

Conclusion

In 2017, the Hilton Foundation provided Los Angeles funding to attempt a "proof of concept" of city localization of the SDGs. In the subsequent years, Los Angeles's SDG efforts have far exceeded that threshold. Los Angeles has developed academic partnerships, built a shareable data platform for measuring local SDG implementation, submitted two VLRs documenting SDG integration into city policies and practices, and helped connect and support city-to-city collaboration and information sharing – much of this occurring amid a global pandemic and without any federal support.

When Los Angeles first embarked on SDG localization, there were no guidelines or best practices for conducting VLRs, localizing the SDGs, or forging university partnerships. Los Angeles's success in these areas is attributable to several factors. Mayor Garcetti had the political will and the willingness to expend resources to implement the project. Networks of cities allowed Los Angeles to brainstorm with partners in New York and other cities about creative ways to engage with the SDGs. And finally, Los Angeles staff formed partnerships with universities to sustain the labor-intensive work. Through these efforts, Los Angeles established itself as an early innovator on SDG reporting at the local level, and many cities have borrowed the city's approach to data reporting and analysis. Over 300 cities have since completed VLRs worldwide, and many cities are embarking on city–university partnerships.

Nevertheless, as of 2023, the future of Los Angeles's SDG initiative is uncertain. Mayor Garcetti, who was termed out in 2022, left office and it is unclear whether the program is sufficiently institutionalized and aligned with the new mayor's priorities to continue. His successor, Mayor Karen Bass, retained key staff and the SDGs remain an area of work for MOIA albeit with limited resources. While the MOIA will remain, the number of staff within the department remains a fraction of what other major, global cities employ (Truman Center, 2022). Former Los Angeles Deputy Mayor for

International Affairs Nina Hachigian spearheading the newly established Office of Subnational Diplomacy in the U.S. Department of State suggests that the federal government acknowledges that city-led initiatives on global issues, such as Los Angeles's SDG implementation, are of consequence and require federal attention, yet it remains to be seen whether, and in what ways, that will translate into tangible support (Blinken, 2022).

Notes

1 There are 169 targets associated with the 17 SDGs, and over 240 indicators that measure national progress toward those targets. Los Angeles developed a process to localize those goals, targets, and indicators to the city level.
2 Keynote address available at: www.youtube.com/watch?v=Je_wx-PUgtI&t=3587s.
3 This work was partially funded with a microgrant from the Local Data Action Solutions Initiative (LDA-SI), a joint effort between the Sustainable Development Solutions Network's Thematic Research Network on Data and Statistics (SDSN TRENDS) and the U.S.A. Sustainable Cities Initiative. The grants were provided to support cities engaging in subnational monitoring of the SDGs.
4 Data were ascertained by searching through the Hilton Foundation partnership grants database, available at: https://www.hiltonfoundation.org/grants/3/?t_program_area=33.

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6

SUSTAINABLE WELFARE AND DEVELOPMENT IN GLADSAXE

Line Vind

Global political leadership and local action

There is no single recipe for localizing the Sustainable Development Goals (SDGs), because the different needs and preconditions in each locality require different approaches. We need to develop tailored methods and actions that respond to the specific local context of organizations and communities.

The Municipality of Gladsaxe, as part of the Greater Copenhagen conurbation, is ambitious and has had a vision of sustainable development for many years. Environmental, social, and economic sustainability are all priorities for the City Council in Gladsaxe. Therefore, Gladsaxe was the first municipality in Denmark to integrate the SDGs in its strategy for the municipality.

The basis of Gladsaxe's strategy is that long-term sustainable development requires political global leadership and local action. Therefore, the United Nations' (UN's) SDGs provide a unique opportunity for cities, regions, and municipalities to act given they are the authorities closest to citizens and companies.

Gladsaxe has embraced the SDGs because we want to make a difference. Therefore, we have integrated the SDGs into core operations throughout the organization and local services for citizens, businesses, and the local community. This has shown how the SDGs can help raise the bar in developing the municipal core tasks today in ways which also contribute to a better life for future generations.

Our experience after six years of working with the 2030 Agenda is that addressing the SDGs is very meaningful as well as effective, both in top management but also in practice. By integrating the SDGs into political and strategic management and using them to further develop core functions, services, and activities, they can contribute to new ways to create public value.

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They can be harnessed as a new way to manage a city, which improves not only the municipal organization but also the local community, because they make sense to employees, citizens, local actors, and enterprises.

The SDGs are interdependent and all of them are important for sustainable development. As a municipality, Gladsaxe has a special opportunity to contribute more to some of the SDGs than others. Therefore, we have prioritized eight SDGs which can be integrated directly into our objectives:

- Good Health and Well-Being (SDG 3)
- Quality Education (SDG 4)
- Decent Work and Economic Growth (SDG 8)
- Sustainable Cities and Communities (SDG 11)
- Responsible Consumption and Production (SDG 12)
- Climate Action (SDG 13)
- Life on Land (SDG 15)
- and finally, Partnerships for the Goals (SDG 17) to achieve the goals.

This does not mean that other SDGs than those highlighted cannot be applied. If more SDGs are relevant and make sense in local practice in the operating areas or in collaborations with external actors, they can be applied as well.

In Gladsaxe, the SDGs provide a common language and view on what sustainable development means and requires from everyone. The Municipality of Gladsaxe cannot make changes by going it alone, however. Cooperation in partnership with local actors is crucial to obtain the required changes in the long run. Therefore, in this chapter we share the experience of Gladsaxe to inspire others and thereby further contribute to the collective effort to achieve a more sustainable world by 2030 and beyond. Our aim is to present our approach because we think it can be useful and inspiring for other municipalities and organizations, as it presents a transformational strategic approach by which we have succeeded in mobilizing the organization and local community in promising ways driven by political leadership, strategic management, and local action within and outside the organization.

Gladsaxe's strategy – a local strategy with impact

Gladsaxe is among the front-runners on the 2030 Agenda in Denmark and in the Nordic countries and has cooperated with other municipalities on how to work for a more sustainable development at the local level. Gladsaxe has contributed through three Voluntary Local Reviews to the UN in 2021, 2022, and 2023, to the Danish Government's national action plan for the global goals in 2021, the Danish Voluntary National Review in 2021 as well as to publications, workshops, and networks on local action for sustainable development such as the UN Department of Economic and Social Affairs (DESA) and Nordregio (the Nordic Council of Ministers' research unit), among others.

In Gladsaxe the SDGs reinforce the development of sustainable growth and welfare. Our vision is based on the same foundation as the SDGs: social, environmental, and economic sustainability, which have been integral parts of Gladsaxe's DNA over many years.

The SDGs were introduced during the development of the municipal strategy for the City Council's political term 2018–22. As a municipality we have a special opportunity to contribute to sustainable development particularly concerning local environmental issues, healthcare, social balance, education, and setting the scene for a more sustainable local community. Therefore, in 2017 the City Council prioritized the seven SDGs mentioned above, not including SDG 15, that we could integrate directly into Gladsaxe's strategic objectives at that time.

Due to the valuable experience from the first edition of Gladsaxe's Strategy with integrating the SDGs into our local goals and practice, the City Council expanded the view on the SDGs in the new, second edition of Gladsaxe's Strategy 2022–2026. In this, SDG 15 about Life on Land was specifically added as one of the highlighted SDGs. More generally, in the current strategy period Gladsaxe is working with all the SDGs as a framework given that they interact and are interdependent. Gladsaxe's approach is to be flexible in focusing on and applying specific SDGs dependent upon changing needs and priorities. Thus, the idea in the strategy for 2022–2026 is that all those SDGs which are perceived as most relevant locally over the next five years can be integrated in whatever ways make sense and can help raise the bar in the operating areas within the organization or in local partnerships. For instance, the SDGs End Poverty (SDG 1), Gender Equality (SDG 5), Affordable and Clean Energy (SDG 7), and Reduce Inequality (SDG 10).

The SDGs provide a shared frame of reference for the strategic management and development of the municipality. On a larger scale they support the transformation from a classic Public Administration and New Public Management approach focusing on hierarchical structures to a broader, holistic approach integrating new paradigms of New Public Governance and Societal Resilience to create progress towards sustainable welfare and development.

The SDGs contribute to raising the bar in the development of our core municipal functions in relation to citizens and businesses. Also, Gladsaxe pursues a broader agenda. In Gladsaxe, not only environmental and economic, but also social sustainability is a priority. We consider all 17 SDGs to be important and interdependent. We started with those goals most important for us and for which we had the opportunity to make a significant difference. Now we have all 17 goals as part of our perspective.

Every year we compile a thorough report on the progression on the strategic goals and targets based on both quantitative data on the indicators and qualitative cases. We complement the quantitative dataset with the qualitative cases, because we register a lot of sustainable activities and changes emerging

that contribute to the realization of our strategic goals on a broader scale but which cannot be reflected meaningfully by quantitative data alone.

The annual reviews have made it clear that by integrating the SDGs into the political and strategic management of the municipality and using them to further develop core functions, services, and activities, they can contribute to the transformation in the public sector and be key to finding new ways to create public value.

Gladsaxe is a densely populated area at the core of the Greater Copenhagen Area. The municipality covers an area of 25 km^2 and has a total population of approximately 70,700, which is the 20th largest in Denmark.

The vision for Gladsaxe over many years has focused on social, environmental, and economic balance and the municipal strategies on sustainable welfare and development. The city's work on sustainability connects to a strong political ambition to make Gladsaxe a vibrant city in growth and a safe and inclusive place to live and work. Located on the rim of Copenhagen's city centre, developing infrastructure and mobility are priorities for Gladsaxe as well as supporting social balance, diversity, and accessibility of citizens and businesses.

Gladsaxe is a growing municipality and for many years the population has been increasing. This development forms the basis for the municipality's planning especially for schools and daycare. The Municipality of Gladsaxe is also a business-friendly area, home to a variety of businesses in a wide range of industries. Gladsaxe has a long history of creating favourable and welcoming business conditions and has been home to several of the largest companies in Denmark for decades.

Governance: Gladsaxe's approach to the 2030 Agenda

The Municipality of Gladsaxe's aim is to contribute to sustainable development. The City Council's vision is founded on the ambition of achieving a more socially, environmentally, and economically sustainable local community.

Sustainability is the common agenda of the political leadership in the City Council. Furthermore, sustainability and the global goals have developed into a shared frame of reference within the municipal organization, where employees and leaders translate the goals into initiatives and actions in practice. It also provides a platform for ideas and initiatives in the local community among citizens, organizations, and companies. Many companies based in Gladsaxe embrace the 2030 Agenda, e.g. Novo Nordisk and ISS.

Our role as a municipality is to act on our strategic goals and to initiate and facilitate interaction and cooperation among actors within the community who want to contribute to sustainable development locally, nationally, and globally.

Gladsaxe's strategic goals and the SDGs

In Gladsaxe we seek to achieve sustainable growth and welfare through six strategic goals reaching across all administrative sectors and activities and where the SDGs help raise the bar:

1. A good place to live: SDGs 3, 11, 13, 15, and 17.
2. Children and youth shaping the future: SDGs 4, 11, 13, and 17.
3. Sustainable business city with strong partnerships and job growth: SDGs 3, 8, 11, 12, 13, and 17.
4. Equal opportunities for a good life: SDGs 11, 12, 13, 15, and 17.
5. Climate action: SDGs: 3, 4, 8, 11, and 17.
6. Health and well-being for all: SDGs 3 and 17.

Each goal is linked to the SDGs they contribute to and SDG 17: Partnerships for the goals is integrated in all of them as a means to achieve the goals.

Implementation

Sustainable development does not emerge by itself but requires strategic management including elements of several paradigms connected in a deliberate steering mix. Gladsaxe's Strategy is the overarching framework for the development of the municipality and constitutes the central tool for its political and strategic management.

The implementation of the strategy is organized around three dimensions:

- **Political focus – progress and results:** Gladsaxe's Strategy is politically adopted and forms the basis for the economic dispositions of the municipal budget and its strategic investments. For each of the six strategic goals, two to six quantitative indicators of local development have been defined to measure progress and enable us to adjust our actions if progress is not sufficient. Every year we assess both quantitative and qualitative development in a follow-up report.
- **Systematic implementation within the organization:** All strategies, plans, and decisions link to Gladsaxe's Strategy. Our strategic goals are integrated into the management processes and steering systems across the organization to ensure local translations of the goals which make sense in the various local contexts within and across departments and units. Furthermore, we focus attention on knowledge sharing and inspiration through cases from all sectors to inspire employees and leaders to experiment and take action.
- **Participation and partnerships for local action:** In accordance with SDG 17, we emphasize the need for cooperation and co-creation with citizens,

associations, and other organizations and enterprises through participation, dialogue, and innovation to build a strong local commitment to make progress towards a more sustainable future locally and globally.

This approach has proven very effective. The strategy is now firmly grounded in the municipal budget and priorities. Gladsaxe monitors development through quantitative indicators that show whether we are moving in the right direction. We also pay attention to qualitative cases on sustainable development, as these are not reflected in quantitative indicators.

The strategy is reflected through the management systems, from the budget and the annual accounts, where we report on the triple bottom-line, to the annual plans for the organization and the strategic agreements upon which all departments and units base their activities and practice every year. This way, leaders and employees contribute to achieving the common goals in their various areas through dialogue at all levels. The top management is clear in sending a message of 'license to act' which empowers employees to come up with new innovative ideas in everyday practices to complement the large-scale or spearhead projects defined by management to reach the strategic goals.

To achieve the strategic goals, partnerships for action with external actors are crucial – Gladsaxe cannot make change by going it alone, so attention is on cooperation with local actors and partnerships to obtain changes in the long run.

Sustainable development – a transformational agenda

Our experience is that the SDGs can contribute to transformation in the public sector and be key to finding new ways to create public value. In terms of strategic management, this requires the ability to mix the strengths of the various paradigms in public management into a deliberate hybrid form in which classic Public Administration, New Public Management, Network Governance, and Societal Resilience coexist and create a virtuous circle. Using theory in practice is very important to make strategy that makes sense, lasts, and works. Using the strengths of different paradigms in a deliberate mix matching the organization and its context makes the strategy relevant in many different ways and to many different areas and mindsets within a large organization and can create cohesion around the shared purpose.

In Gladsaxe the SDGs help us:

- raise the bar in the development of our core tasks and services (Public Administration);
- set ambitious goals for sustainable welfare and development and define indicators to measure progress (New Public Management);
- bridge professional perspectives within the organization and pave the way for new partnerships with external actors (New Public Governance);

- facilitate cooperation and co-creation with and among actors in the local community on how to progress towards a more sustainable future, thus strengthening the capacity of the local community to become a more resilient city (Societal Resilience).

This way the SDGs motivate and empower employees, citizens, organizations, and enterprises. Cooperation and co-creation with local actors to achieve the goals locally as well as globally is crucial for progress towards a sustainable future.

Our approach to working with the SDGs has been one of broadening the classic top-down plan approach to strategize and move in the direction of an integrative, 'circular' approach, bridging perspectives from various branches within and outside the organization through dialogue and cross-functional networks and strengthening the capacity of the local community to respond to emerging changes in our environment to become a more resilient city.

We address the SDGs through a common political and strategic leadership approach, where the shared strategic goals are translated in ways which make sense within and across departments and units. In this way an organizational culture has developed in which leaders as well as employees rethink the way they work and contribute to sustainable development in many ways by combining various professional perspectives. For example, we regard the city not only as a physical space, but also as the frame for sustainable activities, and search for sustainable solutions in all branches and services of the organization – healthcare, learning environments, public construction, etc.

Every single employee is encouraged to integrate the SDGs and sustainability into their tasks, so the agenda is not only about spearhead or large-scale projects, but also about the small but important adjustments of activities, services, and practices. The motivation is created by not micro-managing the details but developing the visions of the future together and transforming the ideas into action.

Following up on progress

To monitor whether developments are moving in the direction decided by the City Council, Gladsaxe follows up annually on the progress towards the targets, which define the desired direction during the four-year political term set by the City Council. The process of the review reaches across all sectors within the organization and takes its point of departure in feedback once a year when all areas are asked to report on their status. The quantitative and qualitative results are then presented to the City Council in a local review, which also constitutes the main content of the account of the progress on the economic, social, and environmental bottom lines in Gladsaxe's Annual Reports.

Quantitative data

The reviews assess the progress in the indicators defined for each goal in the strategy. The indicators are reference points that cannot stand alone, but they can give indications of whether development is going in the direction we want, or whether we need to adjust our efforts to achieve our goals.

As an example, consider 'Climate-conscious city', which is one of Gladsaxe's six strategic goals. It is accompanied by six indicators, one of which is the 'Recycling rate for waste collected by citizens and in recycling bins'. The motive behind the indicator is that we must strengthen resource awareness and, among other things, view waste as a resource that can be recycled. The recycling rate reflects the effect of Gladsaxe Municipality's collection schemes (Figure 6.1).

Once a year the areas report their progress and comment on deviations from the overall direction. This has proven to be a more positive way to monitor specific activities, because it is not perceived as a test you either fail or pass. Instead, it motivates employees and leaders to try to keep moving in the right direction.

Qualitative cases

The quantitative report is supplemented by a qualitative report based on real live cases to capture emerging drivers and initiatives from practice. We saw

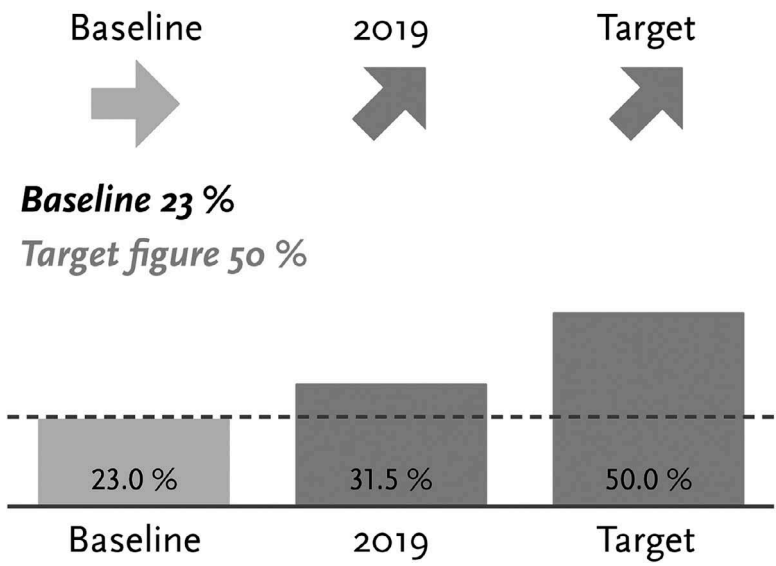

FIGURE 6.1 The proportion of waste collected that is recycled
Source: Gladsaxe Kommune.

the sustainability agenda grow in the organization with new areas emerging which were not described in the strategy. When sustainability is on the agenda, a lot happens which cannot be measured. New drivers, projects, and partnerships emerged as we began to translate the SDGs into practice – the strongest ones being procurement and tenders, The Green Transition Strategy, and Child Friendly City Initiative.

Case 1: Circular procurement and construction – circular economy in practice

Sustainability is a priority in Gladsaxe's policy on procurement and tenders and in practice, which has proven an effective way to change the market on a larger scale. Gladsaxe has contributed to new partnerships with other public organizations so we can contribute to change on a larger, national scale together.

Gladsaxe is increasingly making use of eco-labels and setting requirements from the joint municipal Partnership for Circular Municipalities (POGI) in individual tenders. For instance, when Gladsaxe offers meals to daycare institutions, the impact on the environment and sustainability are taken into consideration. Both the individual supplier's range of organic products and seasonal raw materials for resource consumption and transport are considered when the supplier is selected. This leads to the proportion of eco-labelled products we purchase growing substantially year by year.

Another driver for sustainable development is public construction where building materials are recycled and there is great potential in certified sustainable construction, e.g. when building new nurseries, schools, etc. Gladsaxe Business District and Gladsaxe Municipality have established a nationwide digital platform for the exchange of recycled and recyclable materials targeted at companies and professional users.

Gladsaxe has also constructed Denmark's first carbon-neutral, Nordic Eco-Labelled, kindergarten Grønnegården and since then several have followed. Using so-called Cross-Laminated Timber technology, Grønnegården functions as a carbon store because it is built using as much wood as possible, which has absorbed carbon from the atmosphere, and a minimum of carbon-heavy concrete. In years to come, the building will absorb carbon and contribute to less carbon in the atmosphere after construction compared to other methods. Other sustainable initiatives include using bricks recycled from old constructions for building materials in addition to wood, as well as a large photovoltaic system on the roof of the kindergarten's house that will provide sustainable electricity. Wild nature, a measure also used in other areas, is integrated in the outdoor areas and playground to the benefit of insects and biodiversity.

Case 2: The Green Transition Strategy

Climate change is one of the key challenges facing the world and the challenge is global, as well as local. Cities play a vital role in the green transition. Gladsaxe has experienced the consequences of climate change with extreme weather events such as severe cloudbursts and flooding. Gladsaxe's Green Transition Strategy focuses on the challenge of substantially reducing greenhouse gas emissions to limit the global temperature increase and reduce the negative impacts of climate change. With the Green Transition Strategy, Gladsaxe City Council has set the direction for how Gladsaxe will tackle the green transition locally and contribute to limiting climate change towards 2030.

The Green Transition Strategy is based on Gladsaxe's broad strategic work with the 17 SDGs through specific goals in Gladsaxe that determine the key efforts required. The ambition is to create a city where sustainable solutions are developed in strong cross-sector communities and partnerships between local and regional stakeholders – public as well as private. The strategy focuses on energy, transport, and the circular economy.

Green transition is about Gladsaxe as a city, and we will only succeed if we develop solutions together. The commitment and foundation for action in the city are strong, which is underlined by the large number of citizens and companies that are engaged in tackling climate change and supporting the green transition. We have already established several collaborations and partnerships. The ambition is to get even more stakeholders involved. Citizens, companies, associations, and retailers are all essential in the joint efforts.

The Green Transition Strategy involves an invitation to form new partnerships, both locally in Gladsaxe and across the region. Strong and committed partnerships form the backbone of a sustainable and successful green transition.

Gladsaxe Municipality is known for taking the climate challenge very seriously. We aim to lead and take responsibility for the green transition by making demands upon ourselves, our suppliers, and our partners. As a substantial property owner, public purchaser, planning authority, and co-owner of utilities, we can make a difference. At the same time, we contribute to a joint, coordinated, and ambitious effort to support the green transition across municipalities and in collaboration with relevant stakeholders.

Case 3: Child Friendly Cities Initiative

In 2020, Gladsaxe started cooperating on the Child Friendly Cities Initiative led by the UN Children's Fund (UNICEF) that supports municipal governments in realizing the rights of children at the local level based on the UN Convention on the Rights of the Child. With this partnership, Gladsaxe wants to empower children and young people and improve their impact on decisions in the municipality – not only in the areas naturally associated with children and schooling, but also when it comes to the development of the

city's design and initiatives which promote health in the municipality. This is to make Gladsaxe a better city – not just for children and young people, but for everyone.

Gladsaxe aims to be a city where children and young people are involved and engaged in decisions that affect their lives and get opportunities to influence their development as users of services and citizens in the city. With the Child Friendly City Initiative, we will become even better at listening to the voices of children and young people in Gladsaxe.

In August 2023, Gladsaxe was recognized by UNICEF as a Child Friendly City after completing a situation analysis and implementing the first Action Plan. Gladsaxe wants to adopt a broad perspective and target all the arenas where children are present. Gladsaxe aims to strengthen children and youth's:

- opportunities to be active citizens and participate in the development of a sustainable community through participation in projects, campaigns, political processes, or involvement in leisure activities in local communities.
- involvement in their daily lives in daycare centres, schools, and education, where most children spend large parts of their waking hours.
- involvement in questions and decisions that affect their individual lives. The municipality does not have much influence on this because it is mostly located within the families, but we can ensure that the most vulnerable children and young people with a case in the system are being heard.

In addition to these cases, many other smaller initiatives have been undertaken. A few examples are:

- A collaboration to reduce food waste between Gladsaxe Business Network, The Technological University of Denmark, Gladsaxe Municipality, and local businesses with different food schemes. It started out as a pilot project and has now expanded to encompass 14 kindergartens, five residential care centres, and several companies in Gladsaxe that have all set out to reduce food waste using a newly developed and successful food waste concept. An analysis showed that every year, 11,500 tons of food that could have been eaten ends up in the trash in Gladsaxe. This corresponds to 28,750 tons of CO_2. The goal is to reduce food waste by 50% in Gladsaxe by 2030.
- The Carp Kings – a new initiative that brings together boys who feel lonely, different, or left out. The initiative aims to help these boys belong to a community centred around fishing and outdoor life. The initiative is based on Gladsaxe Municipality's Youth Strategy focusing on creating communities where young people are actively involved in creating

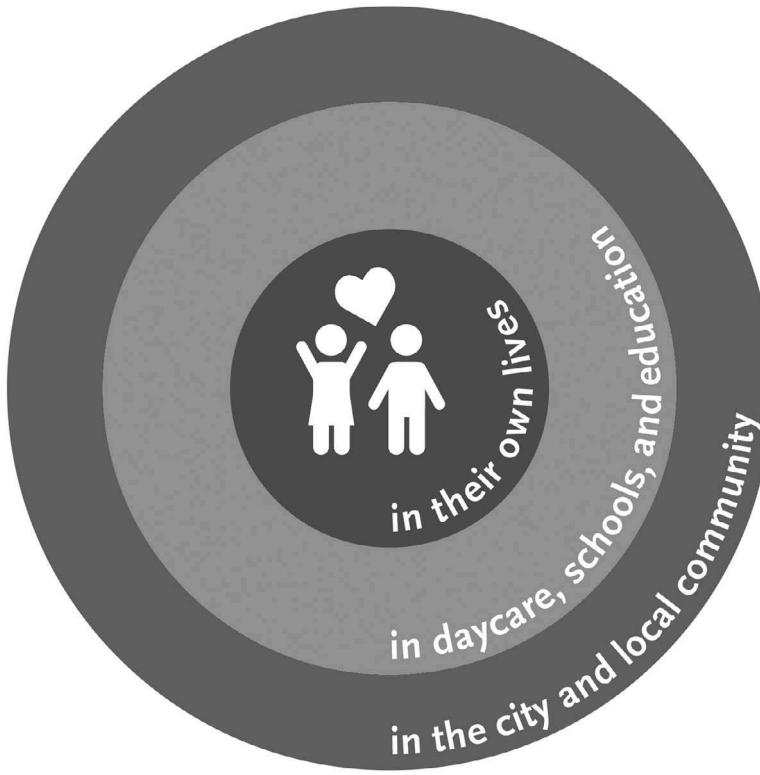

FIGURE 6.2 Three levels (or arenas) of involvement and participation
Source: Gladsaxe Kommune.

democratic processes and thus experience a high degree of involvement in the activities they participate in.

- A collaboration between Gladsaxe Municipality and an organization working for children placed in care led to the establishment of a placement team, which aims at improving the work with children and young people in care by specialized staff and ensuring closer collaboration and more continuous contact between child and social worker.
- In 2022 Gladsaxe had a tender for electric vehicle charging points and a contract was signed with two charging operators who will establish 196 new publicly accessible charging points distributed in public car parks throughout Gladsaxe.

To sum up, the quantitative reports show progress on several areas such as employment. However, there are challenges in others – for instance, the well-being of pupils, mental health, the use of alcohol among the youth, etc.

The main achievements of Gladsaxe's Strategy

The quantitative and qualitative data from the last couple of years show that the strategic goals have successfully been integrated into the core areas and services of the municipality and are now growing in the organization and the local community.

There has been positive movement towards achieving several of the goals, but there are still challenges and areas where it has been difficult to change the trend. Part of the strategy period has been characterized by COVID-19 and the resulting lockdowns in society in general and thus also in the municipal institutions. This is an important factor to be aware of when evaluating developments over the past few years.

- In 2018–22, Gladsaxe succeeded in maintaining a high academic level in primary school and lower secondary school and, in 2022, 97% of young people in Gladsaxe achieved a qualifying grade point average for vocational education. We have also succeeded in increasing the number of young people starting a youth education programme, while the proportion of young people on public benefits has decreased.
- Alongside this, however, there is a challenge with children's well-being. The proportion of children with good social well-being has decreased during the period, and at the same time, fewer young people report that they participate in the leisure activities they want.
- The years of COVID-19 have had a negative impact on children's weight, tobacco use, and early onset of alcohol use. However, the latest measurement suggests that the trend is once again moving in the desired direction. There is also an indication that we are now more successful in working more preventatively and with early intervention for vulnerable children and their families.
- There has been a continuous increase in the proportion of unemployed people who transition to employment after completing business-oriented activation, so here we exceed the target figure. This shows that there is an effect of having a special focus on citizens in the target group. We have also succeeded in getting more people into jobs on special terms.
- Despite COVID-19, more than 2,000 new jobs were created in the private sector in Gladsaxe during the period, and it was also attractive for entrepreneurs to start new businesses. However, the expected increase in the number of employees in the shops in the main streets has not quite materialized.
- Gladsaxe is an urban municipality with green ambitions, both in terms of the city's appearance and in terms of being a climate-friendly city. During 2018–22 more new trees were planted than the target figure, and large areas have been converted to more nature-friendly care. During the period, we have worked actively to increase waste recycling, and we are very close to reaching our target.

There have also been challenges and areas where things have not gone as desired. Despite our efforts, the well-being of children and young people remains challenging. Despite our efforts, while the city is both green and vibrant, a suburb is still characterized by asphalt. In terms of traffic, this poses major challenges when many people transport themselves by car, and Gladsaxe has major challenges with noise from the major roads that cross the municipality.

Experiences, challenges, and opportunities

Overall, however, the reviews show that Gladsaxe's Strategy has made a difference by setting an ambitious, clear direction and by making a joint effort for the development of Gladsaxe in line with the City Council's vision of a socially, environmentally, and economically balanced development. Gladsaxe's Strategy has been integrated into the relevant departments as part of employees' daily work.

Turning the strategy into action has not happened by itself but has required us to work strategically and in practice to integrate it into and across the specialized areas and in interaction with citizens and businesses. We have worked to systematically anchor the shared strategic goals in the organization by creating a clear common thread from strategy and the budget to the annual follow-ups and reports, and through the governance and management processes with space for the strategy to grow through collaboration with actors in our surroundings.

Based on Gladsaxe's Strategy, ideas and initiatives are now flourishing all around Gladsaxe. New buildings emerge and existing facilities are being developed to create a good basis for the citizens' everyday lives and well-being. Climate and environmental initiatives have become more firmly rooted. Strong partnerships have emerged, and together local businesses and the municipality have embarked on new paths that support the development of the local community today in a way which also benefits future generations environmentally, socially, and economically.

One of the areas where Gladsaxe's Strategy 2018–2022 has really made an impact is partnerships. The strategy contains several ambitious goals which we cannot achieve as a municipality alone but require targeted cooperation with other actors. Many of the examples from practice show that we as a municipality have moved away from 'city hall thinking' and have become far more open to creating solutions in cooperation with businesses, citizens, organizations, and others. Particularly in our business services, we have explored new forms of co-creation in networks where we join forces. In the welfare areas, we have also opened up for citizens and civil society to play an increasingly important role. The voices of children and young people are becoming clearer as we have focused on their perspectives when we develop Gladsaxe as the framework for their everyday lives or support them in their own lives.

The strategy has also strengthened cross-disciplinary collaboration between specialized areas by combining clear common goals with local 'license to act', where each employee is encouraged to find ways to make their own area part of new common solutions. The 'license to act' approach has had a major impact by promoting a culture where everyone can take responsibility and contribute to sustainable solutions where it makes sense locally and use their different professional skills to create joint solutions with a focus on the welfare and well-being of citizens and good conditions for businesses.

There have also been challenges in the process. In the beginning it was challenging to find our way to get started because of the complex nature of the wicked problems addressed by the SDGs, many of which also did not seem directly relevant to the municipal level nor to the Danish welfare system. Finding connections to municipal tasks was challenging at the beginning, as was identifying good indicators. After several reviews, however, it was clear that in many professional areas there were close links to the SDGs. By taking the point of departure in these core tasks and specific contexts, the SDGs could inspire new solutions in the management of local issues, and thus contribute to forming a virtuous circle.

So today the strategy provides a shared framework and the long-term strategic direction leaves space for new ideas and initiatives on a smaller scale. We apply the SDGs to bring forward new synergies within and across sectors in the organization and in the local community and integrate them into all contexts where it makes sense – right from large-scale projects, partnerships, policies, and strategies down to small significant changes and actions such as using recycled devices, driving e-vehicles, the use of sustainable infill for the soccer fields, etc. Getting new ideas and changing behaviour are essential to translating the strategy into action and move in a sustainable direction.

Therefore, it is the first time we have seen a municipal strategy have as much impact as Gladsaxe's Strategy. It has led to several sustainable initiatives within a wide range of Gladsaxe Municipality's core tasks. With the major moves initiated in previous years, such as the Procurement Policy, the Strategy for Green Transition, the Wastewater Plan, Child-friendly City, etc., we have further specified our goals and initiatives in key areas, which now give rise to many concrete initiatives which make a difference in practice.

Also, it is the first time we see Gladsaxe's municipal strategy reach into the local community and become a shared frame of reference for initiatives and actions in practice and a platform for ideas and initiatives in the local environment. The SDGs have offered a common language about our united efforts to make a difference together in practice. Working with the SDGs makes sense to employees, leaders, and actors in the local community.

The many concrete examples from practice make other municipalities, organizations, and the UN curious about the way Gladsaxe has approached sustainable development. Incorporating sustainability into the development of core operations, setting clear goals, and giving local freedom to act make

Gladsaxe's approach strong and inspire others. In this way, local actions that make a difference in Gladsaxe also contribute to more sustainable development on a larger scale.

A strategy growing within the organization – and beyond

Over the last six years Gladsaxe has taken important steps towards the 2030 Agenda, both small changes and large-scale strategies which point to long-term sustainable development, such as, for instance, the ambitious Sustainable Procurement Policy, The Green Transition Strategy, the Wastewater Plan, and numerous activities in welfare.

Sustainability is not only manifest within the municipal organization. In Gladsaxe we actively address the 2030 Agenda in all relevant contexts and encourage enterprises, organizations, local associations, and citizens to participate in working for more sustainable development. We now see how the strategy grows in the local community as we try to strike the balance between taking the initiative ourselves and inspiring local action and leaving space for local initiatives among citizens and enterprises. The vision of sustainability motivates and creates a sense of community in contributing to this most important agenda.

Gladsaxe's next steps will be to continue the work based on Gladsaxe's Strategy 2022–2026 and to keep exploring new ways to achieve the strategic goals for sustainable welfare and development through the management of the municipality, partnerships, and local action.

The approach in the current political term is characterized by continuity and change as we proceed along the main lines as set out in the 2018–2022 strategy. The change in strategy is required to allow for further exploration of the potential to contribute to sustainable development in practice. The approach has changed to one of including all the SDGs as more of them have become relevant over the last few years. Also, the strategy is founded on a more holistic approach, having been developed collectively across sectors with a focus on the potential in bridging sectoral and professional perspectives to further develop the strategic goals and activities. Furthermore, the indicators in the dataset have been improved. Finally, the efforts to motivate local associations and actors to act continue through partnerships or communities. Continuing the common and clear direction and the license to act in those ways that make sense in relation to the tasks of the specific area provides motivation and commitment and makes the strategy keep growing.

Gladsaxe's conclusions and recommendations

Gladsaxe's experience provides the following recommendations for integrating the SDGs into the political and strategic management and development of a city and municipality, and to translate them into a vibrant strategy which makes a difference locally:

- **Include all areas of the organization** – not just one department or one committee.
- **Integrate the SDGs into core operations** – not just added as a stand-alone extra layer. The SDGs must be translated by professionals into tasks and practices in ways which make sense locally.
- **Be specific and get started** – keep it simple and focus on both long-term structural changes and smaller actions and experiments in practice.
- **Integrate the SDGs into the political and strategic management of the municipality** and use them to further develop core functions, services, and activities They can contribute to the transformation of the public sector and be key to finding new ways to create public value.
- **Take a flexible approach** by focusing on, and applying, the relevant SDGs dependent upon changing needs and priorities. Gladsaxe started out with those SDGs most important at that time and where it was possible to make a significant difference, and now all 17 goals are potentially in play. Every year, a progress report is prepared based on quantitative data and qualitative cases – not only what is measured counts – and these help to guide future focus areas and directions.
- **License to act** – top management is clear in sending a message of 'license to act' which empowers employees to come up with new innovative ideas in everyday practices to complement the large-scale or spearhead projects defined by management to reach the strategic goals. Motivation is created by not micromanaging the details but developing the visions of the future together – and transforming ideas into action.
- **Broaden the classic top-down plan approach to strategize and move in the direction of an integrative, 'circular' approach**, bridging perspectives from various branches within and outside the organization through dialogue and cross-functional networks, and strengthen the capacity of the local community to respond to emerging changes in their environment to become a more resilient city.
- **Partnerships for action with external actors are crucial** – Gladsaxe cannot make change by going it alone, so cooperation with local actors and partnerships is necessary to obtain changes in the long run. We have moved away from 'city hall thinking' and have become far more open to creating solutions in cooperation with businesses, citizens, organizations, and others.
- **Collaborate with other organizations** – there is no fixed recipe for working with sustainable development so be active and share your experience and get inspired by others. The UN is already following the way Gladsaxe approaches sustainable development as a global exemplar.

Resources

Note, the following are not cited in the text but provide the background, data, and analysis for this chapter. Some files may be in Danish only, but these are in the process of translation into English. Future changes can be found on the general site here: https://gladsaxe.dk/kommunen/.

Gladsaxe's Strategy 2018–2022: https://gladsaxe.dk/Files//Files/Faelles-dokumenter/Planer-politikker-visioner/glx/Gladsaxestrategien-2018-2022-ENG-web-2.pdf.

Gladsaxe's Strategy 2022–2026: https://gladsaxe.dk/Files//Files/Faelles-dokumenter/Planer-politikker-visioner/glx/Gladsaxestrategien-2022-2026-TG-2.pdf.

The 2030 Agenda on the Local Level: A Voluntary Review from Gladsaxe Denmark. 2021. Global Observatory on Local Democracy and Decentralization. https://gold.uclg.org/sites/default/files/gladsaxe_2021.pdf.

Voluntary Local Review from Gladsaxe 2022: https://gladsaxe.dk/Files//Files/Subsites/Gladsaxestrategien/Voluntary-Local-Review-from-Gladsaxe-2022-ENG-Rapport-TG-web.pdf.

Voluntary Local Review from Gladsaxe 2023: https://gladsaxe.dk/Files//Files/Subsites/Gladsaxestrategien/Voluntary-Local-Review-from-Gladsaxe-2023-TG.pdf.

7

NAVIGATING SUSTAINABILITY IN SHAH ALAM

Kamalia Azma Kamaruddin and Annie Syazrin Ismail

Introduction

While the Sustainable Development Goals (SDGs) were initially introduced in 2015 at the United Nations' (UN's) Climate Change Conference, which Malaysia's Prime Minister attended, Malaysia's engagement with the SDGs commenced in 2017. Subsequently, the Economic Planning Unit division under the Prime Minister's Office established the Voluntary National Review (VNR) report. During this period, the VNR predominantly focused on statistical aspects, including population growth, gross domestic product (GDP), and economic expansion, as it was initiated by the statistical division in isolation from other ministries. Following the VNR submission, Kuala Lumpur was selected as the host city for the ninth World Urban Forum (WUF) in 2018. Since then, Malaysia has demonstrated a dedicated commitment to advancing the SDGs.

The journey commenced with the establishment of a subsidiary known as Urbanice Malaysia by the Ministry of Local Government Development (KPKT). Urbanice Malaysia took on the essential responsibilities of managing the costing, budgeting, and planning for the WUF. Since that pivotal moment, Urbanice Malaysia has consistently played a central role in facilitating SDG activities throughout the country. Post the WUF, KPKT broadened the scope of Urbanice Malaysia to evolve into an SDG research hub, with a specific focus on localization strategies. This strategic placement of Urbanice Malaysia under KPKT aligns with the ministry's overarching role as the governing body for all 149 local governments (PBT) across Malaysia, making them directly accountable to the ministry. As a result, the various PBTs have begun actively exploring ways to integrate and apply the principles of the 17 SDGs.

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Nonetheless, owing to the diverse spectrum of priority areas, KPKT found itself unable to effectively oversee all aspects of the SDGs. In order to ensure comprehensive oversight of each SDG, a committee comprising officials from all relevant ministries, under the leadership of the Prime Minister, became a necessity. This committee has been established; however, with little progress. The main reason for this is that the pursuit of SDGs in Malaysia remains voluntary, as it is not mandated by Malaysian law. Instead, the extent of commitment to this endeavour depends on the nation's motivation and the level of interest shown by the Prime Minister.

Shah Alam, situated in the state of Selangor on the west coast of the Malaysian peninsula, covers a total land area of 302 square kilometres. The city is subdivided into 56 Sections (referred to as "seksyen" in Malay), each overseen by the local municipal council, commonly known as MBSA. As of the year 2020, the city's population had reached a total of 686,966 residents, with the Malay ethnic group forming the majority at 70.1%. The population's age structure is distributed as follows: 64.4% are within the working-age group, 32.9% are children, and 2.7% represent the elderly population (Urbanice Malaysia, 2020b).

Shah Alam's active engagement in SDG initiatives commenced with the inception of the Low Carbon City Framework (LCCF), an idea originally proposed by the Ministry of Energy, Green Technology, and Water (formerly known as KETTHA, now as KETSA). The city of Shah Alam voluntarily took on this project due to its rapid development, which has resulted in notable environmental challenges, particularly environmental pollution. The local governing body of Shah Alam, the Shah Alam City Council (MBSA), readily supported this initiative, recognizing that the LCCF could serve as an effective tool for regulating urban development. Notably, the LCCF's scope is comprehensive, encompassing standards that span from air quality and transportation to land use and waste management.

After the establishment of the LCCF, Shah Alam was designated as one of the Front Runner Cities representing Malaysia and received sponsorship from Japan's Institute for Global Environmental Strategies (IGES) to carry out the LCCF project. MBSA selected Universiti Teknologi MARA (UiTM) as the pilot project site. The Green Campus initiative under the LCCF, implemented at UiTM, proved to be a remarkable success. As part of IGES's funding criteria, the creation of an SDG report was mandated. Initially, IGES required the selection of a single SDG, and MBSA prioritized reporting on SDG 13, which pertains to Climate Action.

However, subsequent to the report's publication, MBSA discovered that they had, in fact, undertaken numerous projects related to the SDGs, but these initiatives had not been adequately documented. Consequently, MBSA sought the assistance of Urbanice Malaysia to thoroughly document their SDG-related efforts, culminating in the submission of a Voluntary Local Review (VLR) in 2021. As of today, seven cities in Malaysia have successfully

completed a VLR on their progress towards the SDGs. These cities are actively referencing the Malaysia SDG Cities initiative to guide their efforts, with the exception of Penang. Penang, in contrast, took a more independent approach and submitted its VLR directly to the UN in 2021, signalling its self-sufficient commitment to SDG-related initiatives.

The Malaysia SDG Cities initiative places a strong emphasis on the importance of cities and communities determining their own unique priorities and strategies to advance SDG goals and targets. It champions a bottom-up approach, encouraging the development of localized action plans to accelerate SDG progress within Malaysia. This approach is pivotal as all 17 SDGs and their 169 associated targets, as defined by the structure of the Federal Constitution of Malaysia, must be met to achieve the 2030 Sustainable Agenda.

Localizing global goals within urban areas holds particular significance for Malaysia. The Malaysia SDG Cities initiative plays a critical role in ensuring alignment between national and state policies and the SDGs. This alignment, in turn, facilitates the effective implementation of SDG-related initiatives at the local level, ultimately leading to the realization of sustainable development aspirations.

Shah Alam's VLR Scope

The VLR represents a long-term commitment, and milestones are essential for its successful implementation. Using Malaysia SDG Cities as a framework, Urbanice plays a facilitator or consultant role in assisting PBTs in Malaysian cities to implement and achieve the SDGs. Before establishing the VLR, the MBSA team created a roadmap to outline their goals up to 2035.

Through the analysis that has been conducted, the team can align their programmes with the prevalent issues in Shah Alam. Based on the data collected, they are able to identify the five priority SDGs for Shah Alam, which include SDG 1 (No Poverty), SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action), and SDG 15 (Life on Land). These SDGs are existing initiatives that enjoy strong policy and institutional support, a structured implementation mechanism, and have been successful in influencing a wider range of stakeholders. They are also areas where Shah Alam City (including communities, agencies, non-governmental organizations (NGOs), stakeholders, and the City Council) has devoted efforts and resources in terms of projects, plans, initiatives, and policies. These prioritized SDGs – 1, 11, 12, 13, and 15 – represent existing initiatives that align with Shah Alam's administrative and financial capabilities, closely resonating with MBSA's policy agenda. They have been chosen to support Shah Alam's overarching ambition of becoming a sustainable and inclusive city.

Measuring the SDGs

Within the scope of these five SDGs, there are specific targets that are important to the city which are prioritized and measured. The targets are: Target 1.2 of SDG 1; Targets 11.2, 11.3, and 11.6 of SDG 11; Target 12.5 of SDG 12; Target 13.1 of SDG 13; and finally Target 15.1 of SDG 15. These targets are measured through statistical data collected annually by the Malaysian Urban-Rural National Indicators Network for Sustainable Development (MURNInets), along with comprehensive data collection on various projects and programmes. The measurement indicators are derived from UN standards but have been customized for all Malaysian cities by the federal government. This adaptation aims to streamline data collection and facilitate monitoring, given that these initiatives operate under local authority jurisdiction, adhering to Malaysia's governance structure.

MURNInets is a tool designed to measure the sustainability of cities using indicators such as the number of unemployed people and household occupancy rates in Shah Alam. These indicators allow the team to assess economic and social aspects of the population, including housing facilities, neighbourly relationships, and sanitation services, all of which have direct implications for the SDGs. Table 7.1 lists some examples of the targets and measurement details.

MBSA has chosen to concentrate only on these five SDGs because as a local authority, they have limited capacity and responsibility to handle all the SDGs. One challenge stems from the structural differences between Malaysia's local government and their overseas counterparts. In Malaysia, due to multiple government tiers of national, subnational (state), and local levels, there are different scopes of jurisdiction that each level can exercise (Urbanice Malaysia & MBSA, 2021). For example, local governments in Malaysia have narrower spans of activities focused on infrastructure and waste management, whereas local governments in Western countries tend to have broader authority that includes law enforcement and fire services.

Recognizing how policies and plans interact to meet the SDGs is vital. A comprehensive outlook is needed to gauge actions' effects on all SDGs. MBSA's approach focuses on both vertical and horizontal integration, promoting unified action, consolidating government policies, and optimizing resources. It employs an integrated process, merging contributions from stakeholders across sectors, to achieve desired outcomes for the prioritized SDGs' sustainability dimensions. Figure 7.1 illustrates Shah Alam's vertical and horizontal integration approach.

Localizing the SDGs

In localizing the SDGs, the aim is to adapt, implement, and monitor the goals and targets at the local level. This accelerates the localization process,

TABLE 7.1 Shah Alam's SDG prioritized targets, issues, and measurements

SDG 1: No Poverty		
Target 1.2 By 2030, reduce at least by half the proportion of men, women, and children of all ages living in poverty.	Reducing poverty is a fundamental goal for improving the well-being of Shah Alam's residents and ensuring that all citizens have access to basic necessities.	**Shah Alam Target:** Reduce 50% of people living in poverty. **Issues and challenges:** 1. Low household income. 2. Unemployment. 3. High number of urban poor. 4. Lack of basic urban service outside Shah Alam city centre. 5. Flood-prone area. **Measured by:** 1. Poverty rate. 2. Percentage of affordable housing provided / state target. 3. Number of initiatives and programmes. 4. Number of infrastructure projects.
SDG 11: Sustainable Cities and Communities		
Target 11.2 By 2030, provide access to safe, affordable, accessible, and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities, and older persons.	Sustainable and accessible transportation systems are vital for reducing traffic congestion, air pollution, and improving the quality of life in urban areas like Shah Alam.	**Shah Alam Target:** Safe, affordable, accessible, and sustainable transport systems. **Issues and challenges:** 1. Poor traffic management system. 2. Limitation of public transportation coverage. 3. Poor condition of existing public transportation station. 4. Public transport is not interconnected. **Measured by:** 1. Number of integrated public transport terminals/stations. 2. Number of initiatives and programmes. 3. Number of infrastructure projects. 4. Policies and plan. 5. Services rate.

Target 11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management	It addresses the pressing challenge of rapid urbanization in the city, promoting inclusivity and sustainability by involving community decision making.	**Shah Alam Target:** To create a more equitable, environmentally responsible, and well-planned urban environment, improving the quality of life for all communities. **Issues and challenges:** 1. Rapid urbanization. 2. Affordable housing. 3. Traffic congestion. 4. Environment sustainability. 5. Community participation. 6. Inclusivity. 7. Infrastructure development. 8. Climate resilience. **Measured by:** 1. Community engagement programmes. 2. MURNInets yearly performance data. 3. MBSA annual budgets. 4. Policies and plan. 5. Low Carbon City Challenge data.
Target 11.6 By 2030, reduce the adverse per capita environmental impact of cities, by paying special attention to air quality and other waste management.	Addressing environmental impacts, especially air quality and waste management, is crucial for creating a healthier and more sustainable urban environment.	**Shah Alam Target:** Reduce the environmental impacts of cities. **Issues and challenges:** 1. Deforested. 2. Pollution. 3. Traffic congestion. **Measured by:** 1. Number of environmental management initiatives. 2. Urbanization rate. 3. Conservation of forest reserve and public park.

SDG 12: Responsible Consumption and Production

Target 12.5 By 2030, substantially reducing waste generation through prevention, reduction, recycling and reuse.	Promoting responsible consumption and waste reduction practices can help Shah Alam manage its growing urban waste challenges.	**Shah Alam Target:** Zero waste. **Issues and challenges:** 1. High waste generated. 2. Cost in managing the waste. 3. Lack of waste management infrastructure. 4. Consumer behaviour. 5. Plastic pollution. **Measured by:** 1. Waste per capita data. 2. Annual increase in rate of waste recycled. 3. Number of initiatives and programmes. 4. Number of infrastructure projects. 5. Policies and plan.

SDG 13: Climate Action

Target 13.1 Strengthen resilience and adaptive capacity to climate related hazards and natural disaster	Shah Alam, like many urban areas, may face climate-related risks, making it important to enhance resilience and preparedness.	**Shah Alam Target:** Shah Alam Low Carbon City 2035. **Issues and challenges:** 1. Natural disaster (floods, landslides, and soil sedimentations). 2. Transportation and traffic congestion. 3. Efficient energy use and effective water management. 4. Waste management. 5. Raising awareness among the community about the importance of sustainability and climate change issues – to change their lifestyle to a low-carbon lifestyle.

		Measured by: 1. Data on waste collection. 2. Number of environmental management and implementation initiatives. 3. Number of infrastructure projects. 4. Policies and plan.
SDG 15: Life on Land		
Target 15.1 By 2030, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements.	Shah Alam can benefit from conserving and restoring its natural ecosystems, which contribute to urban biodiversity and environmental sustainability.	**Shah Alam Target:** Achieve green city status by implementing initiatives that promote sustainability and environmental conservation in city development. **Issues and challenges:** 1. Deforested. 2. Pollution. 3. Non-renewable exploitation. **Measured by:** 1. Number of environmental management and implementation initiatives. 2. Ratio of public open space / 1000 population. 3. Rate of application for open space gazettement. 4. Conservation of forest reserve and public park.

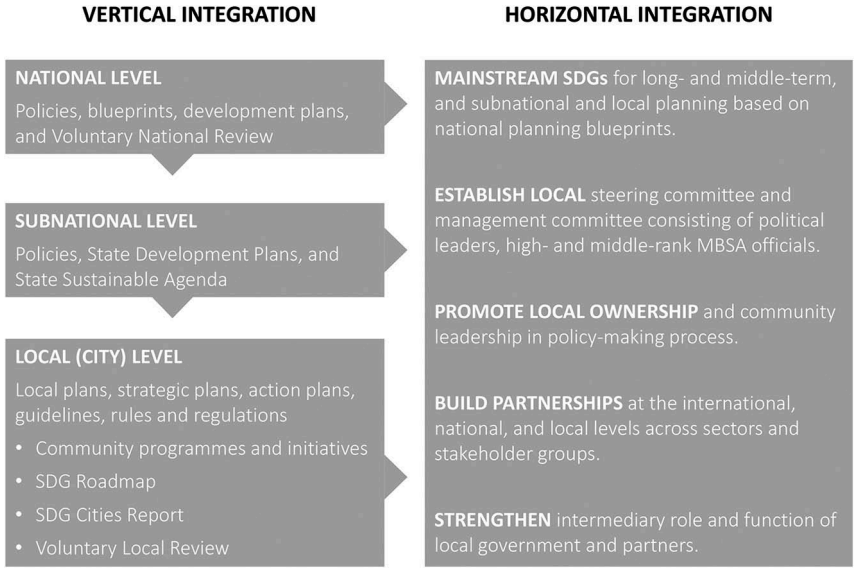

FIGURE 7.1 Vertical and horizontal integration approach
Source: Urbanice Malaysia & MBSA (2021)

with nearly 60% of the SDGs' targets relying on actions taken by local governments. Localizing the SDGs in Shah Alam involves adapting and implementing the goals by aligning them with the city's needs and priorities. To understand the city's needs, MBSA, led by its Planning Department, has prepared the Shah Alam SDGs Roadmap following a "3+1 step process" under the Malaysia SDG Cities guideline (Urbanice Malaysia, 2020a). The impact value of this process lies in its role in structuring the formulation of Shah Alam's SDGs Roadmap and serving as a guiding framework to support the city's delivery of the 2030 Agenda. Figure 7.2 illustrates this process.

The first process, named City Profiling and Diagnostic, is the initial SDGs assessment, which is to map and align current development plans and programmes in Shah Alam. This was further reaffirmed through engagement with the MBSA personnel and exploring further the diagnosis of SDGs that led to the full understanding of Shah Alam's current position. It will be the basis in establishing the city's vision and its local actions to fulfil the SDG targets. The process will also allow Shah Alam to decide on its readiness to report on its SDG progress in the VLR at the UN High-Level Political Forum held yearly in New York.

The second process is City Visioning, which involves an engagement session with stakeholders and the community to further explore the diagnosis of the city's issues and challenges related to SDGs. The engagement methods include workshops, group discussions, online surveys, and interviews. Stakeholders encompass diverse groups such as residents, tourists, businesses, academia, professionals, and NGOs. Within the Shah Alam City Council, participants

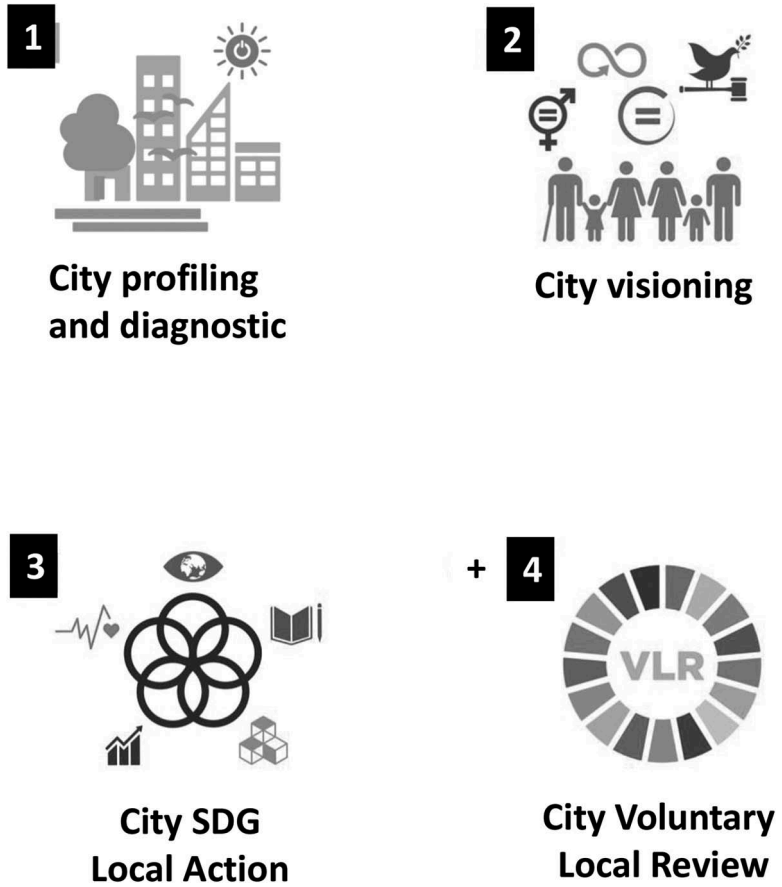

FIGURE 7.2 "3+1 step process" for Shah Alam SDGs Roadmap Development
Source: Urbanice Malaysia (2020b)

include the mayor, council members, department heads, technical and administrative staff, green ambassadors, and community leaders. Many identified issues among stakeholders were in alignment with Shah Alam's Statutory Local Development Plan, encompassing concerns like immigrant issues, Industrial Revolution 4.0 implications, traffic congestion, insufficient public transport coverage, limited tourism attractions, water pollution, waste management challenges including illegal dumping sites, and programme effectiveness. This process culminated in the development of the SDGs Roadmap. Leveraging the Local Agenda 21 (LA21) framework, MBSA established three dedicated committees – Environmental, Social, and Economy Committees – to streamline, integrate, and expedite implementation.

In the third process known as City SDG Local Action, MBSA has outlined the journey towards 2030, which involves several key steps. The most crucial

aspect of developing action plans is aligning them with the city's vision, goals, and SDGs, as well as integrating and synchronizing them with state and national development agendas. Based on these considerations, MBSA is creating a timeline and implementation model for local actions, identifying partners for each action plan, and defining key outcomes for city programmes and projects. To monitor progress, a reporting system has also been established. During this stage, Shah Alam's SDGs Roadmap is formulated, serving as a key document guiding Shah Alam's holistic sustainability action plans. This roadmap provides a lens to understand the dimensions within the city system and SDGs that contribute to those dimensions, supporting Shah Alam's readiness to report on its SDGs progress through this VLR.

The "+4" stage encompasses the city VLR, which includes commitments to identify shared local commitments to the SDGs, offering a platform to map local needs to global goals and establish formal or informal mechanisms to address specific local challenges while demonstrating how actions overcome them, all the while sharing the city's programmes, initiatives, and achievements with global cities.

Longer-term strategy

When considering the future of Shah Alam city and its aspirations, the long-term prospect for achieving its goals is paramount. The future trajectories for Shah Alam city's goal are enablement of Low Carbon City and Green City development, empowering communities, and embedding good urban governance. Enabling Low Carbon City and Green City is the city's commitment to sustainable infrastructure, renewable energy adoption, urban planning, waste reduction, and community engagement which will contribute to a cleaner, more environmentally friendly urban environment. On the other hand, empowering communities shows Shah Alam's commitment to community engagement, education, and social inclusion that will lead to stronger, more resilient neighbourhoods and an empowered citizenry. As community participation becomes ingrained in the city's culture, residents will play a more active role in shaping their neighbourhoods, fostering a sense of ownership and civic pride. Finally, by embedding good urban governance, the city is committed to achieve transparent and accountable governance practices, citizen engagement, and effective public service delivery which will contribute to enhanced urban management. Overall, these efforts will result in a more liveable, socially vibrant, and well-governed city for future generations.

Risks, challenges, and low-hanging fruit

The development of Shah Alam's VLR is not without risks and challenges. In many SDG projects, the big problem is related to the lack of project continuation. This happens when a project consumes lots of energy and resources

and the collaborators have a hard time keeping up with the good work over the years. Another big challenge in reaching the SDGs is getting different groups of people and organizations to work together well. These groups include governments, community organizations, businesses, and international groups, and they all have different ideas, abilities, and schedules that need to be moderated. The other hurdle is private sector engagement where encouraging sustainability and alignment with SDGs in the private sector confronts potential reluctance of businesses to change established practices in favour of sustainability. This resistance may be due to concerns about costs, short-term financial impacts, or a lack of awareness about the long-term benefits. Additionally, smaller enterprises might face resource constraints, making it more challenging to invest in sustainable initiatives.

In the pursuit of establishing Shah Alam's SDGs, there are readily attainable opportunities or 'low-hanging fruit' that have been identified along the way. These opportunities include raising community awareness through the existing programme and social media platforms, conducting a waste reduction campaign, and expanding green spaces within the city. Furthermore, improvements in public transportation options, such as bus networks and cycling infrastructure, have led to reduced traffic congestion and enhanced mobility. Additionally, encouraging local businesses to adopt sustainable practices and participate in green initiatives has resulted in economic benefits and a more environmentally responsible business community. Involving youth in sustainability projects and education has led to innovative solutions and increased enthusiasm for sustainable development. Finally, the creation of user-friendly, publicly accessible data dashboards has helped track and visualize progress towards the SDGs, promoting transparency and accountability.

Alignment and the SDG strategy

The examination of Shah Alam's SDG strategy in relation to the city's broader policy and action plan portfolio is crucial in fostering a comprehensive approach to sustainable development. Shah Alam's SDG strategy is meticulously designed to align with the city's overarching policy and action plan portfolio, which includes key initiatives such as Local Agenda 21 Shah Alam (LA 21), the LCCF, Shah Alam VLR, Shah Alam Draft Local Plan 2035, and various community projects.

Within the scope of the LA 21 portfolio, MBSA has established three specialized committees: the Environmental Committee, the Social Committee, and the Economy Committee. These committees collaborate harmoniously to drive the implementation of LA 21 projects, emphasizing environmental, social, and economic dimensions. In the context of the LCCF portfolio, MBSA's dedication to the SDGs and the New Urban Agenda translates into tangible low-carbon initiatives that engage commercial property owners in Shah Alam. These initiatives aim to reduce the city's carbon footprint.

Furthermore, MBSA's proactive approach to expedite its commitment to the SDGs is evident in the creation and presentation of the VLR. This initiative demonstrates MBSA's dedication to enhancing sustainability in Shah Alam. The development of the Shah Alam Draft Local Plan 2035 is another significant component of the city's comprehensive approach. This plan meticulously examines the spatial, socio-economic, and environmental aspects of the city, aligning them with the developmental goals for Shah Alam. Lastly, community projects endorsed by MBSA encompass a range of endeavours, including community gardens, improved transportation and mobility services, designated car-free days for Shah Alam residents, and enhanced accessibility through the establishment of disabled-friendly walkways and covered pedestrian walkways.

Shah Alam's SDG governance

In the realm of governance, Shah Alam's commitment to sustainable development takes centre stage as it pertains to the leadership of the SDG strategy. As the city's local government authority, MBSA often plays a central role in leading the SDG strategy for Shah Alam. It sets the direction, priorities, and policies related to SDGs in the city. MBSA may establish committees or departments specifically tasked with overseeing the development and implementation of the SDG strategy. In addition, MBSA departments, local partners, and stakeholders take the lead in kick-starting individual SDG projects and overseeing their successful execution. Various departments within MBSA may propose and initiate individual SDG projects that align with their respective areas of responsibility. For example, the Department of Environment may lead projects related to environmental sustainability, whereas the Department of Social Welfare may initiate projects focused on social development and well-being. SDG projects can also be initiated by local businesses, non-profit organizations, community groups, and residents. These stakeholders may collaborate with MBSA or other government departments to launch projects that contribute to specific SDGs.

Onboarding the stakeholders

Shah Alam typically onboards various stakeholders through a combination of outreach, engagement, and collaboration efforts. The goal is to involve a wide range of partners in MBSA projects to ensure a holistic approach to sustainable development. Among the stakeholders that have been involved with MBSA SDG initiatives are the local community, professional bodies, academic institutions, agencies, international organizations, and youth.

The local community's voice is represented through 24 resident representative councils, ensuring that their concerns and perspectives are considered in the city's development plans. Additionally, professional bodies like the

Malaysian Institute of Planners (MIP) and the Institute of Landscape Architects Malaysia (ILAM) play a crucial role in shaping sustainable development practices in Shah Alam. Furthermore, academic institutions such as UiTM and Management & Science University (MSU) provide valuable expertise and research input to advance the city's sustainable development goals. Moreover, various state and federal agencies collaborate to implement and oversee the execution of sustainable projects within Shah Alam, ensuring effective coordination at different government levels. In addition, international organizations like the IGES, the UN Economic and Social Commission for Asia and the Pacific (UNESCAP), and UN-Habitat contribute to Shah Alam's global perspective on sustainable development. Lastly, the participation of youth, represented by organizations like the ADAB Youth, brings fresh ideas and innovative solutions to the forefront of Shah Alam's sustainable development initiatives.

Support and engagement

In preparation for the upcoming project, potential stakeholders, including local businesses, media and communication outlets, as well as marginalized and vulnerable groups, are being considered for inclusion with the aim of fostering a comprehensive and inclusive approach to its development. Engaging community support and involvement for local authority projects can be challenging but is essential for successful implementation. To address this challenge, MBSA employs a multifaceted strategy that includes public meetings and consultations, community outreach, educational campaigns, online platforms, local media and press releases, public demonstrations and events, and partnerships.

When considering the leadership of SDGs initiatives, a common question is whether it is a city-led and implemented initiative or if there is a broader collective taking the lead. It's important to note that in most SDGs programmes, it is city-led where MBSA plays a significant role in planning, funding, and implementing community initiatives.

Shah Alam's SDG implementation

Shah Alam's SDG implementation exemplifies its dedication to sustainable progress. Action plans are developed for each project, considering two scenarios. For existing projects initiated before 2015, MBSA incorporates the SDGs into the existing programme by first assessing the programme's current activities. Subsequently, MBSA identifies the SDGs that align best with the programme's objectives, establishes clear targets for these goals, and develops a step-by-step plan to achieve them, ensuring the necessary resources are in place.

For new projects introduced after the inception of the SDGs, MBSA formulates programmes or projects through a systematic planning process. Internal departments propose and initiate projects primarily related to MBSA's daily

operations. Each department selects a specific SDG or project, outlines stakeholders, identifies the target community or area, creates a budget and timeline, and establishes methods to measure progress. Collaboration and community involvement are emphasized in this process, where awareness plays a pivotal role in keeping everyone informed and accountable, and encourages the generation of innovative ideas for future expansion. This approach necessitates meticulous planning, teamwork, and a steadfast commitment to advancing global betterment.

Work division and leadership

The division of work and leadership roles takes on a dynamic nature for Shah Alam's SDG initiatives. The approach to sharing responsibilities in SDG projects varies, adapting to the unique demands of each project and its specific location. Sometimes, the city government assumes the helm of certain projects, leveraging its resources and authority. Simultaneously, community groups contribute their ideas and engage the public, fostering participation and community involvement. Additionally, businesses play a central role by undertaking actions that benefit the environment and society at large. What makes these initiatives particularly impactful is the collaborative synergy that often emerges, as each stakeholder brings valuable contributions to the table. This collective effort not only addresses complex challenges but also propels Shah Alam's progress towards achieving the SDGs.

In sustainable development projects, the manner in which stakeholders collaborate and determine project leadership can exhibit variations. Collaboration often entails regular discussions wherein various stakeholder groups, including government, civil society, and the private sector, contribute their insights and collectively chart the project's direction. Public–private partnerships may also emerge, resulting in shared leadership responsibilities across these sectors. Multi-stakeholder platforms and project steering committees serve as arenas for diverse stakeholders to collaborate, with leadership roles assigned based on expertise or through a rotational approach. In projects that have a direct impact on local communities, community members may assume leadership roles. Clear agreements and memorandums of understanding formalize these roles, while in certain instances, leadership naturally emerges based on expertise or the required resources. The chosen approach hinges upon the project's objectives, stakeholder dynamics, and the project's unique context, with an emphasis on fostering open communication and a shared commitment to achieving success.

The extent of collaboration within the broader community for project implementation varies and is influenced by several factors. Larger projects tend to encompass a wider spectrum of community stakeholders, and when community members actively participate in planning and decision-making processes, the project's reach can expand significantly. Emphasizing inclusivity

in engaging diverse community groups remains crucial, and forging partnerships with external organizations can further amplify the project's impact. Effective communication, strong leadership, and raising awareness about the programme or project's benefits are fundamental factors that drive and sustain community involvement.

Project financing

The management of SDG initiatives places significant emphasis on project financing, which stands as a key aspect of their success. Project owners are presented with a variety of options, such as pursuing government funding, forging public–private partnerships, soliciting aid from international organizations and countries, and securing financial support from NGOs. Additionally, they can engage in corporate social responsibility initiatives, receive contributions from the community, leverage crowdfunding platforms, and benefit from philanthropic backing.

Funding for MBSA's SDG strategy is sourced through a dynamic blend of avenues and collaborative partnerships. In its initial stages, MBSA kick-starts projects utilizing the council's budget. As these initiatives expand and evolve, strategic alliances are forged with government entities, the public sector, and private corporations. In instances where projects yield favourable outcomes, international organizations and NGOs may also contribute to the funding pool. MBSA continually seeks opportunities to secure funding and engage in partnerships to advance the Shah Alam SDGs projects.

Examining how financial decisions, including those for SDGs projects, are made and monitored within MBSA reveals a structured and transparent process. Financial decisions within MBSA, including those linked to SDGs projects, adhere to a specific procedure. Each year, MBSA's departments meticulously plan the annual budget, subject to approval by the Selangor State. To bolster transparency and align with community priorities, public input and stakeholder engagement occur during Town Hall meetings. For SDGs projects within MBSA's purview, the Smart Shah Alam Sustainable Steering Committee is responsible for oversight. Project owners provide regular progress reports during meetings, ensuring transparency in expenditure and prudent use of funds in alignment with their planned projects.

In summary, the structured and transparent financial processes within MBSA reflect its unwavering commitment to responsible resource management, an essential element in advancing its SDGs initiatives.

Sustainable systems

In addition to addressing specific SDGs, Shah Alam is working to address objectives of the 2030 Agenda across its three pillars: social, economic, and environmental. The following section outlines Shah Alam's endeavours in addressing these pillars in a broader context:

1. Social pillar – In the social pillar, Shah Alam is dedicated to enhancing the quality of life for its residents by ensuring access to healthcare, quality education, affordable housing, and public safety. The city also places a strong emphasis on social inclusion, striving to foster cohesion among diverse communities through initiatives that promote cultural diversity and social integration. Additionally, community engagement is actively encouraged through various programmes that empower residents to participate in decision-making processes and civic activities, enabling them to play an active role in shaping the city's future.
2. Economic pillar – Within the economic pillar, Shah Alam actively fosters sustainable economic growth by providing support to local businesses, attracting investments, and generating job opportunities, all of which contribute to the prosperity of its residents. Entrepreneurship and innovation are also encouraged through various programmes, serving as catalysts for economic development and the creation of new jobs. Additionally, the city places a strong emphasis on equity, striving to ensure that economic opportunities are distributed fairly, thereby addressing disparities, and promoting social and economic inclusivity among its population.
3. Environmental pillar – In the environmental pillar, Shah Alam is committed to reducing its environmental footprint through the LCCF. This framework includes measures such as sustainable urban planning, the development of energy-efficient infrastructure, and the implementation of green transportation solutions. Additionally, the framework addresses climate change by initiating measures to mitigate its impact, which may include reducing greenhouse gas emissions and enhancing resilience to climate-related challenges such as flooding and water shortages. Furthermore, Shah Alam also has programmes aimed at conserving natural resources, safeguarding green spaces, and encouraging eco-friendly practices among both residents and businesses to promote a sustainable and environmentally responsible community.

Addressing resilience

A resilience component is an integral part of Shah Alam's SDG strategy. MBSA recognizes the importance of building resilience to various challenges, including those related to climate change, natural disasters, and socio-economic disruptions. To address these issues, MBSA has integrated resilience-building measures into its SDG initiatives. This encompasses efforts to strengthen infrastructure resilience, formulate disaster preparedness strategies, and raise community resilience through educational and awareness initiatives. By integrating resilience as a central element, Shah Alam strives to guarantee the durability and adaptability of its sustainable development efforts, thereby contributing to the enduring welfare of Shah Alam's residents and the city itself.

Shah Alam's SDG strategy is designed to avoid isolated actions and emphasizes interdependencies among various components. Progress in one area can have positive ripple effects on others. For example, MBSA's efforts on environmental sustainability initiatives, such as the LCCF, not only benefit the environment but also improve the overall quality of life for residents. By fostering cross-sectoral collaboration and adopting a systems-thinking approach, MBSA ensures that the SDG components mutually reinforce each other, ultimately leading to more comprehensive and sustainable outcomes.

Sustainable structure and impact measurement

Ensuring the long-term sustainability of the organization structure, both financially and in terms of governance, is a fundamental aspect of the organization's commitment to continued growth and success. Thus, MBSA's structure in both financial management and governance is arranged for long-term sustainability. To ensure that sustainable development continues to progress, MBSA has dedicated its budget to be at the heart of the sustainable development agenda. This approach is of critical importance for effective and accountable financing for sustainable development, encompassing the SDGs and beyond. The Shah Alam SDG Roadmap is the key document guiding Shah Alam's holistic sustainability action plans. This roadmap provides a unique framework that offers a lens to understand the dimensions within the city system and the SDGs that contribute to these dimensions. The roadmap supports Shah Alam's readiness to report on its SDGs progress via VLR.

On the other hand, assessing the measurement of the organization's impact is a key element of the organization's strategy to gauge the effectiveness and reach of its initiatives. MBSA measures its impact through a combination of centralized and distributed methods. Centralized monitoring and assessment mechanisms in MBSA utilize key performance indicators and MURNInets to track progress and level of achievement towards its sustainability and development goals. The decentralized approach involves gathering feedback, conducting surveys, and assessing on-the-ground impact to capture diverse perspectives and align initiatives with the needs and priorities of the city's residents. By blending centralized and distributed measurements, Shah Alam aims to comprehensively assess its impact and make data-driven decisions to further its sustainable development agenda.

Conclusions and lessons learned

Shah Alam's progression towards the SDGs stands as a testament to its proactive dedication to nurturing sustainable urban development. The city willingly embarked on this initiative, leveraging its data resources to produce the VLR. Similarly, other Malaysian cities faced similar challenges in data collection, as each state within Malaysia manages its own data, making

centralized federal data acquisition challenging. The success of this endeavour was not solely reliant on data; rather, it was profoundly influenced by the city's leadership, political inclination towards SDGs, financial capacity, and the availability of human resources devoted to the project.

The Malaysia SDG Cities framework by Urbanice Malaysia is specifically tailored to the Malaysian government organizational structure, facilitating a more manageable process for cities to conduct their VLRs. Conversely, Penang pursued a different approach. Being one of the early adopters in showing interest to develop its VLR, Penang commenced this initiative prior to the establishment of the Malaysia SDG Cities. However, their proactive step, taken in the absence of standardized guidelines, marked a departure from approaches adopted by other cities. Penang's decision to report directly to the UN led to the segregation of its initiatives from Malaysia's VNR, which typically relies on VLR contributions to support the nation's overall reporting efforts (Economic Planning Unit, 2021).

In measuring the SDGs, Shah Alam must choose between using the UN's indicators or ones tailored by MURNInets for its specific needs. Preferring MURNInets indicators means using slightly different targets than those set by the UN, aligning more with Malaysia's SDG Cities framework. The decision to go with MURNInets data was made mainly because it's easier to collect data that fit Shah Alam's situation. This choice is also influenced by Malaysia's unique governance structure – KPKT oversees all PBTs, where the data come from, which is different from the situation in other countries. It's crucial to match local SDG efforts with the state and national ones. This helps work from the bottom up, with the City Roadmap and VLRs by local governments being key for making plans and keeping track of progress.

Shah Alam's efforts to localize the SDGs involve aligning these goals with the city's needs and priorities. Led by MBSA, the creation of the Shah Alam SDGs Roadmap adheres to the Malaysia SDG Cities guideline, entailing an assessment of the city's current development plans and stakeholder engagement to ascertain its position. This guideline also integrates the city's vision, aligns local actions with SDGs, and establishes a reporting system, further preparing Shah Alam for reporting on the VLR at the UN. The city's future aspirations concentrate on the development of a Low Carbon and Green City, community empowerment, and enhancing urban governance. These endeavours aim to foster an eco-friendly urban environment, bolster community resilience, and fortify effective governance for a socially vibrant and well-managed city.

Nevertheless, the development of Shah Alam's VLR encounters challenges such as project continuity and fostering collaboration among diverse groups, including private sector engagement and resource limitations. Engaging the private sector in sustainability initiatives poses hurdles due to potential reluctance based on cost concerns and a lack of awareness about long-term benefits. However, there are 'low-hanging fruits', like raising community awareness, implementing waste reduction campaigns, enhancing green spaces,

improving public transportation, promoting sustainable practices in businesses, involving youth in sustainability efforts, and establishing transparent progress dashboards. Moreover, Shah Alam's SDG strategy aligns with broader city policies and actions encompassing LA 21, LCCF, VLR, Shah Alam Draft Local Plan 2035, and community projects. Within LA 21, committees emphasize environmental, social, and economic aspects, while LCCF initiatives target reducing the city's carbon footprint. The VLR serves as a testament to the city's commitment to sustainability, and the Shah Alam Draft Local Plan 2035 addresses spatial, socio-economic, and environmental facets, with community projects focused on enhancing the city's sustainability through various endeavours.

Shah Alam's commitment to sustainable development is evident in its governance, with MBSA leading the SDG strategy. This local authority sets policies and priorities for SDGs, coordinating specific committees and departments. Departments initiate aligned projects, and collaborations extend to local partners like businesses, non-profits, and residents. Stakeholder engagement involves diverse entities, including the local community, professional bodies, academic institutions, and international organizations. To foster comprehensive inclusivity, preparations for upcoming projects consider various stakeholders, while community support remains pivotal. MBSA's significant role in planning and implementing reflects a city-led approach across most SDG programmes, showcasing Shah Alam's dedication to inclusive and collaborative sustainable development practices. While MBSA plays a leading role, aligning its initiatives with the Selangor Voluntary Subnational Review (VSR) contributes to expanding the sustainability of the programme under the three-tier governance model.

The Selangor VSR highlights how agencies under the Selangor state government, including Selangor local authorities, have adapted the SDGs to fit their local context and tracked their progress towards the 2030 Agenda (Urbanice Malaysia & Selangor State Government, 2022). Participating in the VLR and VSR processes offers many advantages, such as better teamwork and coordination within the government, improved data collection, and increased involvement of various groups like community organizations, schools, businesses, and others. This broader engagement at the state level signifies a significant step towards inclusivity, involving entities like the police and firefighters. Additionally, these processes aid communication between different government levels. Malaysia's three-tiered reporting structure – VNR, VSR, and VLR – presents a beneficial model for cities like Shah Alam, advocating for wider engagement and fostering sustainability practices.

SDG implementation in Shah Alam reflects its dedication to sustainable progress. The approach involves integrating SDGs seamlessly into existing programmes and systematically planning new initiatives. Emphasizing community involvement, awareness, and innovation drives expansion. Work division and leadership roles demonstrate collaborative synergy among

stakeholders, addressing complex challenges and advancing SDGs. The strategy fosters open communication, shared commitments, and sustained community involvement, emphasizing inclusivity, partnerships, effective communication, and awareness. Overall, Shah Alam's strategy reflects a comprehensive and inclusive approach, showcasing the city's dedication to sustainable development and collaborative efforts for a better future.

As with financing strategies, Shah Alam's SDG initiatives heavily depend on various funding channels to ensure their success, encompassing government funding, public–private partnerships, international aid, NGO support, and community contributions. MBSA kick-starts projects using its budget, expanding through collaborations with government bodies and the private sector, and attracting international and NGO funding for successful projects. Financial decisions follow a structured process, with annual budget planning involving public input and oversight by the Smart Shah Alam Sustainable Steering Committee to ensure transparency and prudent fund use. This structured financial approach highlights Shah Alam's dedication to responsible resource management, crucial for advancing its SDGs initiatives.

In the realm of sustainable systems, Shah Alam's commitment to the 2030 Agenda covers social, economic, and environmental aspects. Socially, it focuses on healthcare, education, and community cohesion. Economically, it promotes equity, entrepreneurship, and local prosperity. Environmentally, it reduces its footprint through the LCCF. Resilience measures address climate change and socio-economic challenges. The city's strategy intertwines these pillars, acknowledging their interconnected impact. Additionally, MBSA prioritizes sustainability in its financial and governance structures, guided by the SDG Roadmap. Impact assessment is central, combining centralized and decentralized methods to guide data-driven decisions, reflecting Shah Alam's commitment to holistic progress and strategic impact measurement.

Overall, the success of this VLR initiative can be largely attributed to Shah Alam's structured implementation and reporting, aligning closely with its three-tier governance architecture. Initially, there was no established standard for implementing and producing the VLR. Therefore, by adhering to this structure, every level of government becomes acquainted with the SDGs, facilitating the creation of a standardized VLR report to support the VNR. This approach can serve as a model for other cities sharing a similar governance structure to Shah Alam. Additionally, it's important to highlight the Shah Alam Low Carbon City initiative, as it was prominently featured in Malaysia's 2021 VNR (Economic Planning Unit, 2021). The initiative focuses on various areas like renewable energy, waste management, public transport, and green spaces to reduce greenhouse gas emissions. It aims to transform Shah Alam into a Low Carbon City by 2030 and has garnered widespread participation from governmental, private, industrial, educational, and community entities through the "Low Carbon Urban Challenge 2030". Recognizing its efforts, MBSA received the Gold Award from the Malaysia Institute of Planners for three consecutive years: 2017, 2018, and 2019.

The seven cities in Malaysia that submitted a VLR demonstrate significant progress and commitment to sustainable development through their implementation of the SDGs. In Malaysia's governance structure, decision-making power is distributed across federal, state, and local levels. Cities like Shah Alam have a degree of autonomy in decision-making within their jurisdictions, operating within the framework set by national policies. While Shah Alam holds decision-making authority locally, it adheres to guidelines and regulations established by the central government, contributing to a collaborative governance approach aimed at sustainable development.

Finally, MBSA aligns Shah Alam's SDG selection and implementation with its everyday operations and policies through a comprehensive integration across various strategic initiatives. The city's SDG strategy is meticulously designed to synchronize with the broader policy and action plan portfolio including LA 21, LCCF, Shah Alam's VLR, Shah Alam Draft Local Plan 2035, and numerous community projects. MBSA ensures that the chosen SDGs resonate with and complement its existing policies, incorporating them seamlessly into its daily functions. Moreover, MBSA's implementation of SDGs follows a bottom-up approach, aligning with state and federal policies, showcasing a concerted effort in integrating SDGs into the operational fabric of Shah Alam's governance.

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8

JAPAN'S MINAMATA

Challenges and innovations in Sustainable Development Goal implementation and sustainability beyond borders

Lynn Thiesmeyer

Development and sustainability in local and trans-local environments

In Japan, "Eco-Towns" and "Eco-Cities" participate in the national "Eco-City" plan, promulgated in 1997, as initiatives approved and partially funded by the national government. Kyushu, the region of Japan in which Minamata is located, is a large island of 36,782 sq. km or nearly the same size as Switzerland. It hosts three areas granted "Eco-Town" status, including Minamata (GEC, 2005). Kyushu generally, the Minamata area, and its prefecture (province) of Kumamoto have sustained themselves within transnational and trans-local trade since their first official history in the eighth century AD.[1] Thus, its means of production and their pressures on the environment have proceeded according to the need to find and maintain trans-local and transnational procurement and revenue sources within this area, on the mainland of Japan and in East Asia, that were continual. Recent levels of economic interactions between Kyushu, particularly in the industrial sector, and other regions within Japan are discussed in Chakraborty, Inoue, and Fujiwara (2020).

In the 20th century, the demands of the transnational export economy led to the slow-unfolding disaster that began to confront the small city of Minamata after World War II (Hashimoto, 1999; Murata & Karita, 2021). Minamata's major corporation, later named Chisso, had been producing acetaldehyde by using mercury as a catalyst. This became the highly toxic methylmercury when discharged directly into Minamata Bay, the portion of the Yatsushiro inland sea (known locally as the Shiranui-kai) between Minamata and Nagasaki Prefecture. It poisoned the food fish and the local consumers of them, and the severe nerve disease that resulted killed and critically sickened thousands, becoming known as Minamata Disease.

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Once revealed in 1956, what had seemed to be purely an environmental and health crisis began to show the world the interconnectedness of the environment, human health, non-inclusive styles of governance, and growth-centered economic development at its most unsustainable.

Following national government recognition of the disease 1968, it went from being an example of what are now known as technological disasters, to providing global lessons on unsustainable industrialization, irresponsible production, contaminated water ecosystems, health crises, inequitable economic growth, unsustainable community, and injustice (WHO, 2022; Sarker, 2021; Shen, Guoqiang, Long Zhou, Xianwu Xue, and Yu Zhou, 2023). Its "crisis point" policy processes eventually led to the global-level discussions of the conditions necessary for sustainability in development and contributed to the SDGs.

Given its experience with subsequent waste reduction, cleanup, health remediation, and the related restructuring of its governance, Minamata offered its transboundary assistance to other countries and regions impacted by industrial policies that have led to contamination.[2] The first global initiative began when Minamata built and received national government accreditation and funding for the National Institute for Minamata Disease (NIMD) to research mercury's impact on human health. The Institute also trains researchers and practitioners and diagnoses and updates treatments for Minamata Disease patients worldwide. It should be understood that Minamata never focused solely on environmental and health concerns. As early as the 1990s, and with support from the Japanese government, the city had begun to work on many of the targets within all 17 of the SDGs (launched in 2015). The challenge, then and today, is how to make the SDGs support localized initiatives while promoting regional economic viability over the long term.

At the 2023 exchange rate, Minamata's average yearly per capita income is $17,869 USD, more than $6,000 USD lower than the Japanese national average of $24,202 USD (Hello Work, 2022). Minamata, like other small towns in exurban Japan, exists in an area where major firms and other providers of employment have not wished to locate. Minamata's continued reputation for sustainability has relied heavily on its primary sector, which can directly employ only a small portion of the community: 725 persons as of 2022, although numerous small businesses also deal directly in natural and physical resources from agroforestry (Minamata City, 2022b). A serious drawback for larger businesses is its transport infrastructure which only recently included access to a national highway. Further, the lack of an affordable university or technical college nearby has meant that much of the local workforce remains low- or semi-skilled and thus unattractive to firms. The lack of jobs has resulted in a continually shrinking population. Minamata's highest population was 50,000 at the time the industrial pollution began; the population was 23,527 in 2023. The dependency ratio of the city is thus skewed due in large part to out-migration of younger adults (see Population Statistics in Minamata City, 2022b). Rather than a population pyramid

we find an inverted pentagon pattern, where over 40% are elderly, less than 50% are younger- to middle-aged, and only 11% are youth under the age of 15.

This trend, along with low average income, has begun to jeopardize the town's natural resources because the challenges this economic gap presents to the attempts to realize or maintain the SDGs are enormous. Saleable assets now are sought and derived from among previously untouched resources, and sometimes without regard to the SDGs of Climate Action, Life on Land, and Life on Water. Minamata has begun selling off its valuable evergreen timber from both public and private uplands to neighboring countries. Yet this transnational activity does not yet seem to form an exchange particularly beneficial to residents, as the timber's sale price may fail to sustainably support the households who sell it (author interviews with staff at Minamata Kugino Airinkan Hometown Center and at Minamata Disease Center Soshisha, June 13, 2023). A countermeasure is the city's infrastructure improvement in intermontane areas that is expected to benefit the introduction of new crops, discussed in section 2(3) of the 2nd SDGs Future City Plan (previous city plans are available at Minamata City, 2023a).

Minamata also had pressing, and intertwined, issues to resolve for it to undertake progress towards sustainability for the community and its rural territories. The town found itself having to build new socio-economic and governance structures and practices conducive for the community to overcome its interior boundaries of prejudice and socio-economic discrimination, which had become more intrusive during the spread of Minamata Disease and attempts at remediation. This civil society boundary-crossing and re-bonding would underlie the pursuit of sustainable institutional, governmental, and societal targets in the post-remediation period. Thus, before the SDGs were adopted Minamata was already working towards similar objectives. These were clean management of Minamata's marine ecosystem and land-based environment, the good health and well-being of its human population, decent work, sustainable governance structures and community relations, and stronger institutions, especially those for social and environmental justice. They became the hallmarks of Minamata-inspired reforms worldwide.

Progress towards transboundary SDGs and intermediate challenges

Minamata has not yet committed to submitting a Voluntary Local Review to the United Nations (UN). This is the case with many Japanese towns (and other cities throughout the Association of Southeast Asian Nations (ASEAN) region) which rely upon their Voluntary National Reviews (see Prime Minister of Japan, 2021) for both their local and national standards of measurement and assessments (Elder & Ellis, 2022). A further, and highly significant, resemblance within ASEAN is the reliance on traditional and localized notions and practices of what later came to be called "sustainability."

In 2008, former mayor Miyamoto proposed Minamata's own localized sustainability initiatives, leading to an Environmental Model City Action Plan (Minamata City, 2009) and a dedicated governance framework with three objectives:

1. To establish a model city promotion agency, with an Environmental Model City Promotion head office headed by the mayor, and a Work Project Team Subcommittee that links relevant activities within the city government;
2. To form a Committee of citizen representatives and five subcommittees on projects, to hold roundtable meetings, whose members would obtain cooperation from each group and organization in the city;
3. To cooperate with three of Kumamoto Prefecture's universities and promote mini-hydropower and other new forms of energy conservation; developing biomass production; and furthering cooperation with local businesses for an Eco-Town Promotional Council to support environmentally friendly ways of salvaging rare earth metals and separating and reducing waste.

Minamata was now undertaking sustainability not only for its own sake, but trans-locally, for the Kyushu region and for the whole nation (Minamata City, 2008). It had evolved from initiatives that were undertaken from 1992 when the national government issued its first "Creation of Environmental Model Cities" declaration and Minamata had localized the vision. Minamata was among the first cities to separate all garbage for Reduce–Reuse–Recycle (R-R-R) for the national Zero Waste target. Local R-R-R firms, designated "Environmental Industries," that had begun breaking down waste materials from the entire southern area of Kyushu, were included as contributing to the general area's reduction in greenhouse gases (GHGs). Further, to protect and enhance the sustainability of the town and the region, Minamata instituted the *Kankyo Meister* (Environmental Master) certification for small businesses and products; promoted low-energy and low-resource consumption; increased its citizen-based forestry activities to reduce global warming; and started similar community-based environmental-protection activities. The result was a community-based resource management system. It evolved at a time when political equity in Minamata had begun to stabilize, making community-based initiatives not only possible but self-supporting (Mahanty et al., 2006), and in turn contributed to further political equity through public meetings, events, and greater community development (Nakamura, 2021, p. 129).

The visible results of these initiatives contributed greatly to Minamata's growing transboundary influence on sustainability initiatives and implementation. Assistance was and is extended to communities similarly impacted by industrial mercury poisoning in Asian and South American countries (Murata & Karita, 2021; Nakamura et al., 2011). These culminated in the

United Nations Environment Programme's adoption in 2013 of the Minamata Convention to implement "controls and reductions across a range of products, processes and industries where mercury is used, released or emitted" (United Nations Environment Programme, 2013). Minamata had achieved both city-wide adoption of and progress towards a new sustainability and had also become a transnational resource for sustainability knowledge and practice as well as for the regional economy.

A recent challenge for Minamata lurks in its robust seagoing trade. Cargo ships from the People's Republic of China continue to visit Minamata port, awaiting their agents' procurement of natural resources peculiar to the locality that include watershed-protecting timber sold for income by some forest owners (field surveys by the author, February 25 and June 14, 2023), though the loss of forest area is mentioned as early as 2008 in the "Environmental Model City Proposal" as a factor in the lessening absorption of GHGs. A second challenge is a project that began in 2022, a joint venture between Japan and the Taiwanese semiconductor producer TSMC, which is in Minamata's prefecture of Kumamoto. A third challenge is the continuing expansion of Japan New Chisso in hydropower, gas, electric, and solar energy. Thus, these transboundary products now include digital technology and energy (Kuik, 2023).

These recent connections offer examples of Japan's newer regionalism and its increasing connectivity within the ASEAN region (Kuik, 2023; Shinoda, 2023). Yet at the same time, these industries are at risk of reducing or polluting the region's water sources. There is also the perception that TSMC's plants will not provide jobs and income to the financially strapped and largely non-university-graduate residents of Minamata, because these plants seek university graduates for their skilled workforce (author interviews with Minamata and Kumamoto citizens, civil society organizations, and locally based industry in June and August 2023; Shivakumar et al., 2022). Further, town and prefectural residents also worry that plants occupy large areas of green space that had offered ecological services, particularly of productive land as well as clean water resources.

These development projects rely on, and expand, the transboundary connectivity of southern Japan in terms of its economy, human resources, and natural, physical, and digital resources. Yet the risks mentioned above can affect contributions to the SDGs by impacting negatively Life on Land (15) and Climate Action (13), both SDGs for which the UN's yearly Sustainable Development Reports have showed significant challenges remaining in Japan as well as in other Organisation for Economic Co-operation and Development (OECD) countries (Sachs et al., 2021, 2022, 2023).

Scope of the project: prioritized SDGs, funding, and administration

Minamata's first prioritized initiatives later led to participation in the national government's 1997 plan for Zero Waste. By that time, national and prefectural governments were also offering funding for remediating both health

and the environment, and Minamata went on to build and to rely on the reform of community relations and on existing implementing infrastructures for a return to economic viability and for justice. From 2008, wider and more diverse sustainability initiatives were brought forward, later referenced in "Our SDGs in Minamata" (Minamata City, 2022a).

From 2008, as seen in its "Environmental Model City Proposal" (Minamata City, 2008), the featured objectives, including public and private initiatives, to advance Minamata's sustainability can be seen as comprehensive but also, and more importantly, localized. Their evolution and implementation show a keen understanding by the local government of how to mobilize traditional local resources and activities – human and natural resources – and how to position them vis-à-vis trans-local opportunities. An example is the initiative to begin accepting recyclable bulk refuse (metal-based appliances and machinery) from other parts of Kyushu for Minamata's new and advanced-technology recycling center. This, along with the restructuring of community relations, community–private sector relations, and citizen–government relations and joint activities, produced a key element of any new undertaking: a state of readiness for unified, comprehensive sustainability initiatives. This has brought its sustainability governance to its most recent stage, the selection of Minamata by the national government in 2020 to be a "SDGs Future City" (Minamata City, 2023d).

Previous and current planning

As we have seen, Minamata's state of readiness for subsequent SDGs appears in the 2008 plan for an Environmental City. Its evolving initiatives went from 1993 with the nation's first highly particularized garbage separation for waste reduction; to 1998, with formal recognition as an "Environmental Master" ("Meister" level) for workers at shops and in the production of handcrafted or locally grown products; to fulfilling Environmental Management standard ISO 14001 in places of business, and promotion of safe agroforestry and marine products; and, in 2002, to Minamata's bulk waste recycling facility's capability being offered to southern Kyushu (Minamata City, 2008).

The city then made public its commitment to the SDGs through the formulation of its 1st and 2nd two-year "SDGs Future City Plans" (2021–2023 and 2023–2025). These two-year plans highlight more specifically localized goals and targets, linked to SDGs. These highlighted, representative goals and their measurements are available in Minamata City (2023c). Minamata had by then been chosen as a "Top Eco City" by the Japanese government for a few years running and was eventually chosen in July 2020 as an "Environmental Future City" and a "City with High Potential to Achieve Sustainable Development," which were in turn based in the broader 6th Minamata City Integrated Plan (2019–2026).

Funding

Many of the current initiatives are undertaken or in part sponsored by local enterprises, and the government provides incentives for businesses. The Minamata Eco-Town Council began in 2002 as a cooperation platform which, along with the Minamata Corporate Business Support Center, is located inside an environmental research and development facility. Both assist in funneling government and other forms of support to businesses for developing new products, technological improvements, and expansion of product markets (Minamata City, 2021). Most of these businesses participate in the SDGs by working on various forms of waste reduction and recycling.

The bulk of funding to Minamata in general comes mainly from national and prefectural funding to Minamata City. The city's own income also comes from sales of government-owned assets such as parcels of land and timber on the owned land, as well as taxes levied upon other owners' sales of resources.

Measuring progress in the 2nd SDGs Future City Plan (goals, targets, and SDG promotion)[3]

The Second Term Minamata City SDGs Future City Plan (2023–2025) divides its measurable initiatives into two groups (Minamata City, 2023c, pp. 11–16):

1. Preferential Goals and Targets for Achieving the 2030 scenario for the Economy, Society, and Environment.
2. Nine Initiatives for the Promotion of the Local Government's SDGs.

The initiatives highlighted in both groups are measured according to short- and medium-term goals and targets. The sixth Minamata City Integrated Plan runs until 2026, and thus 2026 is the target for the short-term goals and 2030 goals are considered medium-term.

Group 1: Three Preferential Goals and Targets (Economy, Society, Environment)

Realism

For its economic measurements the city uses key performance indicators (KPIs) to compare pre-SDGs-adoption outputs to current and near-term projected outputs – those proposed as achievable by 2026 and 2030. In place of the GDP suggested in SDG 8 (Economic Growth), target 1 uses GMP (Gross Metropolitan Product) to show targeted economic improvements and growth related to the "Future City Plan" SDGs. The indicators are subdivided into: (1) GMP; (2) the number of innovations or technological developments made by local businesses; and (3) the number of incoming tourists

per year. The goal for an increase in GMP from 2019 to 2026 is from 849,000,000 yen to 872,000,000 yen ($5,687,264 to $5,841,336 USD). This relatively small projected increase is largely attributable to the COVID slump in 2020–22. It does, however, also show realistic expectations, where a business-as-usual scenario of a small working-age population, out-migration, and no recent offers by large businesses to locate nearby would compromise the income of the city and the SDGs it wishes to support.

Focus on youth and age

For social (social development and welfare) goals, Minamata uses target categories related to Quality Education, Gender Equality, Partnerships for the Goals, and Good Health and Wellbeing. For these four targets, Minamata's chosen KPIs are (1) number of participants in next-generation human resource development projects; (2) percentage of child/youth guardians who feel that child-raising support has been satisfactory and that the local environment makes it easy to raise children; and (3) reduction of the three highest causes of morbidity in the indicated years, linking this to the city's targets of increasing the active and working-age population and increasing healthy life expectancy. As Minamata hopes to halt its shrinking population, it is rational to improve amenities for the two groups likeliest to shrink (youth, through out-migration; and the elderly, through natural decrease).

Continuing involvement of local citizens, and early and satisfactory impact on them

For its environment category, the three indicators are: (1) percentage reduction of GHG emissions for the entire metropolitan area, as relating to the SDG of Affordable and Clean Energy, a target which it has already achieved; (2) percentage of wastes recycled, as related to the SDGs of Responsible Production and Consumption and also of Partnerships for the Goals; and (3) the number of persons participating in the city's Ocean and River Cleanup Strategy. All of these were initially discussed with and approved by, as well as later implemented by, local citizens working with private firms and government offices.

Group 2: Initiatives promoting the local government's SDGs

Decent work and economic growth; innovation, industry, and infrastructure; and zero hunger SDGs

New products and newly developed technologies are emphasized in the current plan. Whereas the March 2019 KPI showed only one new food product, Minamata's promotion of the "Introduction of (new) Crops in Intermontane

areas" for the development and marketing of a new local tea and bay oysters brought the total for 2022 to three, and there were three new non-food items. The tea has crossed local boundaries to sell nationwide. These product development and innovation initiatives are supported in part by a dedicated line in the city budget. The 2023 city budget includes 2,500,000 yen ($16,870 USD, as of October 2023) for assistance in the development of these new products and new production technologies (Minamata City, 2023b). These modest budget amounts represent seed grants for businesses and industries that provide most of the development costs through their own R&D, from prospective sales profits, or from other partnerships (2nd SDGs Future City Plan, initiatives 1 and 3).

Tourism

Incoming tourism, which Minamata puts under the Decent Work and Economic Growth and the Sustainable Cities and Communities SDGs (8 and 11), showed a respectable 81,758 persons in 2019 and, despite COVID, 81,173 persons in 2022. Incoming tourists numbering more than three times the total local population are the result of several long-standing as well as recently planned, and fortuitous, trends. The high number of incoming tourists in what was still a COVID year, 2022, shows the healthy reliance on domestic tourists and the robustness of the Minamata area's spas, one of its main traditional businesses. However, this also illustrates the fragile nature of the SDGs. In 2023, Minamata began outlining a post-COVID plan for eco-tourism that could include guests from further away, including overseas. Although local natural resources such as plants, animals, and natural and geographical elements are presumed to be the targets of the environmental preservation that is indicated in SDGs 13 (Climate Action), 14 (Life on Land), and 15 (Life below Water), some natural areas are being cleared for expanded construction and parking areas or are being targeted as sources of income.

Quality education

Minamata's initiative in "human development" supports its initiative for "taking responsibility for Minamata." One of the localized and yet high-level projects here is Minamata Environmental Academia, a recently built education and training facility for Minamata Studies. Its KPIs include the number of worldwide projects (teams) undertaking programs at Minamata. Thanks to the popularity of Minamata as a study and training site, there was a jump in attendance from 28 teams at the end of 2018 to 130 in 2022. The transnational reputation of Minamata, and the improved transport for visitors that includes a Kyushu bullet train and more flights to provincial airports, show the importance, and perhaps burden, of transboundary sustainability.

Health

Minamata's goals include the "Creation of a City of Healthy Aging and Active Life Purpose." The most renowned and supra-national program within Minamata's healthcare system is the NIMD,[4] a research institute specializing in Minamata Disease (mercury poisoning) manifestations, diagnoses, and treatments worldwide, and knowledge transfer to the developed and developing world. It was established in 1978 under the national-level Environment Agency (now the Ministry of Environment) with continuing national funding. The expanding functions and transboundary reach of this institution demonstrate a successful, and human-centered, contribution to Health and Wellbeing (SDG 3), and they are implemented both within a patient-oriented practice as well as in advanced research. In this way Minamata's lasting contributions also demonstrate both the need for, and a means to implement, SDGs beyond borders.

Minamata is also a leader in "access to quality essential health-care services" and in "reduction of inequality" (SDG 10) with community-based initiatives for remote care for the elderly and disabled. Minamata hosts elderly populations in mountainous areas who lack easy transport to hospitals. It is developing prototypes for, and using, telemedicine and telehealth faster than some large urban areas of Japan. The Minamata City General Hospital and Medical Center networks its services to the less-accessible populations through their own local public clinics, and through pilot home-based onscreen communications. This provides an example of a good practice where identifying, and tackling, a local sustainability problem head-on can help in focusing local and national resources intensively and continuously on the infrastructure, knowledge, and practice required to remediate it.

Reduction of GHGs in the region

This trans-local target starts from a baseline of 34% reduction in GHG emission from 2005 to 2018, and 35% in 2022. In practice, this reduction is of crucial importance, not only for Minamata but also for its location at the boundary between the prefectures of Kumamoto and Kagoshima, both of which are large, host emissions-producing industries, and are in fact building more. This target is trans-local, given that GHGs, like other airborne phenomena, know no boundaries.

Appropriate waste separation and waste reduction

Minamata's own Zero Waste initiative, the first in the nation, began in 1993. It involves all sectors of society and includes the recycling of every form of trash into locally reusable materials. There has been substantial investment by the prefectural and national governments into very thorough state-of-the-art trash compacting, thermal treatment, and extracting equipment. From 2009

onward, the "Environmental Clean Center" impressively demonstrated its ability to reduce, recycle, and reuse every type of waste into other products or materials that were reused locally. Minamata now aims at its near-term (2026) goal of no longer depending on incineration or landfill disposal of waste. Given Minamata's reputation as a national pioneer of total recycling efforts at the citizen level, here it uses the KPI of 39.4% recycling by citizens as of March 2019 as a baseline to propose 45% citizen recycling by 2026.

Promotion of cooperation for environmental conservation activities

Among the goals is bay and river cleanup (SDG 14 Life below Water and SDG 17 Partnerships for the Goals), with the KPI raising the number of participants. Regular activities are expected to bring together different social groups as well as direct enjoyment of the outdoor and marine environment.

Conclusions and recommendations

Minamata has not remained focused solely on environmental and health concerns, nor has it hesitated over planning and implementation of initiatives for all the SDGs. The problem, common to many cities worldwide, is always how to make the SDGs and other initiatives economically viable and keep them so. Its current initiatives now lead us to consider the role of features that are most local to and significant for cities and communities understood as local and transnational places.

- General recommendations that emerge from its current initiatives are, first, the connectedness of a locality with its own resources, but also within the newer world of transboundary and transnational governance, exchange, and cooperation. Second are the localized aims focusing on Minamata's own past successes, ecology, and human strengths. Third is the emplacement of structures, activities, and spaces for community re-bonding and for self-determination.

Soon after its crisis point, Minamata went on to build and to rely on the reform of community relations and on implementing structures for a return to economic viability and for justice. Minamata's restructuring of community relations, community–private sector relations, and citizen–government relations produced a key element of any new undertaking: a state of readiness.

- The recommendation here is to lay the groundwork in social and participatory governance structures that will carry forward the implementations and activities that the community, inclusively, chooses. Before the broad SDGs were adopted, these new structures were enabling Minamata's citizens and their organizations to work hard and unanimously towards sustainable objectives.

A danger of Minamata's lowered population and consumption lies in the age-old fear that using resources "too" wisely might result in impoverishment, a fear that can undermine the implementation of the SDGs. Challenges here are related to a perceived dichotomy between better economic performance in the short run versus environmental and public welfare, which that has been called a contention between "short term equity and long term resilience" (Molla et al., 2021). As one compromise, Minamata continues its localized product innovations and an expansion of its strength in tourism.

- The recommendations coming from this common dilemma all involve remaining based in realism, especially about business and economic growth. Knowing the strengths, limitations, and potentials of the locality is key to prudent development. Minamata's 2nd Future City Plan keeps its focus on youth and age, the two groups soonest impacted by poor economic prospects and the most likely to shrink quickly if left unserved. The recommendation here is: innovate for your weaknesses. Rapid growth cannot yet be expected, but Minamata has continued to apply for and use available provincial and national program funding and is quickly seeking to benefit from the widening translocal marketing reach of its product innovations, its new highway interchange and the fast growth of tourism throughout Japan. A further recommendation, then, is: don't go, or stay, off-road.

What really pushed Minamata into sustainability was the efforts of its own people. These include the doctor who proved that the disease came from eating methylmercury-contaminated food; the local citizens who continued fighting, even when attacked, for recognition and justice; the many sufferers who despite years of stigma came forward to show and describe their symptoms; and the postwar local government leaders who possessed and put to use their enduring insight into their people, their land, and their sea. However, anything directly associated with human resources and human development only appears in SDG 4 (Education), Target 7: "all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development."

- The recommendation here involves taking the SDGs as suggestions that can and should be refined and supplemented by the localities implementing them, and by expanding the targets to include the role of human beings. While none of the SDGs directly states that human resources can form a sustainable life in economics, politics, and society, or reform it when it goes wrong, human resources are what set Minamata on the path to recovery and sustainability.

The SDGs require us to look, think, and govern on both the national and sub-national levels, but the sustainability issues that confront us also cross national boundaries. Sustainability itself is a moving target. It requires

constant vigilance and refocusing. Minamata's example, where the early stage of an export economy led it to adopt deadly production methods, leads us to ask if sustainable *development* is the same as proven forms of sustainability – and if today's SDGs are sustainable.

Despite being small and remote, Minamata has demonstrated the need to implement SDGs both locally and beyond borders. The challenges and strengths of Minamata, and their global iterations, should help us to restate our means of survival.

Notes

1 Trans-local is used here for phenomena, activities, and relations that exist, usually long-term or historically, among districts recognizing themselves as geographically separate though allowing inter-mobility, and politically distinct on local, national, or regional levels.
2 Transboundary is used here as the most general term for phenomena, activities, and relations beyond the legal and societal boundaries of a particular area.
3 All US dollar numerical amounts in the following sections are calculated at the 2023 rate of exchange.
4 Supra-national refers particularly to activities and relations among politically differentiated states and beyond the sole jurisdiction of any one of them.

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9

THE CITY OF MALMÖ

"A star in the sustainability sky"

Emma Björner, Ingrid Andersson and Sylviane Toporkoff

Background

It has now been more than 300 years since Sweden conquered Scania, representing its southernmost, highly fertile province, taking it from Denmark. In the early days, emphasis was placed on fortifications and military administration. To weaken resistance among the local population, the new rulers divided Scania diagonally. In the 18th century, serious attention was given to revitalizing commerce and infrastructure. The potential offered by Malmö, strategically located on the waterfront, moved into focus.

The establishment of a proper harbour was of high importance but would take until the early 19th century to complete. Gradually prominent industries were established, turning Malmö into a significant logistics and manufacturing hub. The closure of the central military fort provided the city authorities with new land for urban development and during this time the coastline was dominated by expanding industries. Slightly inland just north of Malmö, the old capital of Denmark – Lund – had suffered badly from the restoration, wars, and repeated fires. Its standing as an academic centre, by way of Lund University instituted by the Swedes in 1668, gradually contributed to a revival. From the mid-19th century, new industries took shape and technical progress kicked in. It used to be said that (the industrial) Malmö and (academic) Lund were located at opposite sides of the planet – one would have to move around the world, the other way, to get to the other.

Starting in the early 1970s, Malmö's economy experienced a crisis. The rise of new competitors, notably in the Far East, brought its large-scale heavy industries to their knees. The Swedish government set out for a few years to fend off the threat by issuing massive defensive subsidies, but the costs skyrocketed given the size of the industries that were in jeopardy. With no sign of

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a turnaround in competitiveness and a rapid weakening of government finances, the support effort fizzled out. Much of the incumbent industry went bankrupt, around one-third of the city's jobs were lost, and unemployment shot up. By the early 1990s the population of Malmö had declined by more than 10% over the past two decades.

In the years that followed, Malmö set out to revamp the old industry complex and new companies and activities moved in. The coastline was systematically converted into an epicentre of sustainable, eco-friendly living. Outdated urban infrastructure along with heavily polluting industries gave way to high energy efficiency and those that embraced Nature-Based Solutions (NBS).

The early seeds of the transformation were sown in the mid-1990s. The Mayor, Ilmar Reepalu,[1] acquired a plot in the Western harbour and outlined a vision of piloting eco-friendly housing as a source of inspiration. This embryo of renewal attracted attention as Malmö was selected for the *European Housing Exhibition: The Bo01 City of Tomorrow*, in short Bo01.[2] Seemingly positioned in the middle of nowhere and struggling with multiple hurdles, innovative planning procedures set off a unique journey towards establishing a high-density mixed-use development hub. The project's legitimacy benefited from international framing, as each participating foreign country undertook to establish its own showcase of a culturally distinct sustainable building. A fast-track towards renewal had been put in place, avoiding the hold-up of slow-moving bureaucratic procedures.

Bo01 became the first climate-neutral district in Sweden, 100% reliant on renewable energy, and the area has been characterized as marked by "outstanding aesthetics" along with first-rate public spaces fostering social interactions at the street, neighbourhood, city, and regional levels. Solid waste management and waste separation, as another example, catered for circularity, including a recycling plant converting waste into biogas heating Bo01 buildings (Austin, 2013).

Not all objectives set up by Bo01 were achieved. Energy efficiency and biodiversity as an example had high residential costs and impeded social inclusion. Still, subsequent evaluations have concluded that the city reached high public acceptance and satisfaction levels (Bibri & Krogstie, 2020). The eco-district further served as a model and an inspiration for further innovation. Other high-profile flagship projects followed suit, such as the well-known Turning Torso, a twisted skyscraper that replaced the giant Kockums crane.

Malmö's transformation draws strongly on significant infrastructure, such as the construction of the tunnel and Öresund road and rail bridge linking Copenhagen and Malmö. After more than 300 years, Scania was reconnected with Denmark, and a part of the EU. The combined Copenhagen–Malmö metropolitan region with some 3.5 million inhabitants now represents one of the largest urban conglomerations in northern Europe. The two cities are increasing their economic and cultural cooperation, for example by drawing on a common labour market, representing one of the most prominent

instances of close cross-border integration. The influence of the towering Öresund bridge has been vast, playing a major part in bringing about change on the Swedish side of the strait.

Despite these external factors, bringing Malmö onto a new development path was no small deed. Ilmar Reepalu had to cope with repeated criticism and cynicism and was also challenged by legal action. In riding out the storms, Malmö practiced sound principles of governance, marked by effective multi-stakeholder engagement and collaboration. City management had to become more creative, innovative, and courageous, thinking and acting "outside the box".

Malmö today stands as an unusual example of urban and social transformation. It is recognized for its advances in knowledge, innovation, and development as a smart, eco-friendly, and inclusive city and society. A highly international and multicultural city, Malmö has had to struggle with heightened controversies around expanding migratory flows and bursts of violence and crime, while remaining steadfast in its social and economic ambitions.

Malmö's sustainability trajectory

The developments outlined above, in addition to a series of ambitious, enduring strategic efforts by city management, in close collaboration with the business community and civil society, have motivated Malmö to place an emphasis on sustainability. The entire coastline, which used to be peppered by heavy and polluting industries, has been – or is on course towards being – revamped into eco-friendly, sustainable, and inclusive living environments, entertainment centres, and modern offices.

Today, Malmö stands out as a young and international city – almost half of its residents are under the age of 35, and about one-third were born abroad. As of 2021, more than 179 nationalities, speaking more than 150 languages, featured among Malmö's residents. Most of the foreign-born population comes from the former Yugoslavia, followed by Iraq, Denmark, Poland, and Syria.

Being one of the fastest-growing cities in Sweden, it is anticipated that the population of Malmö will reach half a million by 2050. Such growth, combined with the complex and multicultural social fabric, evokes challenges. Malmö's Voluntary Local Review (VLR, 2021) nominated social inequality as the biggest challenge facing the city, manifested in economic, social, and political exclusion.

Following the release of Agenda 2030 in 2015, Katrin Stjernfeldt Jamme, then Mayor of Malmö, acted swiftly to declare a commitment for Malmö to become the first city in Sweden to fulfil the Sustainable Development Goals (SDGs). Marcus Ljungqvist (2023), Coordinator of Sustainable Development and Agenda 2030 in the City of Malmö, said, "Agenda 2030 gave us a common language" and explained that many perceived the global goals as concrete, easy to understand, and communicatively smart. Agenda 2030 also opened possibilities to gather around and collaborate on shared topics and sustainability issues. Malmö became the first Swedish city to commit to

making the SDGs their own, and to turn these into guiding principles for local development work.

Malmö's focus on achieving sustainability has gradually placed increasing emphasis on social and economic aspects. Ambitious goals have been formulated and made to work for the newly developed city parts and existing neighbourhoods, particularly for lower-income neighbourhoods, which have been thoroughly regenerated.

Today, the city has adopted a systemic approach to the SDGs and views them as interrelated and indispensable backbones of urban life. Marcus Ljungqvist (2023) states: "You can't work with achieving some of the SDGs, you have to work with achieving all of them," also emphasizing that Malmö does not *work with* the SDGs, but with sustainable operations and activities in the city to *achieve* the goals. Today, sustainability and the SDGs form the backbone of overall steering and management of the city's entire organization (VLR, 2021). "The SDGs are important and valuable to understand connections and improve collaborations, and thus work less in silos," says Ljungqvist (2023).

Malmö and governance

Courageous politicians and local leaders in Malmö have pushed the development of the most relevant sustainability goals, says Marcus Ljungqvist (2023), adding that: "Malmö has been a fixed star in the sustainability sky for a very long time, which is very much because we have been very brave, from early on." In 2017, a special office for Sustainable Development was established to accelerate work on Agenda 2030 in Malmö. From 2018 Malmö's work with Agenda 2030 has been based on a strategy detailing the city's long-term vision, operationalized through five key processes:

1. Integrate into regular steering and management systems.
2. Sustainable development through a systematic approach to fulfilling the SDGs.
3. Planned communication and participation for learning and support.
4. Increased awareness for conscious decisions.
5. Innovative partnerships that make a difference.

Furthermore, the *Budget for the City of Malmö*, which is the city's main steering document, has been a local action plan for the 2030 Agenda, and central in Malmö's model for integration of the SDGs. The budget, with its more short-term perspective, is complemented by longer-term programmes, regulations, and legislations. In October 2020, Malmö City Executive Board decided to establish a new commission: *The Growth Commission for an Inclusive and Sustainable Malmö*, with the mission to analyse the conditions for inclusive and sustainable growth in Malmö and make recommendations going forward.

Several of the programmes and projects described below identify stakeholders that have participated in its development, demonstrating the collaboration developed and needed to govern change and achieve success.

Key themes and projects

Malmö has implemented major initiatives relating to climate action, organic and climate-smart food, sustainable urban development, renewable energy, reduced energy consumption, mobility, and innovation support (VLR, 2021). In this section of the chapter, we zoom in on five main themes that are at the core of Malmö's sustainability efforts: (1) inclusion, (2) education, (3) sustainable food, (4) mobility, and (5) coastal transformation.

Inclusion

In Malmö's Voluntary Local Review (VLR, 2021), social inequality is pointed to as the biggest challenge facing the city, with its manifestations ranging from poor health outcomes to economic, social, and political issues.

The 'leave no one behind' principle is woven into Malmö's human rights framework, as well as several political objectives and Swedish laws. The Swedish Government has specified seven paragraphs that describe 'leave no one behind' in the Swedish context. Emphasis is on, for example, implementation of human rights and gender equality, reinforced empowerment and participation, reduction of poverty on several levels, social protection for all, and better data and follow-up (VLR, 2021). Several municipal steering documents also influence Malmö's work with human rights, gender, and equality.

New strategies undertaken by the City of Malmö are intended to guarantee children's rights, the rights of national minorities, equal opportunities, and gender equality (VLR, 2021). Implementation methods include the following:

- Malmö's work on equality has since 2014 been guided by the *Strategic development plan for efforts to counter discrimination in the City of Malmö*. The plan was adopted to contribute to offering equal opportunities and gender equality in the city. It contains three levels of assignments and responsibilities of the city, namely (1) activity, (2) community, and (3) employer level.
- The City of Malmö applied a gender equality strategy including three cornerstones: (1) statistics by gender (to ensure visibility), (2) gender equality analyses (analysing the consequences of decisions from a gender equality perspective), and (3) goals and commitments based on analyses. Gender equality work is conducted in all the city's areas of responsibility and has resulted in direct changes that benefit women, men, and people who do not identify as male or female. Malmö's work with gender equality ties directly to SDG 5, but also to all other SDGs since gender equality is a prerequisite to reach all goals of Agenda 2030 (VLR, 2021).

- Human rights city-wide efforts have focused on developing and reinforcing institutional criteria and the capacity to systematically counter discrimination and promote equal opportunities through regular steering, follow-up, and analysis processes. However, further development work is needed, especially to make sure that human rights work is systematically linked with sustainability issues in relevant steering and management processes.

Empowering education

In the City of Malmö's *Sustainability Report 2020*, education is described as a basic human right and one of the most important foundations for prosperity, health, and equality. Education is moreover said to empower people to transcend the social limitations of family backgrounds. A high and evenly distributed level of education is beneficial for the population's prosperity and living conditions (Sustainability Report, 2020).

There is significant school segregation in Malmö's municipal elementary schools. Pupils with similar socio-economic and migration backgrounds largely attend the same schools, and municipal leaders have limited influence on school segregation in the framework of the current Swedish legislation (Sustainability Report, 2020). The education of Malmö residents is documented and monitored in the city's sustainability reports and discussed in relation to Agenda 2030 and especially SDGs 4, 5, and 10. More students leave Malmö's primary schools with increasingly better grades (boys still fare worse than girls). Once at upper secondary school, an increasingly high proportion graduate within four years (Sustainability Report, 2021).

The City of Malmö's education goals are intricately tied to educational institutions. For example:

1. The City of Malmö will seek to ensure that a greater proportion of students complete upper secondary education within four years (relating primarily to SDG 4, but also to SDGs 1, 2, 3, 5, 8, 10, and 16).
2. The city will seek to ensure that a greater proportion of young people will be either employed or in education (mainly SDGs 4 and 8, but also SDGs 1, 2, 3, 5, 10, and 16).
3. The City of Malmö will seek to increase the proportion of Malmö residents that are self-supporting (primarily SDGs 4 and 8, but also SDGs 1, 3, 5, 10, 16, and 17).

The Social Innovation Forum (Mötesplats Social Innovation, MSI) is a knowledge platform and a collaborative programme bringing together stakeholders for in-depth sharing of knowledge in areas where there is a need to work together across boundaries to create positive impacts on society (VLR, 2021). Projects, actions, and educational activities have been undertaken in

digital inclusion, health equality, collaboration and equality for children's rights, safety in the public realm, and work life in the future.

The Social Innovation Forum was established at Malmö University in 2010 and has been developed in close cooperation with the City of Malmö, Malmö University, Vinnova (the Swedish innovation agency), and the Council of the European Social Fund in Sweden. These are the main bodies supporting and financing the Social Innovation Forum. Indeed, a key lesson learned is the need for platforms and methods for experimenting with creating novel functional partnerships, to attain long-term sustainable impact. The Social Innovation Forum links to several SDGs, namely 1, 3, 4, 10, 11, 12, and 17.

Sustainable food

The City of Malmö serves public food, free of charge, in preschools, schools, and elderly care homes. Approximately 65,000 lunches are served every day, and on a yearly basis, the city purchases around 8,500 tons of food. The City of Malmö adopted its *Policy for Sustainable Development and Food* in 2010, with the intent that food served would be healthy, of good quality, and prepared locally by skilled staff. The policy also states that food served in Malmö should be sustainable, climate-smart, and delicious with procurement contracts guiding purchasing practices.

Malmö's efforts related to public food and the *Policy for Sustainable Development and Food* tie in with several SDGs. For example, integration of climate change measures into policies and planning (target 13.2), promoting sustainable fishing (target 14.4), protecting biodiversity and natural habitats (target 15.15), and sustainable food production and resilient agricultural practices (target 2.4). Sustainable food production and resilient agricultural practices are addressed in strategies and guidelines in Malmö that advocate a change to a more environmentally friendly agriculture and more sustainable food.

In Scania's food strategy, food producers and other actors in the region are encouraged to invest in and preserve diversity, and to be flexible since preconditions are frequently changing. Businesses, actors, and society must be able to deal with disturbances – such as natural disasters or changed production conditions – and at the same time grow and prosper. This requires cooperation within the food industry and with other industries such as those that provide energy. In all cases, self-sufficiency and a resilient food system are emphasized since the vulnerability of the food system can be reduced through a variety of people, crops, animals, forms of ownership, and distribution models.

The policy has provided momentum for the city's place at the forefront of sustainable food provisioning. It has also resulted in increased quality of food served in municipal kitchens. In 2020, 70% of all food served in the city's venues was organic, which can be compared to the Swedish average of 40%.

A crucial factor in Malmö's work on sustainable food has been its collaboration and sharing of knowledge across departmental boundaries. Monitoring of

outcomes and feedback have also been important. Furthermore, Malmö uses sustainability requirements in procurement procedures to continue its efforts to steer purchases towards goods and stakeholders that contribute to sustainable development. For example, the city has used procurement procedures to obtain a high percentage of Fairtrade-branded goods, such as coffee and tea.

Mobility

A thorough revamping of the urban infrastructure has represented a cornerstone of Malmö's transformation from the industrial past to the modern era. Following the completion of the Öresund bridge, the old railway, a cul-de-sac at the southern end of the Swedish network, was redesigned and integrated in a thorough railway system serving the wider region. As a key feature, the newly constructed city tunnel now connects by rail the north, east, and south directly with the bridge, Copenhagen, and beyond.

Further expanding its ambitions to achieve sustainable urban development, Malmö moved on in recent years to actively pursue a mobility transformation to align with the SDGs. The city's commitment to creating a more sustainable and equitable urban environment is evident in its comprehensive approach to transportation and mobility.

Promoting sustainable transport (SDG 11: Sustainable cities and communities) is addressed by investing in sustainable transport infrastructure, including an extensive network of bicycle lanes, pedestrian-friendly zones, and efficient public transportation. These initiatives will reduce carbon emissions, alleviate traffic congestion, and create a more accessible and liveable city for its residents. Since early 2000, Malmö has been striving to increase the number of citizens using bicycles for personal transport. Currently 25% of the inhabitants are using bicycles daily, well on its way to reaching the 2030 vision set at 30%. In 2023, Malmö was 6th on the Global Bicycle Cities Index.

Reducing carbon footprint (SDG 13: Climate action) is addressed through several initiatives including the construction of the first ring road around Malmö – the idea was to reduce conventional traffic in the city centre – which was later followed by a second outer ring road to improve air quality and reduce congestion. Furthermore, investments in public transport and recently a city tunnel have improved personal transport options. The promotion of electric vehicles, implementation of renewable energy sources for public transportation, and the encouragement of eco-friendly commuting options contribute to Malmö's commitment to combatting climate change.

Enhancing accessibility (SDG 9: Industry, innovation, and infrastructure) is addressed by investing in smart infrastructure and innovative transportation solutions to increase the usage of buses and trains. This includes the integration of digital technologies for real-time information, smart traffic management systems, and the development of a seamless, interconnected transportation network.

Social inclusivity and equality (SDG 10: Reduced inequalities) – the city wanted transportation services to be accessible to all residents, regardless of socio-economic status or physical abilities. Malmö has put much focus on the provision of tools and solutions facilitating the freedom of movement among its inhabitants and visitors with special needs.

Community engagement and participation (SDG 17: Partnerships for the goals) are developed through partnerships with various stakeholders, including residents, businesses, and non-governmental organizations (NGOs). Co-creation and co-governance are two very important concepts which have been put to use to safeguard citizens' participation in decision-making processes related to urban planning and logistical matters. This collaborative approach ensures that the mobility transformation aligns with the needs and aspirations of the community, fostering a sense of shared responsibility for sustainable urban development. The city also emphasizes the importance of collaboration with the private sector, and local service companies are encouraged to establish themselves, for example bike repair shops in strategic locations as well as cafés and restaurants linked to stations for collective transport.

Coastal transformation

The collapse of heavy industries that historically dominated Malmö's coastline gave way to the adoption of a comprehensive and ambitious response. The crisis cut at the core of Malmö's perceived identity and risked resulting in decline and a loss of self-confidence. Instead, Malmö acted to instigate a transformation of the coastal areas, and internationalization and multiculturalism were embraced as part of the renewal process. The launch of Bo-01 was followed in 2002 by the dismantling of the huge Kockums Crane, the largest of its kind which had previously served as the landmark of Malmö (it was eventually sold to Hyundai Heavy Industries for 1 USD and shipped to Korea). In its place, the even higher Turning Torso – at the time the highest residential building in the world, designed by the Spanish architect Santiago Calatrava – shot up as the symbol of the new era. Meanwhile, attractive walking paths, cafés, and open areas offered first-rate public space just nearby. Embedded in the comprehensive city planning with its focus on sustainability at all levels, the rapid transformation of the coastal areas sent a decisive signal that Malmö had become a city championing new values with self-confidence.

On this basis, Malmö's lingering downturn came to an end. A string of novel initiatives evolved and developed systematically to reorient the entire coastline towards attractive and experience-based neighbourhoods, combining residential areas with accessible quality services. This metamorphosis reflects the city's commitment to sustainable development, and addresses environmental conservation, urban planning, and community well-being.

Sustainable cities and communities (SDG 11) are exemplified in Malmö's coastal transformation – through innovative urban planning, green spaces, and mixed-use developments, Malmö has fostered an environment where residents can live, work, and play.

Climate action (SDG 13) – in response to the growing threat of climate change, Malmö has prioritized sustainable practices and reduced its carbon footprint. Green initiatives, such as renewable energy sources, energy-efficient buildings, and green infrastructure, have been integral to the city's commitment to climate action. Recently the adoption of NBS has played a vital role in climate action efforts, for example there are numerous developments of green roofs, urban farming initiatives, and sustainable water management systems.

Life below water (SDG 14) is also captured in Malmö's coastal rejuvenation which involves preserving and restoring marine ecosystems. In the planning of the combined Öresund bridge and tunnel connecting Sweden and Denmark, numerous studies on the effects of marine life were conducted and several measures were implemented to ensure that the fish stock and biodiversity under water could remain unchanged. The recent developments along the coastline emphasize the importance of access to clean water for many activities such as swimming, water sports, and sustainable fishing. Efforts to enhance water quality, protect biodiversity, and create sustainable waterfront spaces contribute to the broader goal of ensuring that life below water thrives.

Life on land (SDG 15) – the transformations have not been limited to the waterfront, but were extended inland, promoting biodiversity and preserving green spaces. Public spaces with blue and green infrastructure play an important role in the coastal landscape in Malmö. The recent urban development 'Nyhamnen' envisions to connect the Malmö Central station area with the waterfront through the development of sustainable buildings, green bike lanes, tree-clad walking paths, and dedicated activity spaces. Parks, green corridors, and sustainable landscaping initiatives will ensure a harmonious coexistence between urban development and nature.

Conclusion

Malmö's journey, from an industrial waterfront to a sustainable and liveable urban space, serves as an inspiring model for aligning the SDGs with an urban and social regeneration process. Malmö demonstrates that economic growth, environmental stewardship, and social transformation can go hand in hand to create urban development that enhances, rather than compromises, the quality of life for its residents.

The SDGs have steered the city in a sustainable direction, and are supported by a vision, operational activities, and strong leadership and engagement. Although the city focuses on all SDGs and regards them as indivisible, some SDGs stand out and have been sources of accomplishments, such as

sustainable cities and communities, climate action, industry and innovation, reduced inequalities, sustainable food, education, and partnerships for the goals.

Highlights from Malmö's approach to the implementation of SDGs include:

- **Governance:** The leadership of Malmö was able to act on a severe crisis with courage, speed, and efficiency. They practised sound governance principles, such as inclusive public hearings and multi-stakeholder engagement, entailing close collaboration between the city, the private sector, academia, and citizens. Co-creation by citizens taking an active part in shaping the changing city was pursued side-by-side with strong private sector participation, including by small and medium-sized enterprises (SMEs).
- **Innovation:** Strong emphasis was placed on innovation and symbolism. The city supported flagship projects such as Bo-01 and Turning Torso which, despite their initial problems, served as game-changers.
- **Communication:** A somewhat unique approach by Malmö is demonstrated by the development of urban action plans and the way these plans are communicated to all stakeholders to achieve inclusion and buy-in as well as preparedness to adopt the new plans when implemented. A vital step in the communication process is represented by the continuous feedback loops with different stakeholders.
- **Resilience:** The monitoring and evaluation of various activities and programmes play a critical role in achieving long-lasting outcomes. The monitoring process encompasses the established impact indicators, which in turn are supported by quantitative and qualitative measurements.

Notes

1 Ilmar Reepalu, chairman of the municipal board in Malmö from 1994 to 2013, worked hard to muster support for the revamping of Malmö both from local stakeholders and from the national government.
2 Bo01 (pronounced 'bo-noll-ett') was created in 2001 as part of the European Housing Exposition and functioned as a prototype for Västra hamnen (Western harbour). Bo01 is one of the first Swedish models for sustainable urban planning, also known as the 'City of Tomorrow'.

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10

CAPE TOWN

Using the Sustainable Development Goals to unlock development potential

Marc Watum

Introduction: development in a post-apartheid environment

Cape Town's population of 4.5 million people accounts for less than 8% of South Africa's population, yet this metropolis ranks as the second largest municipal contributor to gross domestic product (GDP), and accounts for 9.6% of the national GDP (Statista, 2023). Standing as an African economic hub with a population that earns 32% more income than their national average, the city attracts the most tourists to the continent and is home to the region's leading technology innovation cluster, a world-class central business district, and some of Africa's best academic institutions. Additionally, Cape Town has made remarkable contributions to modern science and medicine[1] and holds immense cultural and historical importance for the country's 11 linguistic groups.

Cape Town and South Africa have become budgetarily constrained of late following a golden age of economic growth. Under all post-apartheid cabinets before the 2008 financial crisis, the country enjoyed consistent GDP improvements. Between 2005 and 2007, the GDP grew more than 5% annually, and the country observed reduced inflation which had averaged 14% in the 1980s, a relatively strong currency, and a balanced deficit while pursuing deregulation. According to The Economist (2020):

> Then came Jacob Zuma. Under his presidency corruption thrived and public spending ballooned. The negative effects of rigid labour markets and affirmative action intensified. Real GDP per person has shrunk every year since 2015. The ratio of public debt to GDP rose from 26% in 2008 to 56% in 2018.

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Problems were amplified by the COVID-19 pandemic, during which numerous African economies received financial bailouts from the International Monetary Fund (IMF), which in South Africa's case amounted to a $4.3 billion stimulus package and debt relief in 2020. This was the first time (and only, so far) they had ever turned to the IMF for development finance.[2] Before taking on this debt, the country introduced several Sustainable Development Goal (SDG)-linked directives to confront its multifaceted developmental shortcomings. Cape Town implemented "the transversal and long-term Resilience Strategy for Cape Town (2019), the City's 5-year Integrated Development Plan [IDP] (2017–2022), and the City's post pandemic Recovery Plan" (CCT, 2021, p. 14).

Against this backdrop, the 2012 National Development Plan (NDP) named *Vision 2030 – Our Future – Make It Work* was adopted and has a "74% convergence with the SDGs" (Statistics South Africa, 2019) with the following objectives:[3]

1. Reduce unemployment and increase job creation; South Africa's unemployment rate in 2021 was 33.56% (Stats SA, 2022), placing the country second highest in the world (Trading Economics, n.d.).
2. Eliminate poverty; "as of 2023, around 18.2 million people in South Africa are living in extreme poverty, with the poverty threshold at 1.90 U.S. dollars daily" (Cowling, 2023).
3. Reduce inequality and grow an inclusive economy by the year 2030; South Africa ranks as the most unequal country in the world with a Gini coefficient of 63, where 10% of the people own 80% of the wealth (Index Mundi, 2023).

Altogether South Africa is wilfully prescribing policy and delivering interventions that are in line with each of the 17 SDGs. The country faces inadequate infrastructure, severe poverty, the highest economic inequality in the world, and unemployment challenges that are directly confronted by the NDP. In the following section, these directives are drawn together into a synthesised assessment of the City of Cape Town's (CCT) positionality as it reports on the state of its SDG interventions.

Overshadowing any efforts to respond to these challenges are the generational crisis of climate vulnerability, which in South Africa's context includes extreme drought and flooding, deforestation, loss of biodiversity, food and water insecurity, and infrastructural instability; broken road, transport, and logistics networks leading to failed national services delivery; weakened healthcare and education systems; and urban development challenges.

CCT's VLR backdrop

After reviewing the level of alignment between the CCT's SDG interventions, sector plans, national directives, and projects that were included in the

flagship programme of the Mayor's Portfolio of Urban Sustainability with a focus on those implemented during the current IDP, the VLR project team refined its proposals for a set of eight priority goals: SDG 1 No Poverty; SDG 2 Zero Hunger; SDG 6 Clean Water and Sanitation; SDG 8 Decent Work and Economic Growth; SDG 9 Industry, Innovation and Infrastructure; SDG 11 Sustainable Cities and Communities; SDG 13 Climate Action; and SDG 17 Partnerships for the Goals (CCT, 2021).

The VLR reports a positive performance toward achieving SDGs 1, 6, 11, 13, and 17. SDG 2 had no notable action by the city until 2020, while SDGs 8 and 9 are categorised as stable. With these results under consideration, CCT established the following objectives for their SDG Task Force going forward:

1. Align interventions to SDGs.
2. Make data accessible to stakeholders – CCT determines that it should collect more localised data, as well as access community-generated data.
3. Employ a strategic mix of actions aligned to the CCT SDG approach, including internal strengthening, national alignment, and global positioning.

Together with these objectives, CCT's Task Force needs to confront several constraints that are likely to impede future project efforts. The identification of these project delivery challenges indicates conditions that must be mitigated or adapted as new actions are developed and implemented. Primarily stemming from underinvestment into early-stage, localised optimisation solutions through purposed vehicles such as Entrepreneurial Empowerment Ecosystems (EEEs), these constraints are discussed in the following section.

A recent contribution to the discourse surrounding the commitment to optimise key infrastructure is the IDP, which determined South Africa's Growth Management Framework (GMF) from 2017 to 2022. Within this document there is the Medium-Term Infrastructure Investment Framework (MTIIF) which "allows the assessment of the availability and costing of infrastructure required to support growth and development" (CCT, 2017, p. 143).

While CCT consistently reports a lack of adequate data as a key constraint to producing appropriate interventions, the adopted assessment process in the IDP's GMF, and within the MTIIF, identifies SDG-linked objectives that require renewed design and development approaches. These include extending basic services, inclusive economic growth and job creation, balance with the environment, responding to land use issues, and even interdepartmental collaboration at the government level.

However, these statements fail to provide clear activities that will result in more investments into data-informed innovations that improve, optimise, and make more accessible and affordable the processes[4] that then bring about impactful, localised, and transformational growth proponents.[5] As a result, the common thread between all CCT's municipal directives to govern SDG projects is a failure to commit investment capital through a strategy that

solves the leading reported constraint (a lack of disaggregated data) in the city's intervention frameworks.

Without creating a clear channel through which the right digital and physical infrastructure is created for the right kind of community, with the right level of impact on the right indicators, objectives cannot be achieved within the set timeframe. Thus, we cannot expect that the results or outcomes will justify the selected investments under this programme.

The importance of data

According to the CCT's Voluntary Local Review (VLR), data inadequacy is a leading limitation affecting their project management. From the outset of CCT's interventions in all eight of their reported SDGs, there are disclaimers that the state of the existing data management infrastructure, collection processes, and interdepartmental information sharing is inadequate for the scope of their projects. Additionally, it is frequently mentioned that the current regime of constitutional mandates creates stakeholder division that negatively impacts their ability to respond to certain SDG indicators. These variables cause an organisational silo effect, separating key resources including personnel, intelligence, funding, and overall strategies in ways that weaken the impact of their interventions.

The CCT cites "climate change, food insecurity, rapid urbanisation and informality" (CCT, 2021, p. 11) as the region's main set of complex problems. From a statistical perspective, the outbreak and resultant lockdown measures of COVID-19 also affected the "development trajectory and dumped (millions) more people into extreme poverty" (CCT, 2021, p. 11). From poverty metrics to standard of living realities, inaccessibility of essential services and resources, disruptions in healthcare and education, and an absolute interruption of business growth across key sectors that resulted in retrenchments, layoffs, shutdowns, and permanent closures of employers of all different professions – these challenges combine to set the unique basket of activities required to steer CCT toward SDG success.

Data quality and availability not only appear as limiting factors in CCT's assessment of their own interventions to sufficiently leverage key partnerships, but also feature in the authority's evaluation of limiting factors toward each of the SDGs selected and reported in the VLR. Having inadequate data, be it insufficient, incomplete, inaccurate, incorrect, overly aggregated, or non-specific, can severely impact the ability to direct resources to citizens who need them the most. As observed in the case of CCT, capital-intensive design and deployment of smart SDG interventions can become difficult to deliver successfully without the availability of disaggregated data. Effectively, there is no point in designing hundred-million-dollar partnerships if they cannot be used to inform the design and development of potentially impactful SDG interventions accurately.

Due to the unavailability of disaggregated (or prevalence of aggregated) data, CCT expresses their difficulty in defining important demographic information surrounding the disparities, divisions, and distributions of income statistics like the distribution of income by gender, age, location, or one of any number of social and economic classifications. This is especially crucial for the design, prescription, implementation, and sustainability of solutions, as this set of aggregated data (i.e. income poverty) rarely provides sufficient information about the nuances and particularities that add context behind each individual person who is represented within the data.

This presents a dilemma known as the ecological fallacy in the field of epidemiology, defined as "when an inference is made about an individual based on aggregate data for a group" (Hsieh, 2016). Abiding only by the aggregated data clears the ground for rampant administrative oversight. In particular, the statistical generalisations and resultant generalised application of interventions can create imbalances that impede the success of programmes in the long run.

It is not guaranteed that the selected interventions will provide the same unanimous utility to every beneficiary. Conversely, there is no evidence of causality between the observation of a negative trajectory for the targeted SDG indicator, and the delivery of interventions to the selected group of the population. Just because this group of the population comprises the data pool from which income poverty indicators are calculated, it doesn't mean that every individual within it experiences income poverty under the same circumstances, or predicaments.

For example, the VLR concludes that more than half of the population (57%) qualify as living in poverty based on their income, while a more comprehensive poverty indicator, multidimensional poverty, falls below one-tenth of the population (7%). Multidimensional poverty considers factors beyond the income level of the individual or household, including "social exclusion, expressed as a lack of access to education, health, and housing due to a social predicament" (Wang et al., 2016, pp. 87–88).

CCT's SDG actions

Poverty and hunger

From a $3 billion social package to support indigent, disabled, and pensioner residents including easing the indigent income benefits threshold and shortening the application process, to the provision of free utilities and food gardening equipment, CCT has implemented a plethora of actions that can be bolstered through EEEs to ensure accurate responses to social disparities. We now review a selection[6] of CCT's reported actions and identify opportunities for further development toward SDG success. Table 10.1 outlines the targets and some actions taken with outcomes as well as opportunities for improvement.

TABLE 10.1 Review of SDGs 1 and 2

Reported SDGs	*SDG Targets*	*Actions taken (CCT, 2021)*	*Outcomes (CCT, 2021)*	*Opportunities for EEEs*
Goal 1 – End Poverty: Focusing on Target 1.1 Eradicating extreme poverty (people living on less than $1.24 a day) AND Goal 2 – Zero Hunger – Improved nutrition and promote sustainable agriculture	Target 2.1: By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.	(A) "Providing emergency access to food" (ad-hoc basis), supported by nutrition and non-communicable disease awareness. Access support includes subsidised "dissemination and delivery of food prepared in private homes and restaurant kitchens [and] artisanal distilleries" (CCT, 2021, pp. 32, 33). The Mayor's Food Parcel Initiative collected ZAR 12,079,415 ($640,237) while CCT provided ZAR 3,000,000 ($159,000) to support related initiatives.	Net 1% increase in households reporting at least one hungry member between August 2020 and March 2021, supported by improved access to food for thousands of citizens.	As food relief is not a CCT mandate, EEEs can refine data models and case studies to prove that CCT's initiatives provide decisive crisis mitigation solutions while optimising administrative processes and interventions themselves, making a case for policy reform.
	Target 2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production.	(B) "Convening a group of food systems researchers, food security practitioners – in academia, different tiers of government and the non-profit sector – to discuss the intelligence needed (through research) as well as strategies to change the local food landscape so that the city as a whole can be more food resilient" (p. 35).	Clear pathway to "identify, collect and report data, monitoring changes in the food system and the ability to collaborate to enable improved decision-making by City departments" (p. 35).	Once operational, this ecosystem can feed into enterprise building by providing actionable data into purposed incubation. With pinpoint accuracy, private and civil society can support public administrators with localised solutions that directly confront exclusion and inaccessibility.

By rolling out community Food Gardens in vulnerable areas such as backyards and municipal properties situated in townships, the Task Force reports progress toward achieving poverty alleviation and reduction – an indicator[7] that is categorised under Goal 1: ending poverty in all its forms everywhere. The food garden project, CCT writes, "supplies workers with garden tools, protective clothing, seeds/seedlings, compost, food gardening training, and training on the management of the project as a community initiative" (CCT, 2021, p. 30).

It is worth noting that CCT uses this action to claim progress toward SDGs 1 and 2. They suggest that by enabling citizens to benefit from the erection of subsistent food systems, people experienced income relief because of job creation and scale economies as they experienced improved access to food. Zero hunger (Goal 2), decent work and economic growth (Goal 8), inclusive and sustainable cities (Goal 11), and combatting the impacts of climate change (Goal 13) all contain indicators that food system investments *technically* satisfy. What is evidenced by this claim is that in CCT's context, subsistence food interventions of any size, and at any location within their jurisdiction, can be manipulated to effect at least minimal progress on several SDGs.

As seen in the case of the Expanded Public Works Programme (EPWP) in the neighbouring municipality of George, some teams under the EPWP are erecting over ten gardens per month, each of which requires the coordination of recruitment, training, provision of tools and farming inputs, as well as operational and technical assistance (George Municipality, 2020). In the year 2020–1, EPWP reports to have implemented a resounding 13,496 projects, created 938,688 jobs, and transferred over ZAR 9 billion (approximately $477 million) across four sectors (Department of Public Works, 2021) while collaborating with a multitude of civil, private, and public institutions to deliver.

Intensifying the presence of innovation networks like EEEs in this sector can provide streamlined optimisation channels to support decision-making, management, execution, and evaluation processes that allow CCT to replicate the success of EPWP and assist in translating these remarkable results into lasting SDG impact for CCT. Data can also assist in improved mapping, land use, resource allocation, administration, and collaboration.

As data improve, future project teams will be more enabled to manage the reporting risks associated with ecological fallacies. When the municipality justifies an investment into a project that offers multiple cross-indicator benefits like a food garden, using pinpoint data to assess the impact of the interventions can produce more accurate prognoses about the local development pathway to follow, cementing permanent reductions in households who report at least one member to be hungry, for example.

The water economy

The city's climate risks include responding to a persistent and drought-inducing decrease in mean annual rainfall, change in the seasonality of rainfall, a

significant increase in mean annual temperature including increases in maximum temperatures, more high-heat days with more frequent and intense heatwaves, an increase in wind strength, and a rise in mean sea level and coastal erosion (CCT, 2021). Table 10.2 provides an overview of actions taken, outcomes, as well as opportunities for improvement.

Undertaking SDG intervention projects and reporting on them through the VLR comes in the wake of a significant extreme environmental event known as "Day Zero", when between 2017 and 2018 the city literally counted down the days until it had used up all its clean water. It took a tremendous amount of resolve and restriction to control and delay this impending disaster, and measures to sustain the positive trajectory achieved will understandably carry importance in future sustainability initiatives.

CCT's approach to mitigating this crisis included intensive public communications, engineering interventions, and easy consumption habit changes. Communications revolved around the 'save like a local' campaign, as well as a widely visible, accessible, and reported moving forecast, and spoon-feeding the public with consumption tips like 'only flush when necessary'. For the engineers, a deep dive into asset-life extension, water pressure management, and leakage reduction resulted in infrastructure optimisation (Hill-Lewis, 2023). EEEs can help CCT to further water conservation and usage optimisation to this effect.

Combatting low-value work

Cape Town is tertiary sector-led, which accounted for 80% of Cape Town's gross value added (GVA) in 2019 and generated $760 million for the national economy, led by the Information and Computer Technology (ICT) industry. At present, services employ over 61% of the country's labour force (O'Neill, 2023), which is an indicator of South Africa's structural transformation programme legacy; first to aggressively pursue industrialisation in the 1990s (Magubane, 2002), then to aggressively pursue servicification to absorb unskilled labour into a rapidly growing business services industry[8] after 2008. Table 10.3 outlines actions, outcomes, and opportunities for improvement in creating "decent work and economic growth".

Despite this level of regional productivity, Cape Town still experiences economic challenges that limit its participation and competitiveness in global value chains. Having a lack of skills to fully exploit sector changes such as the Fourth Industrial Revolution, and experiencing an oversupply of low-skilled labour, contribute to South Africa's income poverty and equitable economic growth challenges.

While responding to the prevalence of low-income value chains and the legacy of segregated public resources, developing South Africa's human capital requires the reversal of poverty, unemployment, poor education, and poor access to services.

TABLE 10.2 Review of SDG 6

Reported SDG	*SDG Targets*	*Actions taken (CCT, 2021)*	*Outcomes (CCT, 2021)*	*Opportunities for EEEs*
Goal 6 – Ensure availability and sustainable management of water and sanitation for all.	Target 6.4: By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.	(A) Investing in water augmentation technologies including "ground water extraction, storm water harvesting, and effluent water recycling – alongside water pressure management and improved design and innovation in public infrastructure. The City is also promoting conservation awareness through a variety [of] mechanisms, including water tariffs structuring" (p. 38). "The City is aiming to increase the available supply by more than 300 million litres per day by 2030 by bring[ing] alternative water service on stream and reducing reliance on rainfall fed dams" (p. 38).	Sustained prevalence of high water access (98.9% of citizens access piped water).	Access to water is defined as dwelling within 100 m of a municipality-supplied communal tap. EEEs can support CCT in improving distribution and prevalence of piped water into homes by optimising infrastructure design, procurement, manufacturing, and distribution mechanisms affordably. EEEs may also optimise water treatment and purification processes.

TABLE 10.3 Review of SDG 8

Reported SDG	*SDG Targets*	*Actions taken (CCT, 2021)*	*Outcomes (CCT, 2021)*	*Opportunities for EEEs*
Goal 8 – Decent Work & Economic Growth.	Target 8.2: Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high value added and labour-intensive sectors.	(A) Focusing on improving value addition in Business Process Outsourcing (BPO) and ICT, CCT supports funds and partners to carry out investing activities that garner high growth and job creation. "GreenCape implement a number of projects as part of the Green Economy Programme on an annual basis, including recurring projects on Smart Energy, Smart Water, Smart Waste, Western Cape Industrial Symbiosis Programme, Green Economy Skills Training and the promotion of Cape Town as a Greentech Hub" (p. 42).	In 2020 alone, these partners have secured $685,000,000 worth of new investments into Cape Town.	The BPO and ICT sectors are the main contributor to CCT's job creation, while real estate creates the most value addition. EEEs can generate ventures, synergies, and growth opportunities that multiply value addition across all of these categories while upskilling and absorbing low-income labour into higher-earning, specialised roles.
	SDG Target 8.3: Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services.	(B) CCT "created the Business Hub to provide practical solutions and simplify small, medium or micro enterprise (SMME) establishment" (p. 43). "The City launched two initiatives in 2020 and 2021 to assist with training and work placement – the Cape Skills and Employment Accelerator Project (focusing on the Business Process Outsourcing or the call centre sector as well as the clothing and textile industry), and the Jobs Connect Workforce Development Programme (focusing on creating employment	"The placement initiative benefitted 6 000 unemployed residents with training in basic work readiness, with the majority of the trainees placed in transport, wholesale, retail and call centre jobs. In 2020, various initiatives by partnering sector bodies mentioned above created 7 631 new jobs, and the training of 2 932 people	These programmes qualify as EEEs and should be studied in depth by CCT and the national government to showcase the possibilities of these interventions. Further innovation through EEEs can springboard administrative bottlenecks such as the disconnect, or shifting space, between policy, planning, implementation, and execution of the

Reported SDG	*SDG Targets*	*Actions taken (CCT, 2021)*	*Outcomes (CCT, 2021)*	*Opportunities for EEEs*
		opportunities, connect SMMEs and provide training to disadvantaged residents.)" (p. 43). "The City also has a start-up programme called YouthStartCT Entrepreneurial Challenge which aims to contribute to skills development, innovation and encourage entrepreneurship in Cape Town" (p. 44).	in work readiness" (p. 43). A further 40,000 short- and medium-term jobs are created annually by CCT.	resulting initiatives. A constant reverse-innovation process through EEEs allows objectives such as job and wealth creation to be deciphered and reproduced in ways that accelerate the achievement of SDG 8.

South Africa's contemporary environmental vulnerabilities are also important factors. These include a set of immediate and direct challenges that must be adapted to, or mitigated against, to achieve progress toward the SDGs. However, without prioritising the development of social and human capital, that is, the cultivation of the human capacity to adapt, the sustainability of the existing suite of adaptive and mitigating strategies cannot be delivered in ways that resolve the vulnerability.

The energy crisis: South Africa's financial burden

The Development Bank of Southern Africa (DBSA) is the leading private sector institution for climate finance in the country, currently financing South Africa's energy transition in the wake of electricity productivity challenges. Demonstrating the national private sector's appetite for energy investments, up to 45% of the bank's asset base is in the country's faltering energy sector with Eskom, the country's national power utility, accounting for 85% of the National Treasury's entire debt exposure (National Treasury, Republic of South Africa, 2023). This imposes opportunity costs and financial constraints over other sectors that require increased investment capital for their own optimisations, perfectly summarising the private investment challenges faced by aspiring innovators. The priority is to create investments that bail the country out of her 'State of Disaster',[9] and private capital has little-to-no inclination to invest through novel or alternative innovation ecosystems. Table 10.4 outlines some of the actions taken and the opportunities for improvement.

DBSA is, however, making innovation in energy and national infrastructure attractive. The bank offers specialised long-term debt instruments with payback periods exceeding 19 years in some cases, which serve as a tool for municipalities and innovators alike to participate in the country's clean energy transition. For example, mining sector companies can leverage debt instruments for the development of private renewable electricity sources, electrify their own operations, and offer excess generated electricity to the national grid. As a result of their contributions to the national grid, the mining company may then enjoy discounted access to the national grid on other sites and premises.

South Africa is faced with extreme power-generating incapacity, which further exacerbates the country's difficulties in pursuing sustainable development agendas. With Johannesburg and Cape Town being two of Africa's highest carbon-emitting cities, there is increasing pressure to adhere to stringent sustainability protocols while resolving this productivity crisis that has cost the country over $19 billion in the last decade alone (Trace, 2022).

Conclusions and recommendations

Cape Town faces challenges in achieving the SDGs due to apartheid-era infrastructure, data limitations, and administrative restrictions. Innovation is

TABLE 10.4 Review of SDG 13

Reported SDG	*SDG Targets*	*Actions taken (CCT, 2021)*	*Outcomes (CCT, 2021)*	*Opportunities for EEEs*
Goal 13 – Take urgent action to combat climate change and its impacts.	Target 13.2: Integrate climate change measures into national policies, strategies and planning.	(A) "Well-established and credible sector-based GHG [greenhouse gas] inventory which is updated on an annual basis" (p. 62). (B) "A successful legal challenge (the legal case was against the National Energy Regulator of South Africa (NERSA) and the Minister of Mineral Resources and Energy) … allows the City to purchase energy from independent power producers, and the development of a set of standards and regulations for the connection of small-scale renewable systems, particularly rooftop solar PV [photovoltaic], to the municipal grid."	"Cape Town has a carbon footprint of 4,95 tCO2e per capita, down from 2011 when it was 7.80 tC02e" (p. 62) – emissions are predominantly produced by coal-powered Eskom. Increased scope for private sector players to produce infrastructure-improving interventions, e.g. renewable energy sector participation.	EEEs can optimise data collection such that databases are updated in real time, consistently and automatically, allowing for accurate daily intervention opportunities. "Total emissions were relatively stable between 2012 and 2018, most likely due to a combination of energy efficiency (especially evident in residential electricity demand) and suppressed energy demand" (p. 62) – this shows that progress on this indicator may not actually be the result of any actions taken by CCT. EEEs can further generate disaggregating capabilities to decipher and pinpoint the impact of policies and municipal investments in response to this caveat.

crucial, particularly in enhancing data capture, management, and reporting for more effective development interventions.

Without detailed data and optimisation, Cape Town experiences administrative and participatory barriers. In some cases, these barriers are overcome using cross-departmental and multi-sectoral cooperation, which highlights potential focus areas that can be leveraged to achieve success toward the SDGs. Solutions that help Cape Town to reproduce the SDG projects that benefit society to the extent of EPWP, while optimising multi-sector collaboration to become inclusive, data-driven, and value creating, can be critical for Cape Town and other developing cities to achieve SDGs.

As CCT is confronted by an overbearing energy sector risk profile, drought, and the nationwide disenfranchisement of youths, women, the poor, and the indigenous, seeking novel solutions to development challenges or pursuing diversification can breed unprecedented project design, implementation, and management improvements. Improving the collection and dissemination of circumstantial environmental and socio-economic information will allow institutional investors to better understand the context, and ergo the promise, of overlooked and inadequately served people in ways that bring CCT closer to achieving SDGs.

Accurate progress toward the SDGs is further hindered by the lack of investment into local enterprises that make the necessary innovations more accessible, affordable, and adaptable. This creates a missed opportunity to bolster municipalities, civil society, the private and informal sectors, the educated, and the marginalised. Resolving this limitation can make SDG projects more impactful by gathering, processing, and disseminating more trustworthy information from more relevant sources. These activities can then be actioned under better-informed direction and evaluated with more accurate insight to yield the desired results.

Interdisciplinary projects using cross-departmental resources to address multiple SDGs at the same time, improve the outcomes presented in CCT's VLR. However, some teams report that they suffered from mandate restrictions that adversely affected their abilities to deliver projects effectively. Overcoming jurisdictional restrictions and siloed working groups in the future requires harmonising the flow of information and decision-making across sectors using novel visibility-boosting, knowledge sharing, and project management technologies.

Additionally, mere progress toward SDG indicators isn't sufficient. As we've seen, it is possible for a project to tick all the boxes and qualify as SDG-positive (i.e. successful, goal-achieving, or 'green') while failing to cause a clear positive shift in the related basket of statistics. It is the role of sustainable EEEs to create interventions that capitalise on this opportunity, being governed by data-driven SDG achievement as the objective. Enhancing disaggregated data availability and investing in data processing solutions can pinpoint focus areas for future interventions and guide teams like CCT to project success.

To improve data collecting processes, EEEs can be relied on by municipalities and project leads to design bespoke solutions that shift existing technologies (e.g. GIS databases) from monthly or periodic updates by manual inputs, to automated, consistent, and real-time interfaces. Furthermore, locals who enrol into EEEs are likely to leverage available infrastructure, such as public internet and transportation, to produce new entrepreneurial spinoffs that improve citizen experiences while saving time, money, and wastage.

Data disaggregation, people participation, and venture capitalisation to boost local value addition (and capture) are thus required for Cape Town and South Africa at large. Specialised ecosystems drive innovation efficiency, mitigating high upfront costs while making solutions that are culturally and socially relevant, as well as cheaper and easier to use. In this case, CCT may experience administrative and managerial economies of scale as the tools position the municipality to report more positively and insightfully while saving time, optimising capacity and resource expenditure, and driving more accurate impact.

Direct foreign investments (DFIs) can optimise their investments by prioritising projects that increase data availability and mobility across multiple sectors for the purpose of development intervention project processes. Social EEEs advocate transferring SDG intervention administration to local entrepreneurs and inventors to address community vulnerabilities effectively. Using this framework, DFIs can optimise their strategies in Cape Town by pursuing projects that increase the availability of disaggregated data and improve data mobility in ways that are more inclusive, culturally and contextually aware, and economically compatible with their intended users.

Attaching this priority to smart development capital will result in an increase in funded ventures, innovations, and interventions that are encompassing of data-informed SDG interventions by design. As a precondition to receive funding, these projects should further be required to demonstrate how their solutions directly add value; satisfy the demands and utility needs of the target beneficiary group; make solutions affordable, accessible, and adaptable; and set out to directly combat evidence-based regional, local, and individual vulnerabilities in the climate mitigation and adaptation industry.

Social EEEs like Vertex Ecosystem argue that transferring the responsibility of SDG intervention administration into the hands of seed-investment qualifying, localised entrepreneurs, scientists, and vocationally trained inventors whose initiatives are designed to absorb and eliminate the population's vulnerability to food, water, and climate risk can result in improved sectoral operations, coordination, communication, and a limitless suite of scale economies and positive externalities (Watum, 2021). CCT's reporting of SDG projects through the VLR points to multiple opportunities for this type of ecosystem and its approach to venture building and investment to be used as a catalyst for success.

For example, in instances where skills development is needed among low-income groups, EEEs aid by deconstructing innovation processes, making technology more affordable and accessible, and 'gamifying' the process through

hackathons and innovation sprints. EEEs are also strong proponents of circular economy models, as demonstrated by some of CCT's entrepreneurial solutions that include bartering, exchanges, and the extension of public services and infrastructure. Investment into EEE-led interventions may thus multiply the capacity for municipalities to generate wealth, livelihoods, jobs, and inclusive interventions.

Notes

1 South Africa has four of Africa's top five cities with the best healthcare systems (Numbeo, 2023).
2 In 2001 the New Development Bank approved a $1 billion loan to South Africa (Hviding, 2006), and the World Bank approved a $1 billion loan for energy sector renewals in October 2023 (Felix, 2022).
3 Other ancillary objectives related to the success of the NDP include the reduction of crime; improvements to social infrastructure, health, and well-being; and an umbrella of socio-economic transformations in the post-apartheid country.
4 I.e. entrepreneurial lifecycle; research and development, new venture ideation, market research and validation, prototyping, testing, funding, market penetration, business growth, entrepreneurial empowerment (mentorship, soft-skills training, financial literacy, management, hospitality, and world-class stakeholder and client management training), micro-economic (both commercial and non-commercial) and civil wealth creation, inventions of products and services that support scale operations including corporate governance support, further education, upskilling, technical and vocational excellence training and career services to improve the availability and accessibility of jobs within the newly created enterprises, expansion of labour force and other human resource functions, and more.
5 Useful innovations that are proven to be needed and prioritised in reports like the IDP. These include new ventures that are compatible with the creation of 'Growth Promotion Areas' such as special economic areas or zones and protected areas, as well as those that can leverage special government concessions, i.e. grants, donations, use innovative assessment tools (thus modernising, and desirably standardising, the data collection and reporting process) within the respective industry, improve the landscape of transit-oriented development objectives, and promote social mobility of (and within members of) entire communities (CCT, 2017).
6 Based on implementation status, favouring completion and the presence of measurable outcomes. Actions that are still in the 'planning' phase have been omitted from this section.
7 Indicator 1.1.1.
8 Business services is the only measured service sector subgroup to demonstrate an increase in its share of GDP contributions between 1994 and 2019, growing 5.1% with the most popular services being cleaning and security (Andreoni et al., 2021).
9 In February 2023, President Cyril Ramaphosa declared a national State of Disaster in response to relentless nationwide power cuts (Cotterill, 2023).

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11

A GRASSROOTS APPROACH TO UNDERSTANDING SUSTAINABLE DEVELOPMENT GOALS FOR A VOLUNTARY LOCAL REVIEW IN KELOWNA

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Kelowna: our early lessons and partnerships on the Sustainable Development Goals for communities

Upon the United Nations' (UN's) official adoption of the Sustainable Development Goals (SDGs) in 2015, the British Columbia Council for International Cooperation (BCCIC), a network of civil society organizations (CSOs) and individuals moving towards a better world, was eager to identify and support SDG implementation throughout communities in Canada. BCCIC works "in solidarity with partners across the world … [through a] diverse and capable membership … of international development organizations, civil society groups and individuals" (BCCIC, n.d.). BCCIC began its work on the SDGs by first reporting on Canada's national progress towards them in reports such as "Keeping Score: UN Sustainable Development Goals" (BCCIC, 2015) and "Keeping Track: Measuring Progress Toward the UN Sustainable Development Goals" (BCCIC, 2016). These reports, and other early BCCIC SDG work, offer informed and reputable voices from civil society on Canada's role in developing and achieving the SDGs. As a large country with great diversity in geography, economic activity, and peoples, the issues faced by Canadians can be dramatically different across provinces and territories, regions, cities, and communities. The variation among the cities – and the distinct communities within these cities – make the development of national SDG indicators that reflect the whole of Canada very challenging. And to some CSOs, it was felt, and evidence was mounting, that the Government of Canada was delayed in setting out on this work. Having cities and communities wait for a national strategy was not on BCCIC's agenda, especially given their interest, and the global need to see progress on the SDGs within a 15-year timeline.

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In 2017, the Brookings Institute released "Who and What Gets Left Behind? Assessing Canada's Domestic Status on the Sustainable Development Goals" (McArthur & Rasmussen, 2017) concluding Canada was not on track to meet the SDGs by 2030. The following year, BCCIC released *Where Canada Stands, Vol. II: A Sustainable Development Goals Shadow Report* (BCCIC, 2018), also indicating Canada's progress was "dangerously behind in that journey and here at BCCIC we believe Canada has not pulled its weight" (p. 6). As the Government of Canada began to embark on its journey towards a national strategy in achieving the UN 2030 Agenda, BCCIC, and GECCO, a regionally based BCCIC chapter in Kelowna, recognized many other organizations also exploring ways to align and develop strategies around achieving the SDGs. As such, BCCIC/GECCO decided to build on BCCIC's community-based SDG report card and create a pilot VLR for a Canadian community. The intent of the pilot VLR was to gather information from the many groups working on SDGs, while providing localized indicators, progress, and actionable items to measure progress in achieving the SDGs. While several municipalities showed interest in this activity, they were concerned about publicly sharing the status of progress in achieving the goals – or lack thereof. Nonetheless, BCCIC/GECCO continued to explore the concept of a pilot VLR to advance SDGs at the community level and to highlight strengths (successful policies and programmes implemented) alongside areas at the community level that required improvement in policies and programmes.

While BCCIC/GECCO continued their work on assessing progress on the SDGs through the concept of a pilot VLR, they connected with the Pacific Institute for Climate Solutions (PICS) at the University of British Columbia (UBC), which was also exploring the SDGs within BC communities' planning and land use policies, including the City of Kelowna's. Soon, BCCIC/GECCO and PICS reached out to the City of Kelowna's Department of Policy and Planning to explore opportunities in working collectively. The collaboration amongst these three entities – a non-governmental organization (NGO), City staff, and an academic institution – offered capacity beyond what the City could accomplish alone, alongside a neutral, politically removed, and unique third-party approach to exploring the SDGs in Kelowna. This partnership offered a broad range of stories and multiple perspectives reflecting the complexity of what the SDGs may truly mean for Kelowna and, in turn, other communities across Canada.

As the City of Kelowna staff were undertaking the "Imagine Kelowna" initiative in 2017, a new strategic community vision supported through council endorsement, BCCIC/GECCO saw the opportunity to introduce and align the SDGs with the City of Kelowna and began engaging with the City's leadership. Though the City Council did not endorse the Kelowna VLR, nor sign a Memorandum of Understanding, City staff recognized having partners like BCCIC/GECCO work with them could assist in building greater trust amongst existing relationships, gathering stories and experiences, developing

and upholding a common message, and inviting collective responsibility. Working with BCCIC/GECCO offered great potential to strengthen and support the City's community plans and policies.

While the SDGs were established at an international scale, their true application happens at a municipal scale, where local policy, plans, and strategies have a front-line impact on the residents of their community. To be successfully implemented, SDGs need to be agreed upon by all levels of civil society, and importantly, must find their way to the local decision-making table. As such, an SDG framework can serve as a tool that can depoliticize sustainability-related issues and put them on a universal stage for shared accountability. This is especially important for local government as Councils/Boards function on four-year terms and showcasing indicators that lead to longer-term achievement or are trending poorly does not have strong political appetite. The partnership and non-partisan perspective from BCCIC/GECCO helped City staff to address gaps in achieving a common sustainability agenda, while easing concerns around political repercussions. The SDGs can be a natural bridge and weave together resources, actions, initiatives, and other strategies that benefit from a holistic view. The BCCIC/GECCO partnership also offered City staff the opportunity to explore linkages and alignment with other cross-departmental teams within the city.

In 2017 PICS at UBC was investigating how the institute's "big five" climate solutions research projects aligned with the SDGs, as well as how BC's cities' planning policies may connect to these global goals. The six cities explored are Kelowna, Prince George, Surrey, Saanich, Vancouver, and Revelstoke, and represented the type of urban and suburban communities in which the majority of BC residents live. While this work was underway, PICS at UBC connected with BCCIC/GECCO as they were eager to actively be engaged in exploring local-level implementation of the global goals. The commitment to work together soon developed, and as noted above, PICS at UBC, BCCIC/GECCO, and City of Kelowna were working in an informal partnership to explore the SDGs for Kelowna.

Interlinkages and the interaction of the SDGs – and potential synergies and trade-offs – can be complex. For the purposes of the Kelowna VLR, our team aimed to "localize" the SDGs through a bottom-up approach. For us, localizing the SDGs at the community level was essential as it supports a collaborative approach to work with community actors to identify and understand the barriers faced by community members, including marginalized people, and the support required to remove these barriers. While cities in BC have been developing Integrated Community Sustainability Plans (ICSPs) for more than 20 years, they have also been developing scores of municipal-level planning documents that address the SDGs without formally acknowledging this alignment. Furthermore, cities are constantly planning, implementing, monitoring, and measuring progress on sustainability. As BCCIC/GECCO and PICS at UBC both wanted to be able to develop and provide a practical

reporting mechanism with tangible benefits to municipalities, and the City of Kelowna was unveiling its ICPS, a collaboration soon emerged to develop a pilot VLR for the Community of Kelowna.

Exploring the SDGs for Kelowna

A key goal for the Kelowna VLR team, including BCCIC/GECCO, PICS, and the City of Kelowna, was to explore and understand how existing local government policy and CSOs' activities were in alignment with the SDGs, while also exploring and developing feasible, actionable items that could be implemented to assist Kelowna in achieving community-wide progress. To ensure meaningful change could be implemented, the VLR team aimed to identify gaps and barriers in areas related to community planning, policy, and action where the SDGs were not being covered. The project team reviewed and analysed a number of key municipal reports and strategies, including but not limited to the Kelowna 2030 Official Community Plan; Community Climate Action Plan 2018–2023 (City of Kelowna, 2018); and the Healthy City Strategy report. Goals, objectives, and policies from these reports were aligned to the objectives, targets, and indicators of the global SDGs.

In addition to the review of municipal reports and strategies, the project team completed a comprehensive review and assessment of federal and provincial sustainable development strategies and reports from academia, researchers, and think tanks. The team collated and aligned these federal and provincial quantitative subnational data from government sources,[1] Indigenous organizations,[2] and CSOs[3] with the 169 targets and 232 indicators of the UN SDGs. The team's collaboration with CSOs, alongside federal, provincial, and local government agencies, academia, and Indigenous organizations, among others, greatly influenced the selection of the metrics and indicators. Through these collaborations, the team identified 28 proxy-level indicators customized to the community of Kelowna to cover each SDG for the VLR.

A significant number of research hours were required to develop an inventory of indicator availability within Canada, and then to understand and interpret data relevant for the community of Kelowna. Given the scope and ambition – and the lack of dedicated funding – developing the VLR was very challenging; with a volunteer NGO team, staff turnover, accountability, meeting timelines, and burnout becoming extremely difficult to manage. Due to the funding constraints, the volunteer NGO team intended to limit the number of goals in the VLR, and to right-size the effort to eight or nine goals. City staff, however, were keen to explore all 17 goals, emphasizing the goals are interconnected and understanding core issues and solutions would best be achieved for the VLR within the context of all 17 goals. With this ambition set, and though formal funding was never allocated (even City staff volunteered their time and resources to the initiative), our dedicated team of volunteers embarked.

Upon completing the VLR and reflecting on the journey, a major lesson learned was people and organizations should be compensated appropriately for their work. At the time we started our VLR journey, formal funding for SDG work from the Government of Canada was not in place, nonetheless BCCIC/GECCO felt an urgency to move forward. Yet they soon recognized they had launched into this experience, heart and soul, without identifying the means, resources, potential obstacles, and risks. Addressing these issues along the way caused additional pressure on members of the three partner organizations. The energy and enthusiasm did not waiver, but the capacity was stretched beyond limits. BCCIC/GECCO has since implemented organizational changes for prioritizing projects and ensuring appropriate funding prior to commencing them.

Numerous other lessons emerged from key findings of the Kelowna VLR experience, some new and some not new. For instance, the VLR served to further confirm concerns in Kelowna: poverty remains a major challenge throughout the community and is a key limitation towards achieving progress in the other SDGs. And this poverty is in many ways a direct result of the stigma, conscious and unconscious bias, and racism that continue to impact equitable access to good health and well-being, quality education, and affordable and sustainable housing. The VLR shows that inequitable political, economic, and governance systems remain significant barriers towards achieving the SDGs for the community of Kelowna.

In 2020 two critical events, COVID-19 and the Black Lives Matter (#BLM) movement, amplified the injustice and inequalities experienced by marginalized groups across the globe. Canadians were faced with the realization that these inequalities derive from a history of colonization, systemic racism, and discrimination. Indigenous Peoples on Turtle Island – now known as North America[4] – continue to live with trauma due to the legacies of forced displacement from traditional territories, residential school experiences of abuse and neglect, and the disruption of traditional culture and practices. Furthermore, African, Caribbean, and Black Canadians live with the history of slavery, racism, and discrimination that still persists today. Too many of the rules that govern society, and our social and economic policies, continue to reflect both conscious and unconscious bias and discrimination, reinforcing inequitable opportunities to benefit the most privileged, while failing marginalized people by impacting access to and the availability of resources and opportunities necessary to support well-being (Public Health Agency of Canada, 2020). As such, during the COVID-19 restriction periods we consciously made the decision to delay the release of the VLR and focused on gathering more data, and voices from those most impacted. Though the budget remained constrained, the BCCIC/GECCO team dedicated additional time to gathering this evidence and ensuring it was reflected in the VLR.

An important piece of work undertaken by the team included the review of the Truth and Reconciliation Commission's (TRC's) *Calls to Action* (TRC,

2015) which documents the history and impacts of Canada's genocide of Indigenous Peoples and outlines a path to reconciliation. The review of the TRC Calls to Action was followed by consultations with the local urban Indigenous organization, Ki-Low-Na Friendship Society, to aid the team in aligning the Calls to Action with the SDGs and identifying specific barriers in achieving the SDGs, while (un)learning about the community-level support required to address them. The Kelowna VLR also reflects the team's insights and lessons from the First Nations Health Authority (FNHA) among other First Nations programmes and initiatives.

The BCCIC/GECCO team spent time communicating our intentions to our allies while attempting to exercise compassion and care when gathering evidence and stories as it risked (re-)triggering feelings of exploitation amongst Indigenous Peoples. Intentions and outcomes do not always align, and this meant we had to reflect internally but also as a group and admit our fallings and apologize without excuses; good intentions do not always lead to good outcomes. A compassionate ally recognizes the power dynamics at play when engaging with vulnerable groups. We often had to reflect on whether we were taking too much from people and organizations to serve our goal, without giving back. Are we adding further constraints to our allies to obtain the evidence we need to support our VLR goals? We had to sit with our discomfort and take in the feedback provided to us from other groups and learn from our mistakes. In some instances, this meant we had to seek opportunities elsewhere. This approach takes a lot of time, reflection, conversation, and care and it must be done with respect and compassion for all people.

Creating the right indicators for the community

Though managing the different priorities and goals of the three major collaborating organizations (BCCIC/GECCO, PICS at UBC, and City of Kelowna) was sometimes challenging, a key alignment among the groups was necessary to develop an actionable plan that represented the community, and that could be monitored for ongoing reporting. This required intentional and deliberate connection amongst the collaborators, as well as information, input, and feedback from local community actors and allies. Inadequate funding meant we were unable to host round table discussions with all the stakeholders. Instead, we engaged with stakeholders individually at different points along the project's progression, and in an iterative process.

After carrying out our foundational work as described above, the VLR team agreed on a methodology to shortlist Kelowna's indicators, based on:

1. Existing local-level planning objectives/policies.
2. Alignment with the SDGs and local priorities.
3. Data availability over the long term, such as a minimum of ten years.

4. Data accessibility, from credible sources, and that can inform actionable policies and programmes.
5. Reflection on stereotyping or the harm it may cause to a group of people.

Using these criteria, we then went through the process of amalgamating the indicators and targets from both approaches and the TRC Calls to Action. The indicators were grouped under their respective goals, and experts in that field (government officials, CSOs, academia, and Indigenous organizations, among others) were consulted. Reviewing the indicators with community partners took considerable time. We worked to paint a full picture of each indicator, including the shortcomings and benefits of each. We reflected on each indicator asking:

- Is the indicator measuring what it is intended to?
- Who and what is not being captured?
- Is this indicator feasible for the municipality to measure?

Finally, from a practical standpoint, instead of introducing all new indicators, we looked at the possibility of supplementing some existing municipal indicators to help improve what the city was already committed to tracking. This iterative process of understanding community needs and the feasibility of indicators for the municipality was time consuming and challenging – and yet very necessary to ensure viable and effective indicators and a "sustainable" VLR.

Some of the challenges we encountered with selecting local-level indicators included limited quality data, data gaps, alongside privacy and jurisdictional issues. In some cases, although data may have been available, the quality was affected by the limited sample size (due to the population of the community) or missing demographics, which then ran the risk of being poorly reflected or even missed in policy or programme development. For example, at the time we were developing the Kelowna VLR, market basket measure (MBM) had been adopted as the poverty metric in Canada, both federally and provincially (Green et al., 2020). We did not recommend MBM as an indicator, as the coefficient of variation for Statistics Canada's MBM data in Kelowna is relatively high, resulting in unreliable and volatile data that cannot be disaggregated.

When considering data to support local-level indicators, privacy must also be taken into account.

Disaggregating and publicizing data helps understand how groups are affected differently by the same issue, but this sometimes risks identifying and further stigmatizing specific people. When disaggregating data, we need to consider:

- What stories are we telling through the data?
- Are we reinforcing negative stigmas and biases?
- Are we speaking about people without including them?

To address these important questions, we communicated with local NGOs around these issues and received generous feedback. Again, this was not a straightforward process and it required us to step back, put our privilege aside, check our biases, and truly listen.

Another major challenge is jurisdiction. A municipality can collect data but developing policies in several cases is outside of their mandate or jurisdiction. For Kelowna, this is the case for Goal 3 (illicit drug mortality rates), Goal 4 (education), Goal 11 (air quality), and Goal 12 (waste disposal), which are either shared with or entirely under the authority of regional and provincial government jurisdictions.

Organizations, whether government or civil society, have overlapping mandates but have different priorities, resources, obligations, and perspectives regarding the same issue. When representing an organization, one works with the mandate and lens of that organization. Yet our lived experiences, alongside the inherited, historical structures passed on and embedded in institutions, can limit full awareness and understanding of the issues that others, outside of the said institution, are facing. In recognition of this, we reviewed how most groups were doing with respect to each indicator, while also carefully considering an equity and justice lens on how those most often "left behind" were being represented through the data and indicators. We acknowledge the work does not factor in all marginalized or vulnerable populations, and where applicable in the VLR, we highlight case studies, projects from other places, and/or provide recommendations on how to address gaps and barriers in data, indicators, metrics, and policies.

For instance, in assessing Kelowna's progress towards achieving SDG 3, we use an indicator: "illicit drug mortality rate per 100,000 population." With the sharp increases in drug-related overdose deaths – most of which are linked to fentanyl (a toxic synthetic opioid) – an ongoing public state of emergency has been declared by BC's Provincial Health Officer since 2016 (see Figure 11.1). Additionally, between 2017 and 2020, more than 80% of illicit drug deaths in BC had fentanyl detected. Even more concerning is the key VLR finding of a higher rate of illicit drug mortality in Kelowna compared to the Province of BC.

Acting on illicit drug mortality rates requires a greater understanding of mental health and substance use disorders. Stigma and discrimination from the general public as well as amongst first responders, health care professionals, and government representatives create barriers, often preventing people who use drugs and/or who have substance use disorders from accessing the support and treatment they need. Through the VLR process, and in exploring the relevant indicators for SDG 3, the team came to learn of the Kelowna Community Action Team (CAT), a knowledge hub, actively developing strategies on the overdose crisis. Kelowna CAT is made up of people with lived and living experiences, and representatives from law

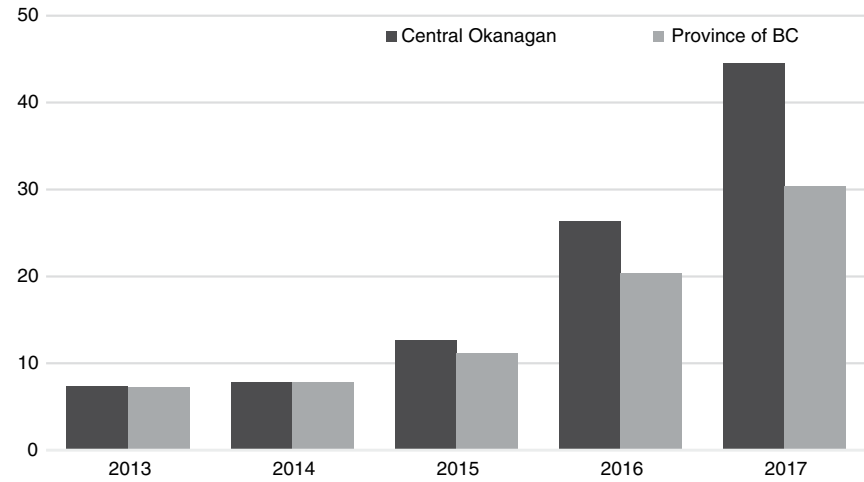

FIGURE 11.1 Illicit drug mortality rate per 100,000 population
Note: Data level: Central Okanangan (Local Heath Area).
Source: BC Coroners Service.

enforcement, health authorities, local governments, Indigenous organizations, and CSOs, among others. Engagement and collaboration with Kelowna CAT helped the VLR team understand solutions already existing in the community and SDG 3–related work already underway.

Through the process of inclusive community engagement, we have the ability to learn and understand different perspectives to build a more complete narrative about a given community. Often such engagement is not simple or straightforward, as community members' histories and priorities are different. Additionally, sometimes engaging members requires holding and respecting political tension and different world views. For the Kelowna VLR, working beside City staff as a third-party facilitator enabled us to remove some of the political tension to understand the true issues and barriers, and supports towards removing them. Through community engagement, we learned about existing community programmes that could be supported and partnerships that could be reinforced and were able to help capitalize on trust already present in the community.

Engaging communities: a journey of (un)learning

In 2015, the TRC released a report on the history and impacts of Canada's cultural genocide on Indigenous Peoples (First Nations, Metis, and Inuit) and the residential school system (TRC, 2015). Numerous inquiries and commissions articulate the violence Indigenous Peoples continue to face as a result of colonization. Jewell (2020) indicates that amongst these inquiries and

commissions, there are more than 1,000 recommendations on solutions to reduce structural racism and inequality. As settlers, we have an obligation to listen, empathize, and redress the current unequal powers that exist in Canada today. Canada has a dark history of colonization, slavery, and discrimination that continues to underpin sociocultural, economic, and environmental policies and regulations.

Settler ignorance is a result of the assimilation policies implemented by Canada. Public education and awareness on the impacts and trauma of Canada's colonial history and residential school system for Indigenous communities is the responsibility of settlers. Our settler behaviour and language continue to trigger trauma for Indigenous Peoples, adding further complexity and sensitivity towards partnership building with Indigenous communities. As Canada moves forward in reconciliation, we must continually reflect on and assess these realities, alongside our own prejudice and biases present in a privileged day-to-day life.

Many Indigenous Peoples and communities have been the recipients of dishonest actions, empty promises, and tokenized gestures. In Canada, the conversations around indigeneity and race need to change in powerful ways. Awareness and reflection alone will not emanate improved outcomes for Indigenous communities. All of society must work towards advancing real change by eliminating prejudice and racism and dismantling systemic injustices to ensure improved health, well-being, and fairness for Indigenous Peoples. Respecting Indigenous Peoples' perspectives, priorities, and interests was a part of the VLR's engagement and outreach. This engagement was a complex journey for the team, who acknowledged their ignorance and committed to uncomfortable conversations, being open to new knowledge, and to (un) learning, as foundations for change and action in support of reconciliation.

Under the auspices of lack of resources and limited volunteer capacity, we were late in initiating engagement and outreach with Indigenous organizations, which was a major error at the start of our VLR. Only after our project was underway did we reach out to a local First Nations community to gain insight, perspectives, and feedback on the Kelowna VLR approach. While a department in the First Nations' government provided some municipal reports and information to map out SDGs to the existing policy and reports, the interest/capacity to form a formal partnership with the team remained unclear. Following this initial engagement, the team connected with an Elder in the First Nations community. Although the Elder seemed interested in the project, communications came to a halt. We must recognize that First Nations' governments have their own mandates and priorities to achieve within their own timelines. As we had made the mistake in approaching them after our project was underway, we decided to reflect on our process. In doing so, we began to reconsider our community engagement.

We remained committed to Indigenous engagement on the SDGs and the VLR, recognizing the need to be intentional towards "a better way" of

engaging First Nations and other Indigenous Peoples and groups – respecting values, interests, and resource capacity. We accepted our initial approach as condescending, as sustainability is a core foundational concept and for many embedded in their culture, whereby decision-making accounts for seven generations in the past and seven generations in the future (Indigenous Corporate Training Inc., 2020). We reflected on our naivety and ignorance about spreading knowledge on the SDGs with First Nations.

We realized we needed a new start to our engagement with Indigenous communities, and a new member dedicated to this engagement was added to our team. This new member focused their intention, time, and space to build relationships. We were able to receive help and valuable information from FNHA and the Ki-Low-Na Friendship Society. Through many conversations, some uncomfortable, we learned a more respectful approach to working alongside Indigenous communities. For instance, we mistakenly believed we could obtain data from FNHA without having an official partnership with an Indigenous organization, and without obtaining permission from the community. They patiently helped us understand the gravity of our mistake; we admitted our ignorance and apologized, and realigned towards a more respectful approach, working with FNHA to access the publicly available reports and in reviewing our drafts. Likewise, Ki-Low-Na Friendship Society provided us valuable perspectives about the various SDGs and also kindly donated time reviewing for accuracy.

From the City's perspective, the VLR team's focus on Indigenous community engagement for the VLR offered a new sense of hope in activating meaningful and authentic progress on Truth and Reconciliation efforts. Having the third-party representation, and a primary VLR team member dedicated to communications with Indigenous groups, helped begin the process of bridging the relationship gap between the City of Kelowna and Indigenous communities and enabled the team to engage in challenging questions about community inequities alongside meaningful conversations about a better future and the actions needed to achieve it. Regrettably, as our project was predominantly volunteer based, we were unable to compensate the Indigenous organizations and other CSOs for their time. BCCIC/GECCO has since developed a policy to financially compensate Indigenous organizations for their involvement. VLRs in Canada should strive to engage additional First Nations, Metis, and Inuit perspectives, as well as reflect on knowledge and experiences of all Indigenous Peoples.

Navigating city politics and partnerships

When localizing the SDGs, navigating inherently risk-averse and shorter-term (four-year) municipal governance processes can be complex and challenging. Still, BCCIC/GECCO approached the City of Kelowna on developing a VLR – in the middle of a council cycle. As one of Canada's fastest-growing

cities, Kelowna was well positioned to play a leadership role in developing the process for measuring progress on SDGs and in encouraging other Canadian cities to carry out VLRs.

When the City of Kelowna was first approached by BCCIC/GECCO to consider collaborating on the VLR, City staff's initial response was guarded due to staff workload volume, resource constraints, and lack of understanding of how this report might complement or possibly compete with other base business reports. Additionally, mobilizing time and resources on a new, unsanctioned project invites risk – including internally, from senior leaders and from the City Council. Yet as the relationship between BCCIC/GECCO and City staff developed, so too did a new dialogue on the opportunities around holistically examining many areas of sustainable growth management and identifying and understanding liveable city "gaps" that exist outside of core council/corporate priority areas.

While not all of the SDGs are within a municipal mandate, they do show up in many areas of city building with its programmes and services. Many of the SDG topic areas require a long-term commitment and unwavering dedication to make meaningful change over a longer time horizon. City Council terms are confined to a four-year cycle with 'quick wins' often prioritized and resourced accordingly. City staff took a leap of faith in wanting to examine the full spectrum of SDG focus areas and use them to "neutralize" topics that can be viewed as political and/or out of scope of local government purview. By having an internationally recognized framework validate their importance, City staff hoped the SDG framework could elevate the discussion on key areas that need progressive, bold policy direction. Often local governments need more senior levels of government to open the door for "political permission." Endorsement from the UN, as an international agency, helps influence and pave political permission pathways.

Importantly, the SDGs help to bridge silos that challenge traditional systems and organizational structures. Working on the VLR encouraged departments within government to communicate and work together in meeting City Council goals for the term. Additionally, it is universally understood that there is no one single entity or organization solely responsible for delivering on the SDGs; rather they are a framework that harnesses the collective action of numerous actors, industry, government, and non-profit institutions that share a collective responsibility for their progress. The SDG framework posed a new opportunity to seek out partnerships/working relationships with organizations that typically are outside of the City's wheelhouse of partners and explore new ways to deliver key activities through a more collaborative and shared approach. It also helped share the VLR workload and elevate findings of the report throughout the community.

When the Kelowna VLR project commenced, the city was at the beginning of an era of extreme rapid growth pressures as one of the fastest-growing communities in the country. Alongside growth challenges comes the

complexity of homelessness, affordability, and the need to develop policy to adapt to a rapidly changing demographic. Simultaneously, it is equally imperative to embed DEI (diversity, equity, inclusion) principles into decision-making. City staff recognized the major changes in significant policy documents that could be grounded through a multi-dimensional SDG framework being proposed through the VLR process.

While the Kelowna VLR has not had formal endorsement by the City Council, this process of establishing baseline SDG progress has opened new opportunities to approach key areas of city building through a more just and equitable lens. Multiple departments' involvement in the VLR provided opportunities for engagement on equity and social inclusion issues. In the years that have followed the Kelowna VLR, Kelowna's 2040 Official Community Plan (for the first time) now includes a chapter on equity and social inclusion, with commitments to completing and implementing an Equity Strategy (City of Kelowna, 2022). In the interim, the City of Kelowna's Policy and Planning team has completed an internal equity framework to guide long-term neighbourhood and urban centre planning initiatives.

Fast-forward to today, where the COVID-19 pandemic has shed light on the inequities that have disproportionately impacted so many groups for so long. Other movements such as #BLM have taken hold and have required many "traditional" institutions to respond and adapt to stay relevant in a rapidly evolving social arena. In retrospect and acknowledging the rapidly changing landscape of social movements across the globe, our path forward today would likely be more explicit and outward focused rather than largely approaching this with non-dedicated internal resources. As noted previously, municipalities by virtue of their positioning as land holders, regulators, policy makers, and consultation facilitators have a unique opportunity to advance equity. The composition of staff, the perspectives of elected officials, and consultants that complete crucial work all bring their own perspectives, and without a formal equity lens, there can be absent considerations and undue harm for those with silenced voices.

Conclusion: ideas to action: advancing city goals through the VLR

For the SDGs and the VLR to have impact, their relevant community-level indicators and/or other key performance measurements will need to be embedded into all areas of governance, municipal-level plans, strategies, and other programmes and initiatives. Yet the intersectionality of the SDGs means they remain broad, with significant barriers and gaps to successful implementation. For instance, in Kelowna, poverty remains a major challenge towards progress in many of the goals, affecting various demographics (race, age, etc.) differently. Relying solely on quantifiable data to evaluate progress is not always easy to achieve or even adequate in providing a true analysis; qualitative results are also required to share insight, gain understanding, and

brainstorm solutions. Understanding and underscoring the need for disaggregated demographic data as the basis for equitable policy and service development and successful implementation was required for the Kelowna VLR. Collaboration with CSOs and Indigenous organizations was instrumental in offering quantitative and qualitative information in support of identifying and resolving data gaps, and in developing and measuring the targets and indicators. In particular, collaboration with Indigenous organizations was instrumental in unlearning many preconceived ideas – even prejudices – leading to better SDG indicators and outcomes. The Kelowna VLR was created with shared knowledge from numerous organizations, in an attempt to capture the voices of different groups that are often left behind, and to challenge preconceived ideas around "viable" solutions.

While the initial VLR for the community of Kelowna rolled out in March 2021 (BCCIC, 2021) and is yet to be updated, BCCIC/GECCO, City of Kelowna, and PICS at UBC have been invited to present on Kelowna's VLR at numerous events such as the High-Level Political Forum 2021 Unofficial Side Event: "Localizing the SDGs: Where do Canadian Communities Stand?"; the 2021 International Conference on Sustainable Development (ICSD) poster session; and the Centre Interdisciplinaire de Recherche en Opérationnalisation du Développement Durable 2021 session entitled, "Challenges and opportunities for more resilient cities: What can SDGs contribute?" The team has also engaged in UBC's SDG Week in 2023 as panellists for the "Think local with the SDGs" session. The Kelowna VLR was also a key element in the Tamarack Institute's launch of "10: A Guide for Advancing the SDGs in Your Community."

In addition to presenting the Kelowna VLR at numerous conferences, the VLR team has engaged in Tamarack Institute's Climate Equity Cohort in 2022 with representatives from the City of Kelowna; BCCIC/GECCO; PICS at UBC; BC Climate Action Secretariat; Okanagan Sustainability Leadership Council; and the Thompson Okanagan Tourism Association (TOTA). This Kelowna team was one of many teams across Canada engaging in knowledge mobilization on climate action and equity through Tamarack's Climate Cohort curriculum. The City took the lead on coordinating the Kelowna cohort, which had the opportunity to learn about and access tools and strategies of other local governments.

While Kelowna's current Community Climate Action Plan (City of Kelowna, 2018) focuses on ways to reduce emissions, it was created with targeted engagement and equity was not a front and centre consideration. As such, the city has embarked on a "Climate Resilient Kelowna Strategy", which will address both climate mitigation and adaptation and is expected to be completed in 2024. VLR indicators may or may not transfer to this initiative; the VLR *process and findings* provide a foundation, and set a path in motion, for the city to advance equity in climate action. The City's participation in Tamarack's Climate Cohort further offered insights on how the

City can act as convener across multiple organizations/community stakeholders on climate action, alongside many other urgent social justice and SDG-related issues that Kelowna and other cities are grappling with, such as homelessness, food insecurity, housing unaffordability, mental health, etc. Other "ideas to action" include TOTA's Tourism Impact Data Portal that will be launched with four other tourism regions across the province of BC (BCRTS, n.d.). TOTA is in the initial stages of discussion with City staff and BCCIC/GECCO on the addition of Kelowna VLR data to support a dashboard.

VLR data collection and indicator selection served as a precedent for the city in selecting defensible, repeatable, available data sources and in reporting relevant SDG statistics for the community in a rigorous and defensible way. A unique, customized approach to indicator selection and data analysis will be required for each community. Embarking on a VLR is not a static or linear pathway, and maintaining and updating an initial VLR may not be a fiscally viable option. Rather, the gathering of data and indicator selection is more a journey that leads to several different pathways, with a variety of results and outcomes. Once a VLR is complete, future work around supporting the most needed outcomes may be the greater priority than simply updating metrics for selected indicators.

Notes

1 Statistics Canada; City of Kelowna; Interior Health; BC Coroners Service; BC Cancer Agency; BC Utilities and Energy Data; Natural Resources Canada; Regional District of the Central Okanagan, etc.
2 Ki-Low-Na Friendship Society; First Nations Health Authority (FNHA); academics (PROOF from University of Toronto).
3 BCCIC; Elizabeth Fry Society; Central Okanagan Foundation, etc.
4 Turtle Island is the Indigenous name for the continent of North America.

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12

BARCELONA'S APPROACH TO ACHIEVING THE SUSTAINABLE DEVELOPMENT GOALS

Chiara Farinea and Fruzsina Csala

Introduction

The Barcelona City Council has successfully aligned its municipal plans and strategies with the global Sustainable Development Goals (SDGs) by establishing targets that are relevant both at the urban scale and within the specific geographical, socioeconomic, and political context of the city. Through online available reports, municipal documents, and insights gathered from an in-depth interview with Michael Donaldson Carbón, Commissioner for Urban Innovation in Barcelona, this chapter introduces Barcelona's approach to adopting the SDGs. The chapter is organized into four sections. The introduction provides an overview of the city's recent urban development and sustainable strategies prior to the Agenda 2030. The subsequent section delves into the details of the Barcelona Agenda 2030. The third part focuses on SDG 11 – Sustainable Cities and Communities, offering a detailed examination of the process of localizing the SDGs through concrete initiatives and projects. In this section, the COMIDA and RESPIRA projects are introduced as examples of how innovation on the urban scale is aligned with the broader scope of the SDGs, extending beyond SDG 11. These projects have received funding from the Barcelona City Council with the aim to develop new design approaches to the urban environment. The projects were developed by diverse consortiums in which the Institute for Advanced Architecture of Catalonia (IAAC) had leading roles alongside other non-municipal stakeholders.

Barcelona urban development

Barcelona, the economic and cultural center of Catalonia, with its 1.6 million inhabitants sharing 100 km^2 of land, ranks as one of the most densely

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populated cities in Europe. The city is globally recognized as a major tourist destination, hosts international events, and is renowned for its progressive urban development. Over the late 20th century, Barcelona's urban economic transformation stands as a remarkable post-industrial revitalization success story (Herzog, 2000). In the 1980s, the city dealt with the economic challenges of deindustrialization, a rising unemployment rate, abandoned factory buildings, a deteriorated city center, and an inaccessible and contaminated waterfront, an image that is hard to picture today (Herzog, 2000). In response to public needs, Barcelona initiated its urban revitalization efforts in the 1980s, marked by a localized neighborhood renewal program focused on recapturing the city's traditional sense of community (Smith, 2005; Herzog, 2000). This revitalization gained significant momentum with the hosting of the 1992 Olympic Games, which not only accelerated but also amplified the renewal program (Smith, 2005). The 1992 Olympic Games led to the physical regeneration and a complete rebranding and redefinition of the city, positioning it as the 'coolest city in Europe' (Rossi, 2004, as cited in Smith, 2005). Barcelona's success story, however, is not without its challenges. While the city's economic development owes much to tourism, it has also encountered conflicting interests (Ramos & Mundet, 2021). Rising real estate prices, gentrification, the commodification of public spaces, and overcrowding are some of the criticized byproducts of the local tourism sector (Ramos & Mundet, 2021).

In addition to the various tourism-related challenges, Barcelona is also confronted with global issues such as the imminent threat of a climate catastrophe marked by severe droughts, heatwaves, extreme weather events, and on-and-off economic crises. Barcelona must address these interconnected local and global issues in a systematic manner. The sustainability framework recognizes the environmental, social, and economic dimensions as inseparable, offering cities an approach to provide solutions to complex problems. Barcelona has demonstrated a longstanding commitment to enhancing the city through the initiation and implementation of policies rooted in the concept of sustainable development, which is a central principle of municipal policy (Barcelona City Council, 2020).

Barcelona sustainable strategies

In 2002, under the framework of Agenda 21, 'Citizen Commitment to Sustainability'[1] marked the municipality's initial commitment to sustainability, which gained approval from a wide range of stakeholders – district administrations, private businesses, non-governmental organizations (NGOs), trade unions, foundations, universities, and schools. In the first phase, Barcelona identified its main challenges and set objectives. The council then invited citizens to contribute to a collective commitment through district debates and thematic sessions. The collaborative efforts produced the commitment's initial draft, agreed upon through a participatory process. The final document

outlined major objectives with corresponding action plans for the 2002–2012 period. Upon approval, the council urged local organizations to sign the commitment. The ten-year commitment was renewed in 2012, extending it to another decade under the framework of the newly established Barcelona + Sostenible initiative, the successor of Agenda 21 (Barcelona + Sostenible, n.d.; Barcelona City Council, 2012).

The renewed commitment comprised ten specific goals, each accompanied by proposed key actions. These goals revolved around core areas such as biodiversity, public space and mobility, environmental quality and health, zero emissions through smart infrastructure, responsible resource consumption, fostering a cohesive society, building a sustainability-based economy, promoting education and citizen engagement, enhancing resilience, and embracing global responsibility. The participation of 1900 organizations,[2] including schools, public entities, private companies, and civic organizations as members of the Barcelona + Sostenible initiative, underscores the importance of this effort. Notably, the initiative successfully attracts private companies to embrace sustainability by offering online visibility to showcase their sustainable efforts, resources such as educational materials and personalized consultations, networking opportunities, as well as grants and prizes (Barcelona + Sostenible, n. d.). The city administration has recognized that the private sector's commitment to sustainability is crucial, thus fostering public–private–people partnerships in sustainable innovation is a key priority for them.

In addition to the Barcelona + Sostenible initiative, the aspect of social cohesion and sustainability was addressed by the municipality in the form of the 'Citizen Agreement for an Inclusive Barcelona' in 2005 (Barcelona Inclusiva, n.d.). This agreement introduced a new approach to participation and policymaking, encouraging collaboration between the public, private, and civil sectors to enhance the quality of life for all residents (Montagut et al., 2016; Barcelona City Council, 2020). Governed and coordinated by the municipal government of Barcelona, the aim of the initiative is restructuring responsibilities within the social welfare sector. This involves achieving a comprehensive agreement among representatives from the key social entities in the sector. Action networks were formed with specific objectives, initiating collaborative efforts to address particular issues; examples include the network for assistance to the homeless, the network for the support of migrants, and the network of centers for children and teens (Montagut et al., 2016).

Barcelona Agenda 2030

In 2015, all United Nations (UN) member states approved the Agenda 2030 featuring the SDGs. It was acknowledged that cities play a key role in achieving the goals ("65% of the SDG targets are at risk if local urban stakeholders are not given a clear mandate and role in the implementation process" (Cities Alliance, 2015)), and local and regional governments were

encouraged to adapt these goals to their specific contexts ("'Localizing' is the process of taking into account subnational contexts in the achievement of the 2030 Agenda, from the setting of goals and targets, to determining the means of implementation and using indicators to measure and monitor progress" (Sustainable Development Goals Helpdesk, n.d.)). Given its longstanding commitment to sustainability, Barcelona saw the Agenda 2030 as an opportunity to seek strategic solutions for the city's current and future needs. The Barcelona City Council identified three significant benefits associated with localizing the SDGs. Firstly, they offer a comprehensive overview of global issues, suggesting a balanced approach that addresses social, environmental, and economic perspectives. Secondly, being globally approved, these goals provide an opportunity to use a shared language worldwide when tackling common global challenges. Thirdly, the 15-year plan extends beyond municipal terms, ensuring continuity across administrations (Barcelona City Council, 2020).

The city of Barcelona successfully aligned the SDGs with its urban policies and published its Agenda 2030 strategy in 2020 (Barcelona City Council, 2021). The Barcelona Agenda 2030 is the localized version of the UN's Agenda 2030 with the 17 SDGs and 139 targets to be achieved locally. Key indicators are assigned to the targets to be able to monitor their progress objectively. The Barcelona Agenda 2030 has its own dedicated website where the SDGs, the targets, and the city's actions are communicated within and beyond the local community. The key documents are also accessible at the website. Barcelona's "2030 Agenda, SDG targets and key indicators" (Barcelona City Council, 2021) introduces the Agenda goal by goal, with the local targets, key indicators, and related municipal strategies. By the end of 2023, two monitoring reports are available: the 2021 and the 2022 editions of the "Annual monitoring and evaluation report on the Barcelona 2030 Agenda, Voluntary Local Review" (Barcelona City Council, 2022, 2023a).

Localizing the SDGs

Barcelona filtered the global Agenda 2030's 169 targets, selecting those directly relevant to urban matters, meaning they had a direct link to the responsibilities and activities of the Barcelona City Council and other local entities (Barcelona City Council, 2021). Moreover, it was emphasized that the City Council needed to align all its activities with the Barcelona Agenda 2030 to effectively lead and monitor progress. To achieve this, the Municipal Action Plan and the municipal budget were synchronized with the Barcelona Agenda 2030 plan. The Municipal Action Plan serves as the primary planning tool for each four-year municipal term, consequently the ten-year Barcelona Agenda 2030 plan spans three municipal terms and action plans (Barcelona City Council, 2020). In addition to the Municipal Action Plan, sectoral plans and reports, developed since 2020, are in alignment with the targets outlined in the Barcelona Agenda 2030, ensuring efficient communication and coordination between different departments.

Out of the 169 targets defined by the UN, Barcelona has localized 139 targets and assigned measurable key indicators to them. The identified targets either seek to reach a desired social or economic outcome (such as 2.1, "ensure no one suffers hunger or malnutrition" or 3.1, "ensure a maternal mortality rate that is very close to zero") or are defined by launching a certain action (such as 1.a, "develop the international cooperation of cities in reducing poverty" or 3.d, "provide Barcelona with a specific emergency plan to tackle pandemic situations") (Barcelona City Council, 2021, 2022, 2023a). Taking into consideration the indicators proposed by the UN, Barcelona has developed its own unique indicators to monitor the progress towards reaching the targets. Some targets are too complex to be measured by one indicator only; in these cases some indicators need to be evaluated together to monitor the progress (Barcelona City Council, 2021) – see examples in Table 12.1.

Governance, dissemination, and engagement

The Barcelona City Council has designated responsibility for promoting and monitoring the Barcelona Agenda 2030 to the Commissioner for the Agenda 2030, who operates under the management of the Third Deputy Mayor responsible for the Area for Agenda 2030, Digital Transition, Sports, and Territorial and Metropolitan Coordination (Agenda 2030, n.d.-e). Furthermore, an Academic Advisory Board comprising approximately 30 experts has been established to provide counsel to the City Council on Agenda 2030's development, encourage the execution of scientific studies, propose specific actions, and assess progress towards sustainability (Agenda 2030, n.d.-b). Additionally, a working group within the Municipal Council Assembly has been formed, comprising about 40 members representing social and commercial stakeholders. This group aims to deliberate on the implementation of the Agenda 2030 and promote initiatives that contribute to achieving the SDGs (Agenda 2030, n.d.-d).

Barcelona has integrated into its Agenda 2030 strategy the goal of engaging a diverse range of stakeholders and citizens in collaborative efforts to achieve the SDGs. To communicate the city's commitment to sustainability, the City Council has launched a dedicated website for the Agenda 2030. Furthermore, since September 2021, the key targets and indicator data have been accessible online, allowing anyone to examine the numbers associated with progress towards achieving the sustainable targets (Barcelona City Council, 2022). Citizens not only can monitor the sustainable development process but also can provide valuable input to it. The Barcelona City Council hosts a digital platform, Decidim Barcelona, dedicated to citizen participation processes. For instance, in January 2020, the localization of SDG targets under the framework of Agenda 2030 was discussed with the public, and the results of the meeting are available on the Decidim Barcelona website (Decidem Barcelona, 2020). Beyond the local community, businesses and

TABLE 12.1 UN and Barcelona targets

	UN targets	*Barcelona targets*	*Barcelona operational targets*	*Municipal strategies and plans in relation to SDG 11*
11.1	Ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums	Affordable housing for all	Reduce the proportion of families that allocate more than 40% of their resources to housing expenditure to less than 14%. Quadrupling the protected rental housing stock. Getting the number of evictions down to nearly zero.	Strategy for Inclusion and Reducing Social Inequalities 2017–2030 Right to Housing Plan 2016–2025 Sustainable Urban Development Strategy (EDUSI) Besós 2014–2020
11.2	Provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons	More eco-mobility, based on a sustainable and inclusive public transport system of the highest quality	Increase eco-mobility (proportion of journey stages made using public and/or non-motorized transport). Achieve an evaluation of public transport of over 7.5 for each of its types (metro, tram, bus, and biking). Convert the bus fleet to 100% sustainable. Carry out over 350,000 door-to-door journeys a year for people with disabilities.	Climate Plan 2018–2030 Climate Emergency Declaration 2020 Urban Mobility Plan 2024 Bicycle Strategy for Barcelona E-mobility strategy Barcelona Universal Accessibility Plan 2018–2026
11.3	Enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries	Achieve a change in urban model through social consensus in order to attain healthier and more sustainable public spaces, especially in areas surrounding schools	Transform 20 km of streets into Green Corridors. Improve the areas surrounding all the city's schools, so that by 2025, there are 200 schools with operations to create protected environments.	Citizen Participation Regulation Citizen Commitment to Sustainability 2012–2022 The Barcelona Superblock measure to regenerate Barcelona and its neighborhoods More Sustainable Urban Planning Green Hub Model

	UN targets	*Barcelona targets*	*Barcelona operational targets*	*Municipal strategies and plans in relation to SDG 11*
11.4	Strengthen efforts to protect and safeguard the world's cultural and natural heritage	Improve the protection, accessibility, and knowledge of singular heritage and identity features of Barcelona and its neighborhoods	Make in-person access to museums and exhibition centers more affordable. Intensifying the digitalization and online dissemination of their collections.	Government Measure Barcelona, Heritage City 2020 Digital Indicators Barcelona Cultural Rights Plan
11.5	Significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations	Maximum protection for people and prevention of material damage during severe climate episodes	Reduce the effects of heatwaves, flooding, and other severe climate episodes on humans and materials. Invest in prevention and protection to deal with these situations.	Fire-Prevention, Extinction and Rescue Service Directorate's Master Plan 2014–2025 Basic Plan for Emergencies
11.6	Reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management	Barcelona will comply with the air-quality thresholds recommended by the World Health Organization (WHO)	Reduce the average concentration of air pollutants to below the thresholds recommended by the WHO in all seasons in the city.	Energy, Climate Change and Air Quality Plan 2011–2020 Urban Mobility Plan 2024
11.7	Provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities	Greener and safer public spaces where people can play	Create 160 hectares of urban green areas in Barcelona, giving priority to places that most lack them. Setting the index for the quality of public areas above 7. Achieving 10 of the targets in the Plan for Play in Barcelona's Public Spaces.	Climate Plan 2018–2030 2019–2030 Play in Public Spaces Plan Comprehensive Improvements of Public Spaces Plan Barcelona Green and Biodiversity Plan 2012–2020 Barcelona Universal Accessibility Plan 2018–2026

	UN targets	*Barcelona targets*	*Barcelona operational targets*	*Municipal strategies and plans in relation to SDG 11*
11.a	Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning	Have a new Metropolitan Urban-Planning Master Plan	Foster the processing of the Metropolitan Urban-Planning Plan, with the perspective of achieving its definitive approval during the 2019–2023 term of office.	Metropolitan Urban Master Plan Proposal (2020)
11.b	Substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015–2030, holistic disaster risk management at all levels	Develop Barcelona's urban resilience model	Develop Barcelona's urban resilience model, based on incident management, information analysis, and reducing risk.	Resilience Profile for Barcelona Barcelona: Building a Resilient City
11.c	Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials	Develop international cooperation associated with urban planning and housing	Increase the number of projects and the annual budgetary effort allocated to this area. Integrating the perspectives of gender and accessibility as factors of this work. Maintaining the number of municipal specialists from member cities involved in exchange programs.	

Source: Barcelona City Council (2021, 2022, 2023a).

institutions are also important actors in achieving the SDGs. In order to raise awareness and gain stakeholder support, the City Council has created the Barcelona 2030 Agenda Awards. Across ten categories, the city recognizes the commitment of its strategic partners to achieving the SDGs. The awards are presented to businesses, social initiatives, media companies, and educational projects (Agenda 2030, n.d.-c). The award ceremony is linked to a yearly organized conference on the Agenda 2030 open to all stakeholders including the public. The third edition of the conference was held in December 2023 (Agenda 2030, n.d.-a).

Innovation aligned with the Agenda 2030

Barcelona recognizes that innovation is crucial in attaining sustainability (Comissionat d'Innovació Digital, 2021). Additionally, the city aims to position itself as the 'Innovation Capital' of Mediterranean Europe. This aspiration is further defined in the fifth target of SDG 9 by stating that "by 2030, Barcelona [will become] one of the five European capitals for science and innovation" (Barcelona City Council, 2021, p. 131, 2022, 2023a, 2023b). Closely linked to the Agenda 2030, Barcelona has mobilized a number of municipality-led innovation spaces. For example, the municipal foundation of Bit Habitat is promoting urban innovation in social, economic, technological, and environmental aspects. This initiative serves as the urban innovation line for the Agenda 2030, advocating for specific innovative measures to achieve sustainability (Barcelona City Council, 2020; Bit Habitat, n.d.-a; Comissionat d'Innovació Digital, 2021). The foundation organizes workshops and training sessions to encourage thought-sharing and learning about innovation for Barcelona. Bit Habitat is launching open calls to discover innovative solutions for urban challenges. Defining these challenges often requires balancing between the needs of different interest groups (Donaldson Carbón, 2023). Innovation is seen as a tool to meet the needs of diverse interest groups. Furthermore, by urban innovation, it is possible to define challenges that are hidden from the city's administration. In other words, the open calls initiated by Bit Habitat do not limit innovation to solving predefined specific problems. Instead, they offer space and resources for research, cross-sectoral collaboration, and experimentation (Donaldson Carbón, 2023).

These calls involve providing financial and technical support to innovative projects that can create a positive and measurable impact on the city. The objective is to promote collaboration among public institutions, private entities, research centers, and academia to drive innovation (Donaldson Carbón, 2023). Bit Habitat's mission is to facilitate the acceleration and scaling up of successful innovation projects. Recent open calls have addressed various topics, including the improvement of the bus network service, the reimagining of public sports spaces with a gender perspective, the development of the 21st-century *panot* (Barcelona tiles), and the concept of the proactive city. The link between the

calls and the SDGs is not direct, meaning that when a call is launched, there is no clear established methodology on how to associate it with the Agenda 2030. The targets defined in the Agenda 2030 are seen as a framework, a guide for innovation projects rather than specific objectives to be reached (Donaldson Carbón, 2023). In what follows we discuss two projects, RESPIRA and CO-MIDA, winners of the proactive city calls in 2022 and in 2020, respectively, and their connection to the SDGs.

Barcelona SDG 11 – Sustainable Cities and Communities

Sustainable development can only be achieved by transforming our cities. The way urban spaces are managed and built has to shift towards a sustainable model (United Nations, n.d.). Cities not only represent the future of living but already the present as 4.4 billion people are living in urban spaces, which accounts for 56% of the global population (World Bank, 2023). This number is growing day by day and it is estimated that by 2050 70% of the global population, 6.8 billion people, will live in cities (United Nations, n.d.). Moreover, cities only occupy 3% of the world's surface but are responsible for 75% of carbon emissions and energy consumption (United Nations, n.d.). These shocking figures clearly explain the importance of cities in reaching global sustainability. SDG 11 targets cities and calls for 'Sustainable Cities and Communities,' with a specific focus on providing access to affordable housing, establishing a sustainable transport system, creating high-quality green public spaces, protecting local cultural heritage, reducing the environmental impact of cities, mitigating damage caused by natural disasters, and improving urban air quality. Barcelona has addressed all these dimensions, demonstrating a comprehensive commitment to fulfilling the objectives outlined in SDG 11. While Barcelona considered all SDGs equally relevant, this chapter emphasizes SDG 11 as an 'umbrella goal,' covering diverse targets and indicators addressing various aspects of city life. It serves as an example to demonstrate how Barcelona localized the Agenda 2030 and integrated it into municipal programs and development plans.

To fulfil the objectives outlined in SDG 11, Barcelona has localized all targets developed by the UN and established measurable operational targets for them. These include key indicators that are accessible from municipal databases. The localized targets were synchronized with already-existing plans and strategies. Table 12.1 provides the UN targets alongside Barcelona's corresponding targets, measurable operational targets, and related municipal strategies (Barcelona City Council, 2021, 2022, 2023a).

Initiatives and projects aligned with SDG 11

Projects developed or financed by the municipality are frequently associated with specific SDGs. Given the diverse nature of the targets of SDG 11, a broad spectrum of projects can contribute to attaining the predefined goals.

These projects vary in scale, focus, and duration, yet collectively contribute to creating a more sustainable Barcelona. The following projects are shown as examples of how Barcelona links its activities to SDG 11:

- Together with the metropolitan region authority (Àrea Metropolitana de Barcelona), the city council has launched the first public-private rental housing operator in Spain, Habitatge Metròpolis Barcelona, with the goal of constructing 4,500 social housing units. These units will be built on public land with the guarantee that they will never be sold on the market (Barcelona City Council, 2022; Habitatge Metròpolis Barcelona, n.d.).
- An exemplary initiative to achieve a sustainable public transport system involves transitioning the bus fleet to electric or hybrid vehicles. Barcelona's ultimate objective is to complete the replacement of the entire fleet by 2024 (Info Barcelona, 2020c).
- The municipality of Barcelona has issued a decree to lower the speed limit to 30 km/h on 68% of the city's roads. This measure not only enhances road safety but also encourages citizens to opt for alternative modes of transportation such as bikes or public transport, as using cars does not necessarily result in quicker access to destinations (Info Barcelona, 2020a).
- A concrete example of this is the redesign of Via Laietana, which involves reducing the speed limit to 30 km/h while prioritizing walking and public transport. The new design will feature a double-sized pavement, a segregated bike lane, and a significant expansion of green public spaces (Info Barcelona, 2020b).
- Green development was also encouraged through the Green Roofs Competition, which aims to fund selected projects for transforming building roofs into green spaces. The goal is to regulate urban temperature, improve air quality, and create new enjoyable places for residents (Info Barcelona, 2020d).
- In the promotion of local cultural heritage, Barcelona has initiated a campaign to strengthen the role of museums and heritage facilities, as outlined in the Barcelona Cultural Rights Plan (Aquí es fa Cultura, 2022).
- As a comprehensive project, the Resilience Atlas summarizes and geolocates diverse information crucial for understanding where interventions are needed to achieve urban sustainability. Its objective is to compile this information and make it accessible to the public (Resilience Atlas, n.d.).
- Founded by IAAC, MIT (Massachusetts Institute of Technology), the Barcelona City Council, and the Fab Foundation, the international Fab City initiative is working towards locally productive and globally connected self-sufficient cities. It adapts and scales up the principles of Fab Labs, promoting local production, recycling, and addressing needs through creativity, emphasizing data (information, knowledge, design, code) exchange over material imports and exports (Fab City, 2023).

Urban innovation: the RESPIRA and CO-MIDA projects

The CO-MIDA and RESPIRA projects were initiated within the scope of the 'Proactive City' call, a municipal initiative by the Bit Habitat foundation. The goal of the call is to scale up successful projects with the support of the municipality after their pilot phases (Donaldson Carbón, 2023). CO-MIDA was led by the IAAC in collaboration with the civil associations of Asociación Sun Sun Love (ASSL) and Taula Eix Pere IV, whereas RESPIRA was co-developed by the technology and design firm Noumena, IAAC, the Associació de Veïns i Veïnes del Poblenou, and Plataforma d'Entitats de Roquetes (Institute for Advanced Architecture Catalonia, n.d.; Bit Habitat, n.d.-a, n.d.-b; Advanced Architecture Group IAAC, n.d.).

The aim of the 2020 'Proactive City' call was to foster cross-sectoral innovation for addressing the challenges of improving urban sustainability and resilience, as well as boosting the local economy (Bit Habitat, 2020). The CO-MIDA project was one of the beneficiaries of the call as it proposed to tackle diverse urban issues. CO-MIDA was developed as an intelligent vertical modular system for the cultivation of edible plants, designed through a collaborative process involving citizens. Notably, it harnesses the power of bacteria in the soil to generate electricity. The multifaceted impacts of CO-MIDA include enhancing the urban microclimate and biodiversity, providing fresh local food to neighbors, fostering social cohesion within the community through co-maintenance, and instilling a sense of ownership of public space. By promoting a bottom-up perspective, CO-MIDA positions citizens as the primary contributors to the design of their living environment. Additionally, CO-MIDA introduces several innovations, such as repurposing urban vertical surfaces to convert buildings into farming systems; and the integration of digital technologies, including 3D printing and sensors, ensures efficient irrigation by detecting soil moisture and activating the system only when needed. Additionally, CO-MIDA features a bio-photovoltaic system that harnesses electrons produced by bacteria near plant roots, generating energy from this microbial activity. These innovations have the potential to contribute to a sustainable and technologically advanced approach to urban agriculture. The CO-MIDA pilot was successfully installed in the community garden of ConnetHort, managed by the partner organization, Asociación Sun Sun Love, where local citizens of the Poblenou neighborhood can enjoy the benefits of the vertical garden.

CO-MIDA aims at supporting several local targets of SDGs 2, 11, and 13. The project is directly linked to target 2.3, "promote urban agriculture, showcasing its economic, ecological and social benefits," while it can be loosely associated with target 11.3, "healthier and more sustainable public spaces," target 11.7, "greener and safer public spaces," and target 13.1, "climate refuge and water garden in every district." As CO-MIDA is a pilot project, its use and scale can be accelerated making its impact towards

sustainability even higher. On a larger scale, CO-MIDA has the potential to generate electricity, providing illumination for the surrounding area where it is installed or, more feasibly, operating as a self-sufficient system that monitors and waters its plants as needed. The CO-MIDA units installed onto a building's vertical surfaces also hold the potential for a cooling effect, benefiting both indoor and outdoor spaces. Consequently, when scaled up, CO-MIDA could directly contribute to a more sustainable urban lifestyle.

The RESPIRA project has been developed within the framework of the 2022 'Proactive City' call, which aimed to support projects related to promoting urban transformation, housing, and social cohesion, and advancing energy

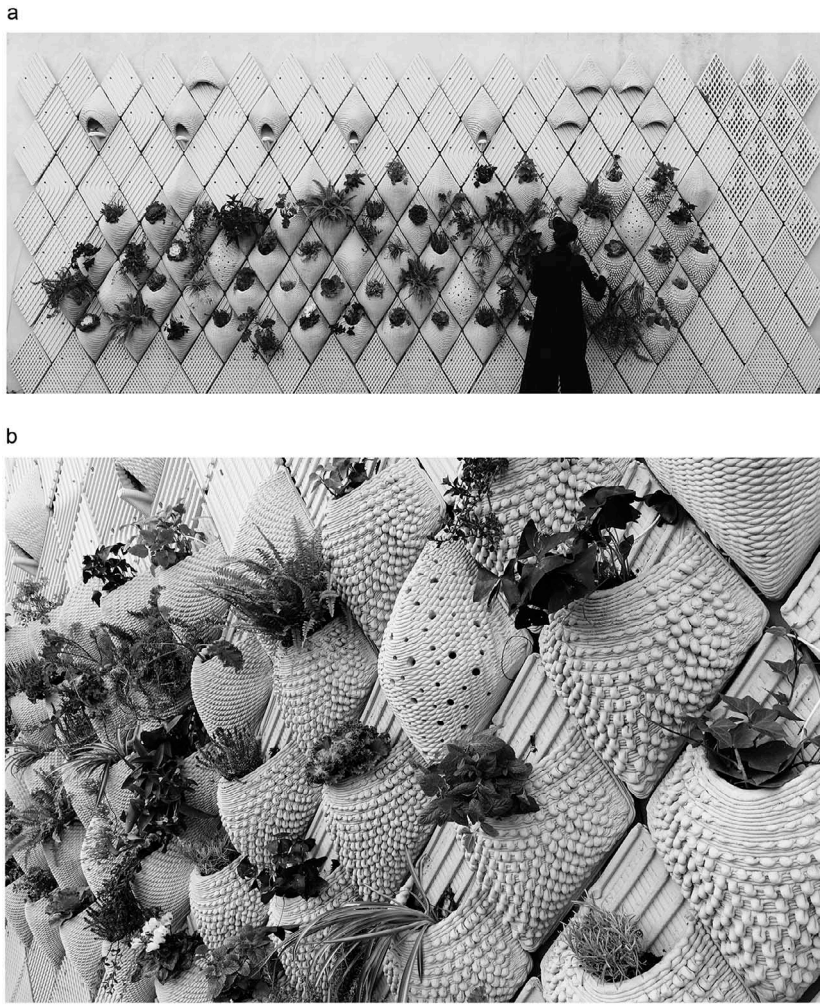

FIGURE 12.1 (a and b) CO-MIDA Project
Source: Author created.

transition in response to the climate emergency (Bit Habitat, 2022). RESPIRA was developed to introduce a novel approach to designing the urban furniture for Barcelona's recently acquired public spaces, a result of the pedestrianization efforts outlined in the Barcelona Superblock plan (Advanced Architecture Group IAAC, n.d.). These newly pedestrianized areas present an opportunity to implement measures and strategies for decarbonization, enhancement of air quality, and microclimate improvement, utilizing both green and innovative sustainable materials. RESPIRA proposed a co-design initiative with citizens to develop new elements of urban furniture, aiming to enhance resilience and inclusiveness, and to broaden the uses of public space. The co-design workshops were supported by 3D-printed pilot models which helped the participants to visualize the furniture pieces. The co-design process identified various functions of urban furniture, including sitting areas, shading elements, dining spaces, play areas, and remote workspaces.

Through this process, the current challenges faced by users of public spaces were analyzed leading to the identification of several expectations. These expectations encompass providing outdoor spaces for remote work, ensuring security for all genders, promoting inclusiveness and accessibility, and creating spaces that serve as climate refuges. The association of Veïns i Veïnes del Poblenou was present at the co-design process to raise awareness of the challenges of the new uses of public spaces, and the association Plataforma d'Entitats de Roquetes was advocating for gender inclusiveness. The final design incorporated the associations' insights and the public's needs and was realized through digital technologies. The seating elements of the RESPIRA furniture were crafted from a 3D-printed cellulose-based photocatalytic material, WEARPURE.TECH, developed by Noumena. WEARPURE.TECH can absorb and neutralize CO_2, NOx, and volatile organic compounds (VOCs), converting them into environmentally friendly minerals. It operates through several phases of action, including catalysis, photocatalysis, carbonation, and nitrification (Wearpure.Tech, n.d.). Whereas, the wooden shading elements of the RESPIRA furniture provide plants a structure to grow on, creating a green refuge within the city.

Like CO-MIDA, RESPIRA aligns with the SDGs and has the potential to contribute to various local targets if implemented on a larger scale. The co-design process, through which RESPIRA was developed, helped raise awareness of gender inequality, thus contributing to target 5.1, "end all forms of gender discrimination and reduce the impact on equality" and target 5.2, "eradicate gender violence in Barcelona." With the utilization of the WEARPURE.TECH material, if scaled up, the RESPIRA benches can help reach and maintain target 11.6, "complying with the air-quality thresholds recommended by the WHO." Additionally, like CO-MIDA, RESPIRA is loosely related to target 11.3, "healthier and more sustainable public spaces," target 11.7, "greener and safer public spaces," and target 13.1, "climate refuge and water garden in every district."

FIGURE 12.2 (a and b) RESPIRA Project
Source: Author created.

Conclusion

Barcelona's approach to sustainability can be seen as exemplary for other cities in terms of governance, finance, and implementation:

- Strategic leadership: The Commissioner for the Agenda 2030, operating under the Third Deputy Mayor, plays a crucial role in promoting and monitoring the Agenda 2030 within and beyond the municipality.
- Inclusive stakeholder engagement: The city actively engages diverse public, private, and civil stakeholders in its sustainable transition through the Barcelona + Sostenible program. This initiative provides visibility for members, networking opportunities, access to grants, and guidance towards a sustainable approach. Recognizing the key role of private sector and civil stakeholders in achieving sustainability, the municipality emphasizes the strategic involvement of these actors in innovation and development projects.
- Integrated budgeting and monitoring: Barcelona takes a direct and transparent approach by linking the SDGs to municipal strategies and the budget. This integration facilitates straightforward monitoring of budgetary efforts dedicated to sustainability. The Barcelona Voluntary Local Reviews provide a detailed overview of sustainability expenditures, ensuring accountability and transparency.
- Longstanding commitment to sustainability: Barcelona's commitment to sustainability started two decades before Agenda 2030. By embracing Agenda 2030 and incorporating the SDGs, Barcelona has established a cross-sectoral framework, a key tool linking various projects and enabling systematic progress monitoring. This means that municipal developments, urban innovation initiatives, and research projects funded by the municipality can all be assessed and evaluated in alignment with the SDGs.

The Barcelona Agenda 2030 has two significant accomplishments. The first is the localization of targets with measurable indicators assigned to them. These quantifiable indicators offer an objective lens to assess not only municipal policies but also the socioeconomic effects of the COVID-19 pandemic in relation to the city's sustainable progress. Second, the Agenda 2030 can be considered as a collection of diverse cross-sectoral strategies synchronized to achieve systematic sustainability. The City Council of Barcelona sees the Agenda 2030 as a framework that connects various municipal departments, their strategic plans, and targets. It serves as a tool for understanding and communicating the common interests underlying all municipal strategies. Beyond municipal terms, it provides the opportunity for longer-term planning under the same framework. As highlighted in the 2022 Voluntary Local Review, "the SDGs can be very useful as a mechanism for guidance, prioritisation and warning, both for the City Council and for the city as a whole" (Barcelona City Council, 2023a, p. 157). This approach is demonstrated by aligning municipal projects and initiatives with the Agenda 2030. However, this alignment is not always direct. In the case of the 'Proactive City' initiative for urban innovation, the general aim is to improve sustainability and urban resilience, yet the specific targets of the Agenda 2030 are not explicitly

mentioned. While this approach provides flexibility to innovators, allowing them to explore new ideas that can address a diverse set of challenges, a more explicit call for innovation aimed at achieving specific SDG targets could have a more measurable impact. Given that the SDG targets vary in scope, ambition, and even relevance, developing a methodology that outlines how innovation can be linked to the Agenda 2030 poses a challenge.

Notes

1 In 1992, the Earth Summit in Rio de Janeiro aimed to devise strategies for a sustainable development model. The outcome was Agenda 21, a practical plan guiding governments towards sustainable development. Two years later, the first European Conference on Sustainable Cities and Towns in Aalborg, Denmark, resulted in the Aalborg Charter. This commitment by European cities involved active participation in local Agenda 21 initiatives, fostering programs to promote urban sustainability (Barcelona + Sostenible, n.d.). In 1995, the Barcelona City Council approved joining the Aalborg Charter. This decision served as the initial step towards creating a local Agenda 21 (Barcelona City Council, 2012). After a long consultation process, Barcelona established its Agenda 21 in the form of the Citizen Commitment to Sustainability 2002–2012 (Barcelona City Council, 2012). This document outlined principles, objectives, and action plans to progress towards a more livable city.
2 Browse the full list at: https://www.bcnsostenible.cat/web/punts?search=&districte=&barri=&categoria%5B%5D=b04&categoria%5B%5D=c03&multi_word_search=W10%3D&v=list.

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13

THE EUROPEAN SUPPORT AND COORDINATION FOR SUSTAINABLE DEVELOPMENT GOAL VOLUNTARY LOCAL REVIEWS

Alice Siragusa, Cecilia Bertozzi, Paola Proietti and Iraklis Stamos

Introduction: why the Joint Research Centre has been supporting European Union cities to produce Voluntary Local Reviews

The European Commission (EC) is the European Union (EU) institution in charge of the effective execution of the EU priorities agreed by Member States (MS). Therefore, the EC is the best-positioned EU institution to guarantee a harmonious implementation of EU policies in all territories. The EC also manages most of the EU's long-term budget, which totals EUR 1.211 trillion for 2021–2027. In response to the pandemic, in June 2021 the EC mobilized an additional EUR 806.9 billion to support the 'Next Generation EU' fund, a temporary instrument to support the recovery (Kowald & Pari, 2023).

Sustainable development is established at the core of the EU treaties[1] and has been addressed by several strategies over time. In November 2016, in response to the 2030 Agenda (United Nations, 2015), the EC published a communication, "Next steps for a sustainable European future – European action for sustainability" (European Commission, 2016). The EC's goal stated in this Communication was to "fully integrate the SDGs in the European policy framework and current Commission priorities". Moreover, in 2017, the European Parliament (EP) called on the EC, Council, and EU agencies and bodies to immediately pursue a comprehensive and coordinated assessment of existing EU policies and legislation to support the effective implementation of the SDGs (European Parliament, 2017).

In 2019, the EC released a Reflection Paper entitled "Towards a sustainable Europe by 2030" (Directorate-General for Communication, 2019) committing the EU to fully integrate the SDGs in the EU policy framework and to recognize the principle of multilevel governance in the elaboration and implementation of such policies. Moreover, Local and Regional Governments (LRGs) were called to be more involved in the SDG implementation and to

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uncover the potential of their contribution (CoR - ECON Commission, 2023, pp. 8–9; European Parliament, 2023).

In this context, the Directorate General for Regional and Urban Policy (DG REGIO)[2] and the Joint Research Centre (JRC)[3] decided to start a project in support of local authorities willing to engage in SDG monitoring, building on their experiences both in monitoring urban and territorial phenomena and in funding sustainable development projects.

The Territorial Unit of the JRC began the research project URBAN2030 in 2018, aiming to provide EU cities with guidance on how to effectively monitor the SDGs through the design of Voluntary Local Reviews (VLRs), a framework that could also facilitate benchmarking performances among European cities. DG REGIO supported the project.

Monitoring is a crucial aspect of the SDGs, including data collection, analysis, and dissemination of results to local policymakers, communities, and other stakeholders. SDG monitoring offers a holistic approach to sustainable development, and support for evaluating achievements and shortcomings. LRGs can use it to stimulate open discussions with partners based on evidence and to design ad hoc actions for local challenges. Spillover effects for the administrations include breaking silos among sectoral policies and improving data management and sustainability competencies (Ortiz-Moya & Reggiani, 2023).

The JRC is the in-house science service of the EC. Its mission is to deliver world-class science-for-policy support to bring Europe closer to citizens and places, turning territorial diversity into value. In particular, the Territorial Development Unit (B.3) of the Directorate Fair and Sustainable Economy supports the urban and territorial articulation of the EU policy agenda, its external investments, and global outreach. The Unit also aims to strengthen the EU's global role in putting forward place-based solutions for a more sustainable and resilient future. The Unit is responsible for developing the Urban Data Platform Plus (UDP+), a joint initiative of the JRC and DG REGIO. As a main component of the Knowledge Centre for Territorial Policies, the UDP+ provides access to information on the status and trends of cities and regions, EU-supported urban and territorial development strategies, and the local dimension of SDGs. The UPD+ offers in detail:

- A dedicated knowledge repository for the localization of SDGs.
- A comprehensive overview of the performance of cities, provinces, regions, and countries in societal, economic, and environmental domains based on the collection of official and experimental indicators. Users can check specific indicators for their place of interest and compare their performance with that of other territories.
- Trends in cities, provinces, and regions in Europe and beyond, including future projections (based on modelling techniques, e.g. the Land-Use based Integrated Sustainability Assessment (LUISA) pan-European land-use model) (Lavalle et al., 2020; Diogo et al., 2023).

- Policy-learning tools for the design, implementation, and monitoring of strategies for urban and territorial development and Sustainable Urban Development (SUD), Integrated Territorial Investment (ITI), and Community-led Local Development (CLLD) strategies implemented across Europe.
- Thematic analyses that make sense of data, based on the best available quantitative and qualitative information (including surveys to public governments, analysis of program databases, etc.), as in the case of analysis of homelessness in EU cities and towns before and during the COVID-19 pandemic (Van Heerden et al., 2022) and in the place-based approach to migrant integration, analysing SUD strategies and the integration of migrants in functional urban areas in the EU (Fioretti et al., 2021).
- Specific tools for downloading and analysing data sets based on different formats.

The first *European Handbook for SDG Voluntary Local Reviews*

In February 2020, the JRC published the first edition of the *European Handbook for SDG Voluntary Local Reviews* (Siragusa et al., 2020) (hereafter the "*Handbook*"). As the main output of the URBAN2030 project, this publication intends to support European cities in producing VLRs, involving local experts and city officials, and addressing policymakers. The *Handbook* consists of two main elements: a framework for selecting appropriate indicators for local monitoring; and a proposal of a set of local indicators with available data.

The framework considers the Goals, the European context, and the relevance of the Goals to cities. The authors scanned existing databases that comprised indicators at the city level with available data for a relevant number of European cities, to identify potential indicators. The set also included indicators implemented only in one city or few cities but considered particularly relevant. Following this first selection, the authors were able to create an inspirational set of indicators based on the following order of priority: (i) harmonized official indicators; (ii) not harmonized official;[4] (iii) harmonized experimental; and (iv) not harmonized experimental.[5] Keeping a good balance among the examples on the different dimensions of sustainability – environmental, economic, social, and institutional – was another of the authors' goals.

As a result, 71 indicators constitute the proposed set for the first *Handbook*. Each indicator is illustrated according to the elements discussed in the framework. More than half of the examples are official indicators. Many come from EUROSTAT – Cities Statistics Database (Eurostat, 2024), the harmonized official database compiled by the European Statistical Office, while a number are sourced from published VLRs of EU cities (e.g. from city statistics), or national or local databases.

By scanning the existing databases, it was possible to identify metrics that can be compared across cities in Europe over time, thus enabling the analysis of European trends and of the contribution of cities in achieving the Goals in the EU. The indicators also captured metrics that are local-specific, designed on purpose to measure challenges that have relevance in some territories, but not in others. This combined approach is one of the key aspects differentiating this publication from others of the same period related to the localization of the SDGs. Other approaches rely mostly on existing indicator databases collected by international organizations and suggest their use for goals or specific targets, as in the case of the Organisation for Economic Co-operation and Development (OECD) regional database, or propose the collection of new indicators, as in the case of UN-HABITAT. The combined approach proposed is intended to take advantage of the existing standardized collection of indicators, but, when statistics for specific goals are not available, we proposed to complement the indicator set used for VLRs with locally collected or even experimental ones. The core of the *Handbook* is indeed designed to provide examples, with clear indications on data collection, context, and limitations to their analysis and interpretation, with references.

Another novelty is represented by how the indicators are illustrated to the users (*inter alia* Cavalli et al., 2020; CEMR-CCRE & Platforma, 2020; Local Government Association & UK Stakeholders for Sustainable Development (UKSSD), 2020; OECD, 2020; UCLG Community of Practice on VLRs & UN-Habitat, 2020). For each indicator, the *Handbook* provides the definition, the calculation method, a description of its performance in the European context, as well as a brief discussion of its potential limitations and interpretation issues, and its metadata. Users in local governments indicated these elements as the most useful – a go-to reference – enabling a deeper understanding and therefore a better appropriation of indicators, beyond the dry numbers.

Finally, beyond providing essential technical information on how to use the indicators, the *Handbook* also connects them to the broader context in which the SDG monitoring takes place: migration, energy poverty, climate change, economic crisis, and gender equality are some of the topics touched upon.

According to JRC records, the *Handbook* has been downloaded 15,000 times since its publication, demonstrating the need for such guidance in the VLR community.

Dissemination and piloting of the Handbook

The *Handbook* was launched at the 10th session of the World Urban Forum in Abu Dhabi (8–13 February 2020). Only a few weeks later, the COVID-19 pandemic struck. Local governments, and European cities in particular, were facing unprecedented challenges, and priorities were rapidly shifting. Most of the events moved to the online format, forcing the JRC to change its plans for dissemination and implementation.

Within this context, the JRC decided to organize a series of online dissemination events: training at the High-Level Political Forum on Sustainable Development 2020, a workshop at the European Week of Regions and Cities, and a dedicated training co-organized with UN-Habitat, addressed to European cities and local governments. These activities intended to keep high attention on SDGs despite the ongoing crisis, and to foster progress on the monitoring and actions toward their achievement. Therefore, the training focused on the structure and rationale of the *Handbook* as an instrument to facilitate the work of local authorities, while also providing a deep dive into examples of specific indicators, their rationale, and calculation methods, all to ease their appropriation by local stakeholders so that they could produce VLRs.

At the same time, being aware of potential limitations of the first edition, and spurred by possible changes induced by the pandemic, the JRC decided to partner with six European cities (Reggio Emilia, Bratislava, Oulu, Porto, Seville, Valencia) to test the first edition of the *Handbook* for improvement. In each city, the JRC tasked a local expert to verify the availability, quality, and frequency of the indicators proposed in the *Handbook*, as well as their relevance to the local context. Local administrations collaborated with experts, ensured access to databases, shared information, held meetings, followed the process, and provided inputs. Working with experts was extremely relevant to avoid creating a burden on administrators, but also provided new knowledge tailored to each city. The result of this activity – carried out in about six months – was captured through a JRC report (Siragusa et al., 2021). In addition, every city received a final detailed report that could serve as a starting point for engaging in a VLR process.

Over the same period, the JRC also investigated two topics of relevance for the development of VLRs: first, the dimension of multilevel governance for the SDGs; and second, an analysis of the use of indicators in published VLRs. This last work explored how local governments had used indicators to produce VLRs between 2016 and early 2021 (Ciambra et al., 2023), and proved key to understanding how cities were building their SDG monitoring frameworks, and how this had evolved from the first VLRs to the most recent ones.

Moreover, the JRC also took stock of experiences and activities carried out by the United Nations, as well as organizations at national, regional, and local levels (e.g. Asker Kommune, 2021; Biggeri et al., 2021; Bilsky et al., 2021; ESCAP, 2020; EUROSTAT, 2022; García-Pardo et al., 2021; Geraghty, 2021; Pipa & Bouchet, 2020; Platforma & CEMR, 2021).

Between 2021 and 2022, the JRC's work was informed by good practices and new insights at the local level, including the integration of SDGs into local budgeting, to better bridge the monitoring with the implementation of policies to significantly improve cities' performance toward the SDGs (Denti, et al., 2022).

The second European Handbook for SDG Voluntary Local Reviews

All the knowledge acquired through these different activities fed into the second edition of the *Handbook* (Siragusa et al., 2022), launched at the 11th Session of the World Urban Forum in Katowice, Poland in June 2022.

Compared to the first edition, the 2022 edition features a similar number of indicators (72 instead of 71) (see Annex 1). However, 17 indicators were deleted, 10 replaced, and 20 added. Indicators from the first edition were deleted or replaced for several reasons including lack of planned updates; the need for specific tools, software, and technical skills to calculate them (considering the skills available in the administrations); and availability of data only at a lower level of disaggregation, such as NUTS 3 level.[6] As in the first edition, the indicators proposed are not new, but existing ones collected by different types of institutions (i.e. EC, EU agencies, other international institutions, research centres, or national and local governments).

In addition, the new *Handbook* indicators were linked to targets (54 targets out of 169), and not only to goals, as was the case in the previous edition, which allows them to be more specific and locally adapted. The principle is not to adapt the targets, but rather to help local governments to monitor their achievement and, potentially, to assess their contribution to the global progress. The 2022 edition of the *Handbook* reflects, among other things, on the evolution of the reasons that motivate local authorities to undertake VLRs, and on how different VLRs produced over time by the same city might change across the years.

The 2017–2019 VLRs – so-called "first generation VLRs" – focused primarily on the production of a document that could be used to monitor the achievement of the SDGs in a specific territory, to disseminate results to the public, and to highlight best practices and flagship projects – education and dissemination. We found that the VLRs produced in more recent years have become process-oriented: local governments carried them out because they were interested in the process and overall benefit that they could generate, more than in the documents themselves. The second *Handbook* addresses this change in the first part of the new edition, where we also analysed different models used to prepare the VLR, shedding light on the pros and cons of different approaches (Siragusa et al., 2022, pp. 18–23). Also, the JRC analysed in depth the case of the Basque Country, which created, along with the monitoring of an SDG ecosystem, a coordinated design, implementation, and monitoring of multilevel, multi-stakeholder strategies, initiatives, and actions for each SDG (Hidalgo Simón, 2021).

The 2022 edition of the *Handbook* includes more extended coverage of specific topics that were less dealt with in the first edition because they were considered too difficult to tackle at the local level (such as energy production or water quality), but that indeed also urge local monitoring. Another distinguishing aspect of the second edition is that the authors dedicated specific

attention to two new principles when selecting indicators: the 'Leave No One Behind' (LNOB) principle and decarbonization.

Coherently with the LNOB principle, while selecting the indicators the authors privileged those that could be disaggregated by different dimensions: age, income, gender, sex, ethnicity, disability status, and migration status. Moreover, specific indicators explicitly targeting vulnerable groups and minorities were also added to the list, e.g. Unemployed jobseekers with disabilities and long-term illnesses or Employment among different migrant or ethnic background. As a result, about one-third of the 72 indicators touch upon aspects related to the LNOB principle.

On the same line, the 2022 edition also suggested indicators that directly address the need to decarbonize at the local level, e.g. Dwellings with worst energy performances or CO_2 emissions, as well as indicators that indirectly address the need to decarbonize, e.g. Registered private vehicles or Surface water with high ecological status. As a result, 19 out of 72 indicators (26%) refer to the goal to decarbonize our societies.

Finally, the new edition benefitted from cooperation with external partners including the Norwegian Association of Local and Regional Authorities (KS) and Statistics Norway on the application of a taxonomy for SDG indicators.

Several dissemination activities followed the launch of the 2022 *Handbook* in Katowice: an online event took place in July 2022 to present the *Handbook* to the international community as well as the results of the research works published in 2020–2021, then training took place in October in Seville, gathering representatives from about 20 European cities.

In addition, to increase the local ownership and the potential use of the *Handbook*, it was decided to make it available not only in English but also in other languages. To this end, the JRC translated and published the *Handbook* in Spanish and French.

Despite the progress and improvement of the 2022 edition of the *Handbook*, some limitations and challenges remain. It was difficult, and sometimes not possible, to tackle some relevant topics that are currently foreseen in EU policies, but for which there are no consistent data or no indicators with a solid methodology developed yet. For example:

- Goal 2 – the authors could not find relevant indicators on sustainable local food systems (short production chains, local markets and locally produced and consumed organic food, urban food waste management), despite their strong link with strategies such as Farm to Fork (European Union, 2024). Initiatives such as the Milan Urban Food Policy Pact (2020) propose relevant indicators; however, the related data are not yet available.
- Goal 12 – no indicator was found to illustrate the progress of the circular economy in specific sectors such as construction.
- Goal 13 – the authors aimed to insert an indicator on carbon footprint; such an indicator would include all greenhouse gas (GHG) emissions,

and all emissions associated with imported goods and services produced domestically or abroad, as well as emissions associated with waste exported outside the jurisdictional bounds. This would allow the local administration to have an estimate of their real contribution to carbon emissions. However, no consolidated database was available. Therefore, an indicator of CO_2 emissions, with a more restricted focus but with available data, was included.

Cooperation with external experts and with the VLR community was also a stimulus to identify knowledge gaps that the JRC could address. LNOB and decarbonization were addressed not only as criteria for the selection of indicators but also as specific fields for more in-depth research. For example:

- On the LNOB principle, the question was asked if the 2030 Agenda was a useful tool for local government to approach inequalities. This was again tackled by cooperating with local governments: 24 of them that worked on the SDGs were asked to reply to a survey and interviewed to analyse how European cities make the LNOB principle operational in mission statements, policies, and budgets (Denti, 2022).
- On the urgency of reducing carbon emissions, in line with the EU priorities, the relationship between the efforts to decarbonize and localize the SDGs was explored through a case study on Madrid (Ciambra, 2022; Ciambra et al., 2023). This is particularly relevant given the European Green Deal objective to achieve carbon neutrality by 2050.

Is data availability enough to monitor the achievement of the SDGs effectively?

Producing VLRs is not only an issue of identifying, collecting, and analysing data and indicators – which comes with technical challenges. Producing a VLR means embarking on a process that builds on technical capacities and activities, involving all sectors of LRGs, but that also requires a deep engagement of the political sphere. In a context of shortages of resources, which affect local and regional administration in particular, the decision of assigning the necessary financial and technical means to producing a VLR must stem from an understanding of its broader potential, beyond the mere output document.

Being voluntary by nature, political leaders must be convinced about the usefulness of the VLR. They must accept that VLRs will put the local policies and actions under the spotlight and be open to public scrutiny with data to discuss. Two important elements of producing a VLR are: (1) what they include, and (2) how they are disseminated. The EC has focused its efforts on providing technical and scientific support to cities and local governments willing to monitor the SDGs in their territories but needs to recognize the political sensitivity of scrutiny and public action.

VLRs are documents that also include a selection of the so-called *transformative actions*, those that can accelerate the achievement of specific or multiple goals and targets, act as a game changer, or go beyond ordinary actions. When selecting the actions to be included in the VLRs, the LRGs also build a narrative that cannot be ignored. An interesting example in this sense, among many others, is the VLR of Espoo (Finland), which established a consultative process for the selection of the *Espoo Stories* (Espoo ESBO, 2024): all city departments were consulted in the process and asked to write stories that better represent their effort to tackle each of the SDGs.

A combination of bottom-up and top-down approaches

In trying to respond to the knowledge needs of local governments, the EC approach to local SDG monitoring was a mix of top-down and bottom-up.

The EC, and specifically the JRC, recognized from the beginning the need to provide a reference framework to EU cities, especially the ones with limited capacities and skills. The framework and the suggested indicators can be seen as a top-down approach. This was motivated by the acknowledgement of a lack of guidance for local government: the first examples of VLRs lacked coherence, and sometimes robustness and comparability. Indeed, these first VLRs differed greatly among themselves: some covered all SDGs, others just a few of them; some VLRs included indicators from official statistics, but also data collected with empirical methods without a clear reference (thus they were impossible to replicate elsewhere); few local governments used a participatory approach, whereas others centralized the production only within the administration or only through outsourced processes.

However, the JRC also acknowledged that the localization, and therefore the monitoring, of the SDGs needs a translation/adaptation/interpretation of the 2030 Agenda to the different local contexts, recognizing that the VLRs movement emerged almost spontaneously by the actions of frontrunner cities and regions (New York City, The Basque Country, Helsinki, etc.) and that its objective is to inform local action and spur local progress. To stay true to the nature of the VLR movement, the JRC has adopted a twofold process: (1) *Handbook* indicators were extracted from published VLRs, designed in the specific local contexts, but enabled to translate to other places; and (2) cities have been involved in the piloting phase of the *Handbook*, providing comments and contributing to revisions. The latter process included 45 experts from different organizations and local governments.

The peer-learning potential between local contexts is one of the most interesting "side-effects" of a tool such as the *Handbook*, and the activities it generates: local contexts can connect and exchange among them, find common challenges, and compare among themselves. Although comparability for ranking purposes has been recognized as important for creating a common ground and a common language across contexts, it must also support the creation of new solutions, that are inspired by faraway places.

Interestingly, the transferability does not apply merely to a specific solution to the same challenge but, in the more mature contexts, it can also apply to a strategy, or an approach, or a means of implementation. In this sense, it is possible to operate a blend between the more horizontal elements of the *Handbook*, the common indicators – elaborated through what can be described as a top-down approach – and the "vertical elements", or the locally designed indicators – fit for the local context. It appears that a balance of the two elements constitutes one of the main factors in the success of the *Handbook*, and in the significance of the overall VLR activity, when considered globally.

Breaking silos: is it working?

One of the main elements promoted by the EC is the integration and territorialization of policy actions. This means in practice that EU funds that are deployed to implement urban sustainable development strategies adopt an outward-looking perspective that considers the interdependence between different urban areas, and across scales. These strategies integrate the targeted area into a larger context, and the project into a wider strategic framework (Fioretti et al., 2020). They are a way to deploy the integrated approach promoted by the 2030 Agenda to urban actions.

The European approach to local SDG monitoring proposed and supported by the JRC in recent years proposes a guide to navigate the difficulties of adapting a system designed for countries to local communities and territories. However, the European territory is extremely heterogeneous in terms of settlements, territories, economic activities, and social and cultural contexts, therefore challenges and opportunities for sustainable development are diverse. Designing a unique local SDG framework still presents several technical and methodological challenges that are often overcome by adapting a European framework to local or national contexts. The future work of the JRC may need to focus on the relations between different systems and how to optimize the efforts on this topic. Moreover, research work might resolve the lack of methodology and data availability on several topics that have not been covered by previous editions of the *Handbook*, e.g. energy efficiency of EU buildings, or the circular economy. The main challenge for the JRC and EC remains the shift needed to use monitoring tools such as the *Handbook*, to be forward-looking, and to play an anticipatory role by fostering the (experimental) implementation at the local scale of certain policies.

Conclusions and next steps

Because the VLRs moved from output-oriented toward a process system, the JRC also moved toward more policy-oriented support. In the last year, three main spin-offs have been created.

The first includes further analyses and monitoring of the European 'Leave No One Behind' principle at the local level, with a focus on slums and informal settlements in Europe (Denti et al., 2023; Kuffer, 2023), homelessness, child poverty, and job precariousness (de la Rasilla et al., 2024; Denti et al., 2023).

The second activity has been developed via a European Parliament Pilot project implemented by the JRC in collaboration with DG REGIO and Eurostat called "REGIONS2030: Monitoring the SDGs in the EU regions – Filling the data gaps". The project intends to address the data gaps that currently exist at the regional level, to bridge the monitoring at the national and at the local level (Lella et al., 2023; Vega Rapun et al., 2022). The REGIONS2030 project intends developing, testing, and improving a sound and robust framework of indicators to monitor SDGs at the regional level, through the collaboration of ten pilot regions: Βόρειο Αιγαίο (North Aegean), Δυτική Μακεδονία (Western Macedonia), Comunidad Foral de Navarra, Andalucía, Piemonte, Puglia, Pomorskie, Centro (PT), Nord-Vest, and Manisa, Afyonkarahisar, Kütahya, Uşak.

The third activity tries to tackle the SDG interlinkages at the local level. It does so by analysing all published VLRs and the association (where not already available) of included indicators with SDG targets. The analysis includes reported trends for all indicators (positive, negative, and neutral). The analysis focuses on the 62 VLRs published in English at the time of the analysis, followed by the VLRs published in other languages.[7]

The outcome is a database of local SDG indicators which includes the following information:

- Temporal and geographical details.
- Associated primary SDG target (as per the publishing authority or the JRC).
- Reported trends (positive, negative, or neutral as reported in the VLR or the online portal).

Building on these additional results, the JRC is planning a 2024 edition of the *Handbook*. The updated edition of the *Handbook* will be focused on refining the previous edition and highlighting the need to design and develop new indicators to ensure the specificities and particularities of different cities, municipalities, and other local agglomerations are sufficiently captured so that local governments measure (and report on) what they treasure. The 2024 edition will also urge and encourage the inclusion of failure indicators, i.e. indicators that do not necessarily reflect success stories, to identify the areas local governments will need to intervene and act upon to achieve the SDGs and related targets. The *Handbook* will also examine the interlinked nature of the SDGs, both at the monitoring level (i.e. with indicators able to monitor various SDG targets) and at the achievement level (with actions that can

create trade-offs or complementarities to other SDGs). Finally, it will shed light on ways to bridge monitoring and achievement as we approach the year 2030 (and the achievement of Agenda 2030).

Notes

1 Articles 3 (5) and 21 (2) of the Treaty on European Union (TEU).
2 DG REGIO is in charge of the EU Regional policy and is delivered through three main funds: the European Regional Development Fund (ERDF), Cohesion Fund (CF), and European Social Fund (ESF).
3 The JRC provides independent, evidence-based science and knowledge, supporting EU policies to positively impact society. More information is available at: https://joint-research-centre.ec.europa.eu/index_en.
4 Official indicators are those either produced by European or other international institutions (in which case they are normally harmonized at the European level) or collected by national/local statistics offices (therefore not harmonized at the EU level).
5 Indicators produced by individual cities or organizations/institutions, through innovative and experimental methods. They can help in capturing specific local situations and serve as examples and inspiration for local authorities. They can be available for all EU countries (harmonized), or local specific (not harmonized).
6 The NUTS classification (Nomenclature of Territorial Units for Statistics) is a hierarchical system for dividing up the economic territory of the EU and UK for statistics, analytics, and policy purposes. NUTS 3 level refers to small regions, for specific diagnoses. Background can be found at Eurostat: Nomenclature of territorial units for statistics – NUTS: https://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/ks-gq-18-007.
7 Spanish (24), French (7), and Portuguese (5).

Annex 1

SDG	*Indicator*	*SDG Target(s)*
1	Homeless people	1.1 (extreme poverty) and 1.4 (access to basic services)
1	People at risk of income poverty after social transfers	1.2 (reduce poverty) and 1.3 (social protection)
1	Households in social housing	1.2 (reduce poverty) and 1.3 (social protection)
1	People living in households with very low work intensity	1.2 (reduce poverty) and 1.4 (access to basic services)
1	Lone parent private households	1.2 (reduce poverty) and 1.4 (access to basic services)
2	Overweight rate	2.2 (end malnutrition)
2	Land used for agriculture	2.4 (sustainable food production)
2	Food commodity prices	2.c (proper functioning of food markets) and 1.2 (reduce poverty)
3	Infant mortality	3.2 (end preventable deaths of newborns)
3	Illicit drug consumption	3.5 (narcotic drug abuse)

SDG	*Indicator*	*SDG Target(s)*
3	Deaths in road accidents	3.6 (road accidents)
3	Adolescent births	3.7 (family planning)
3	Medical doctors	3.c (health workforce)
4	Children 0–4 in day care or school	4.2 (childhood education)
4	Students in higher education	4.3 (tertiary and vocational education)
4	Early leavers from education and training	4.6 (literacy and numeracy)
5	Gender employment gap	5.1 (end gender discrimination)
5	Formal complaints for episodes of violence against women	5.2 (end gender violence)
5	Female hospitalisation for assault	5.2 (end gender violence)
5	Women in city, municipal, or county councils	5.5 (women participation and leadership)
5	Positions held by women in management	5.5 (women participation and leadership)
6	Quality of water for human consumption	6.1 (water universal access)
6	Population connected to a drinking water system	6.1 (water universal access) and 11.1 (access to basic services)
6	Wastewater safely treated	6.3 (improve water quality)
6	Total use of water	6.4 (increase water-use efficiency)
7	Energy consumption	7.1 (access to energies)
7	Inability to keep house adequately warm	7.1 (access to energies)
7	Dwellings with low worst energy performances	7.3 (energy efficiency)
8	Gross domestic product (GDP) per capita	8.1 (economic growth)
8	Labour productivity	8.2 (economic productivity)
8	Unemployment rate	8.5 (productive employment)
8	Perception about the local labour market	8.5 (productive employment)
8	Foreign employment	8.8 (safe and secure working environments)
8	Accidents at work	8.8 (safe and secure working environments)
9	Journeys to work by public transport	9.1 (passenger volumes by mode)
9	Transport performance	9.1 (reliable infrastructure)
9	Access to high speed broadband	9.c (access to information and communications technology)
9	Employment in mining, manufacturing, energy and water	9.2 (manufacturing employment)

SDG	*Indicator*	*SDG Target(s)*
9	City startup attractiveness	9.3 (access to financial services) and 9.5 (encourage innovation)
10	Unemployed jobseekers with disabilities and long-term illnesses	10.2 (inclusion irrespective of status)
10	Gini index	10.4 (adopt policies to achieve equality)
10	Population foreign-born in a non-EU country	10.7 (migration and mobility)
10	Hosted asylum seekers	10.7 (migration and mobility)
11	Housing access Index	11.1 (access to housing)
11	Shared bicycles	11.2 (access to transport systems)
11	Registered private vehicles	11.2 (access to transport systems) and 11.6 (air quality)
11	Access to public transport	11.2 (access to transport systems)
11	Built-up surface	11.3 (land consumption)
11	Premature deaths attributed to PM2.5	11.6 (environmental impact)
11	PM2.5 concentration	11.6 (environmental impact)
11	Population exposed to NO_2 concentration	11.6 (environmental impact)
11	Population without green urban areas in their neighbourhood	11.7 (public space)
12	Pollutants released from industrial facilities	12.4 (chemical management)
12	Municipal waste	12.5 (reduce waste)
12	Recycled waste	12.5 (reduce waste)
12	Local tourism intensity	12.b (sustainable tourism)
13	People affected by disasters	13.1 (climate-related hazards and natural disasters)
13	Population exposed to river flood	13.1 (climate-related hazards and natural disasters)
13	Population exposed to wild fires	13.1 (climate-related hazards and natural disasters)
13	Eco-friendly municipal vehicles	13.2 (climate change measures into policy)
13	CO_2 emissions	13.10 (Greenhouse gas emissions)
14	Bathing sites with excellent water quality	14.1 (reduce marine pollution)
14	Pollution load of urban effluents discharged to the coastline	14.1 (reduce marine pollution)
15	Surface waters with high ecological status	15.1 (restoration of terrestrial and freshwater ecosystems)
15	Newly planted trees	15.1 (restoration of terrestrial and freshwater ecosystems)
15	Agricultural land abandonment	15.3 (land degradation)

SDG	*Indicator*	*SDG Target(s)*
16	Intentional homicides	16.1 (reduce death rates)
16	Transparency of the public administration	16.6 (efficient and transparent institutions)
16	Voter turnout in municipal elections	16.7 (participatory and representative decision-making)
16	Municipal participatory budgeting	16.7 (participatory and representative decision-making)
17	Municipal council debt	17.4 (debt sustainability)
17	VLR disaggregated indicators	17.18 (increase data capacity)

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14

CONCLUSIONS AND PRACTICE LESSONS

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Background

This chapter summarizes city Sustainable Development Goal (SDG) localization lessons and good practices from the preceding chapters including reflections from Chapters 2 and 3. We have extracted several examples of implementation strategies from the city chapters to illustrate. Cities were provided with seven steps in the implementation cycle so that they would work from a common framework and report on their experience with examples of practices and these are:

1. Mapping, vision, and gap analysis: this compares the current city context (mapping) with what the city wishes to do (vision) and proposes what could be done (gap analysis).
2. Selection of projects: based on what can be done in terms of who, what, when, how much, and why.
3. Feasibility: examines real and possible constraints, risks, opportunities, etc.
4. Engagement and communication: staff and stakeholder onboarding, incentives, etc.
5. Roles, responsibilities, resourcing, and governance: how projects will be implemented in practice including action plans, budgeting, etc.
6. Evaluation mechanisms: descriptions of how projects, each SDG, and the overall vision can be evaluated.
7. Monitoring: systems, feedback, and adoption.

From the above seven steps, which should be seen as a checklist, we have identified patterns of similar and divergent activities. Not all cities will need to do everything from scratch; for example, many cities had sustainable

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development programmes before the SDGs were formulated so could harness and, where necessary, hop over or adapt existing activities. Also, the above cycle will not necessarily be run in the sequence given, for example it is commonplace to design an initial monitoring framework earlier to provide ongoing iterative feedback as cycles within cycles, and then refine this framework through experience as well as in response to changing needs.

The implementation cycle used demonstrates the need for cities to:

- develop measurable goals and identify the stakeholders and their roles in contributing to SDG localization,
- identify risk factors and ways to increase resilience in collaboration with stakeholders,
- design governance mechanisms as the only democratically legitimate framework that has the mandate to represent all stakeholders and can therefore balance competing interests and seek win-win impacts,
- develop governance mechanisms as a system that brings together actors/nodes working on various SDGs to connect the various parts of the network into a coherent shared vision and monitoring system,
- identify incentives and techniques to break down silos and support collaboration between stakeholders to improve effectiveness and efficiency, as well as innovate in stakeholder engagement to realize more significant impacts.

The above implementation cycle is adapted to structure this chapter to avoid overlap and repetition in the good practices presented:

1. City context and vision
2. Localizing the SDGs
3. Governance, leadership, and resources
4. Stakeholder engagement, partnerships, and collaboration
5. Implementation, monitoring, and impacts
6. Sustainability.

Please note that in the following, although the cities highlighted in bold are the immediate source, many of the other cities had similar experiences, although always mirroring their own specific context and needs.

City context and vision

Cities develop a wide variety of overarching ideas and visions, and articulate strategies to implement them, largely dependent on their mix of historical and contemporary, social, economic, environmental, and political contexts. Also important are existing and planned city policies and the relative power of and inputs made by stakeholders, including city inhabitants. Alignment with

national policies and with legal and regulatory frameworks is typically necessary, and all cities are subject, to a greater or lesser extent, to large-scale national and international political and economic conditions.

In **Los Angeles** (3.7 million inhabitants, USA) the decision to implement the SDGs grew out of existing plans, including the Green New Deal and participation in the global C40 Cities network. Prominent individuals with global connections were crucial in adapting and localizing the SDGs. Thus, the SDG vision grew directly out of what the city had been doing for some time, so continuity and building on existing policies and achievements, and learning lessons from them, are the drivers. In contrast, the vision of **Mexico City** (22 million inhabitants, Mexico) represents a break with the past by committing to transition towards an innovative city based on democratic and service rights defined in the 2019–2024 Government Program for Mexico City. This is a future vision of how to combat inequalities, divisions, and poverty and showing inhabitants how to participate in defining service types and levels. Similarly, the approach of **Kelowna** (166,000 inhabitants, Canada) is grounded in the poverty challenge as a key limitation to achieving SDG progress. In this case, however, most poverty results directly from historical stigma, conscious and unconscious bias, and racism that continue to impact the city, particularly related to Indigenous Peoples. The city undertook the *Imagine Kelowna* initiative in 2017, a strategic community vision supported by City Council endorsement, providing the context for bottom-up community-led development by volunteers.

The vision of **Malmö** (337,000 inhabitants, Sweden) is based on the long-term need to transform away from its history as a major heavy industry hub, overcoming a period of exposure to harsh external shocks, into an innovation and sustainable living epicentre with a young and diverse population. This involves demonstrating that economic growth, environmental stewardship, and social transformation can go together towards urban development that enhances, rather than compromises, the quality of life for its residents through urban and social regeneration. The suburban municipality of **Gladsaxe** (70,600 inhabitants, Denmark) in Greater Copenhagen also has a long-term vision of integrated social, environmental, and economic sustainability. However, this is not based on escaping a history of outmoded heavy industry, although like Malmö it has an industrial strategy promoting high-tech modern enterprise, including health and pharmaceuticals. Gladsaxe was the first municipality in Denmark to integrate SDGs into its strategy, core organizational operations, and services. This shows how the SDGs can help raise the bar in developing the municipality's core tasks, while also contributing to a better life for future generations.

Like Malmö, **Barcelona** (1.6 million inhabitants, Spain) was dealing with the challenges of deindustrialization, rising unemployment, abandoned factory buildings, a deteriorating city centre, and an inaccessible and contaminated waterfront. Barcelona initiated urban revitalization efforts, through

many neighbourhood renewal programmes focused on recapturing the city's traditional sense of community. This gained momentum with the hosting of the 1992 Olympic Games, which both accelerated and amplified the renewal programme leading to the physical regeneration, rebranding, and redefinition of the city as the 'coolest city in Europe' focusing on tourism. However, today this is encountering conflicting interests including rising real estate prices, gentrification, public space commodification, and overcrowding.

The commitment of **Shah Alam** (686,966 inhabitants, Malaysia) to the 2030 Agenda also encompasses social, economic, and environmental aspects. The city's active engagement builds on the Malaysian government's 2011 Low Carbon City Framework (LCCF) with its vision of pioneer green townships across Malaysia. In 2017, the government designated Shah Alam as one of the Front Runner Cities representing Malaysia and received sponsorship from Japan's Institute for Global Environmental Strategies. Malaysia's Ministry of Local Government Development has to date supported seven cities, including Shah Alam, to successfully complete a VLR.

Minamata (23,527 inhabitants, Japan) suffered major pollution crises that demonstrated the interconnectedness of environmental health, human health, non-inclusive governance, and growth-only centred development. Since then, it has miraculously rebounded to become "Japan's No. 1 Eco-Town", propelling it as a global exemplar. It also prioritizes its own traditional strengths based on past success, ecology, and human resources, and demonstrates the importance of transboundary regional, national, and global interactions.

Cape Town (4.5 million inhabitants, South Africa) both reflects and stands in contrast to the national situation and to much of sub-Saharan Africa. It is an African economic hub generating 32% more income than the national average and becoming Africa's number one tourist destination. It has the region's leading technology innovation cluster, a world-class central business district, and some of Africa's best academic institutions, and has made remarkable contributions to modern science and medicine. Its apartheid history and aftermath, plus a diverse multi-ethnic culture and 11 linguistic groups also mark its politics and development. It has a significant desire for change, but hampered by a difficult economic environment is slowly tackling its agenda.

Localizing the SDGs

The SDGs were launched by the United Nations (UN) in 2015 to run from 2016 to 2030 as Agenda 2030. It is providing guidance, design frameworks, implementation, common targets, and metrics for use by national governments and their partners, which would enable countries to learn from and support each other. Shortly after, UN-Habitat led the development of harmonized indicators to track SDGs at the local level focused around three components: the Global Urban Monitoring Framework; the Voluntary Local

Reviews (VLRs); and the SDG Cities Flagship Programme. Localization by cities, regions, and other sub-national entities requires special adaptation efforts, of which there are three main starting points each involving a mix of government and non-government stakeholders: top-down direction and support by the national government; bottom-up, largely driven by the city government and stakeholders themselves; and a mix of both, i.e. close collaboration between the city and the national government on at least important aspects of design and implementation.

The EU's **Joint Research Centre** supports SDG localization in Europe as one of the first attempts by a sub-global intergovernmental organization to assist cities in its territory to align with and adapt to the SDGs. Outputs include the *European Handbook for SDG Voluntary Local Reviews* providing guidance and support for implementation and monitoring with a tailored framework of indicators. To facilitate mutual learning, advanced training and coordination sessions with European cities help share experiences and good practices and provide additional insights and guidance.

The survey of 40 VLR reports in Chapter 3 shows that, whereas some cities focus on all 17 SDGs, others select a smaller number. This often relates to the city's size, income, and/or location. Generally, large cities have the capacity to engage in activities on all SDGs, while smaller cities may not have the required resources. Similarly, cities that have high per-capita incomes may not need programmes reducing poverty, while cities that are not coastal will not have programmes related to oceans or water bodies.

Los Angeles, given its size, considerable resources, coastal location, and serious environmental and societal challenges, has chosen to report on all 17 SDGs deploying a largely bottom-up, self-reliant process that also relies on collaboration with other cities, think tanks, foundations, and local colleges and universities. The city was motivated by the idea that local governments could "own and implement the goals" even in the absence of national leadership (Bromaghim, 2022). In contrast, and although **Mexico City** is one of the world's largest cities, its strategic importance to the country means it is strongly guided top-down by the 2019–2024 Government Program (Program 19–24) and the National Council for Agenda 2030. This led to the city's General Development Plan 2020–2040 with, in principle, all SDGs in play. However, given the city's challenges, it focuses on inequality at the local level to ensure all residents have access to all human rights, especially health, education, mobility, housing, water, and sanitation. This includes a universal scholarship for all children, and more schools, universities, community centres, and hospitals. Like Los Angeles, **Kelowna** has deployed a bottom-up approach to its SDGs, but from a sharply contrasting context using a quite unique approach. Being one of the first Canadian cities to localize the SDGs, the entire VLR was largely designed and implemented by a team of local volunteers without formal funding. As in Mexico City, poverty is a major challenge affecting many SDGs related to various demographics (especially

race and age). The purpose is to ensure equitable access to health and well-being, quality education, and affordable sustainable housing.

Malmö's SDGs support its transformation from old heavy declining industry towards a smart, intelligent, socially and environmentally sustainable economy, largely designed bottom-up by the city itself. All SDGs are seen as relevant, indivisible, and necessary to understand connections, improve collaboration, and bridge between silos. The focus is on sustainable cities and communities; climate action; industry and innovation; reduced inequalities; sustainable food; education; and partnerships. Arising from the 2020 Growth Commission for an Inclusive and Sustainable Malmö, a five-fold localization process was deployed:

1. Integrating SDGs into regular steering and management systems.
2. Providing sustainable development through organization development.
3. Planning communication and participation for learning and support.
4. Increasing awareness for conscious decisions.
5. Developing innovative partnerships that make a difference.

Gladsaxe also deploys a bottom-up self-designed approach using six long-term cross-cutting strategic goals, each integrating several SDGs: a good place to live; children shaping the future; equal opportunities; health and well-being; a business-friendly city with job growth; and climate action. Several discussion loops between municipal politicians, staff, and stakeholders resulted in a virtuous circle of pragmatic approaches that fit local contexts and integrate SDGs into local issues. **Barcelona**, with its significantly devolved governance powers and commitment to sustainability two decades before the SDGs, has also designed its localization strategy largely bottom-up. The City Council established targets both relevant at the neighbourhood scale and reflecting the city's socio-economic and political context of its heavy industrial past and the need for physical regeneration and rebranding. Projects focus on SDG 11 (Sustainable Cities and Communities) but extend across the broader scope of SDGs.

Shah Alam deploys the Malaysian government's SDG Cities framework with standardized guidelines for city VLRs reflecting national policies but also local needs and priorities, thus mixing bottom-up and top-down approaches, as do five of the other six Malaysian cities. The exception is Penang which started its own SDG localization before the government's guidelines were in place. The strategy focuses on healthcare, education, and community cohesion; equity, entrepreneurship, and local prosperity; and reducing its carbon footprint. Cross-pillar themes include community empowerment and enhancing urban governance.

Minamata became one of Japan's 1997 'Eco Towns' starting on many targets that were later incorporated into the SDGs, while also prioritizing its own traditional challenges and strengths alongside transboundary

interactions within the region, the country, and internationally. Minamata also deploys a mixed top-down and bottom-up approach to SDG localization but also overtly links this to transboundary interactions. The Second Term Minamata City SDGs Future City Plan (2023–2025) divides its measurable initiatives into two groups:

1. Preferential Goals and Targets for Achieving the 2030 scenario for the Economy, Society, and Environment, focusing on realism, age (both youth and the elderly), and citizen involvement.
2. Initiatives for the promotion of the Local Government's SDGs, including work and growth, tourism, education, health, reducing CO_2, recycling, and cooperation for environmental conservation.

SDG localization in **Cape Town** is strongly framed top-down by nationwide challenges in the 2012 National Development Plan, including youth disenfranchisement, women, the poor and indigenous, poverty and hunger, water shortages, the economy, combatting low-value work, and the huge energy crisis. Cape Town, however, can also shape its own bottom-up approach based on its strengths as one of Africa's economic powerhouses, through the city's Integrated Development Plan (2017), the 2019 Resilience Strategy, and its post-pandemic Recovery Plan (2021).

Governance, leadership, and resources

Governance, leadership, and resources are the elements that knit all actors together and provide the means for the successful implementation of SDG localization. Although this depends on many contextual factors, there are important lessons to learn from the in-depth experience of cities.

Los Angeles illustrates the importance of political will and continuity or the lack of it. Up until 2023, the mayor was politically committed to expending resources to implement SDG projects. Today, however, it is unclear whether projects are sufficiently institutionalized and aligned with the new mayor's priorities. Understanding this threat, the former deputy mayor suggests that the federal government should financially support city-led initiatives like SDG implementation given their importance, but it is as yet unclear whether this will happen. The city also shows how additional funding for projects from an important stakeholder can boost efforts. We note that in 2017, the philanthropic Hilton Foundation provided 'proof of concept' funding for SDG localization. **Mexico City** has focused on significant coordination between agencies to tackle silo bottlenecks especially where problems are complex requiring multi-sectoral solutions. This can extend to outside stakeholders, for example, with women's groups supporting the Alert against Gender Violence agenda, underpinned by a national constitutional mandate. At national level, water availability is coordinated across states as part of a 2022 agreement

sponsored by the federal government, which is important for Mexico City as a large proportion of its water comes from a different state. Similar challenges are tackled in **Kelowna** but in this case more informally by a team of volunteers with no formal funding, although they are supported informally by City staff linked to approved municipal initiatives. Fostering collaboration and accountability among stakeholders and agencies across highly complex, controversial topics such as racism and poverty, and other systemic and intersectional issues, though highly challenging, has had significant success.

Malmö also focuses on breaking down silos through strong collaboration, co-creation, and knowledge sharing across departmental boundaries, enabling the city to respond speedily and effectively to severe crises, like COVID. City leadership aims to be both risk-taking but also far-sighted and evidence-based in relation to its long-term vision. The budget, which is inevitably short-term, is complemented by longer-term programmes, regulations, and legislation. Similarly, **Gladsaxe** focuses on breaking down silos by building bridges across sectors and municipal policies, as well as with businesses, civil partners, and citizens. Departments are also empowered to determine themselves how each local goal is to be achieved in practice, and a 'license to act' policy incentivizes and empowers employees to develop sustainable solutions and activities in their work. This broadens classic top-down planning within the municipality to one which strategizes an integrative 'circular' approach, bridging perspectives from various branches within and outside the organization through dialogue and cross-functional networks. **Barcelona** deploys Agenda 2030 as a framework that connects municipal departments, their strategic plans and targets serving as a tool for understanding and communicating municipal strategies across sectors. This also applies to the city's focus on strategic leadership with a Commissioner for Agenda 2030, through integrated budgeting and monitoring directly linked to SDG projects and municipal strategies.

Urbanice Malaysia, a government Centre of Excellence for Sustainable Cities and Community Well-Being, has developed an SDG Cities framework reflecting the government's own organizational structure aimed at facilitating a more manageable process for cities to conduct their VLRs. In Malaysia decision-making power is distributed across federal, state, and local levels. Cities like **Shah Alam** have a degree of autonomy with local decision-making authority within their jurisdictions operating within this national framework. The city thus leads its SDG strategy, setting policies and priorities, coordinating specific committees and departments, and collaborating with local partners like businesses, non-profits, and residents. Shah Alam's SDG finances come from various funding channels, including from government, public–private partnerships, international aid, non-governmental organization (NGO) support, and community contributions.

Shortly after its 1950s environmental crisis, **Minamata** began to reform community relations and reform structures for a return to economic viability and justice, with three objectives: establish a city promotion agency linking

relevant activities across city government; form committees and sub-committees of citizen representatives with roundtable meetings; and cooperate with local universities on new forms of energy conservation and biomass production, and with local businesses to salvage rare earth metals and recycle waste.

Cape Town establishes task forces to carry out its main policies, including an SDG Task Force to: align interventions to the SDGs; make data, including local data, accessible to stakeholders; and employ a strategic mix of internal strengthening, national alignment, and global positioning. However, due to financial constraints, a main focus is setting up, and then curating, (social) enterprises using, for example, Entrepreneurial Empowerment Ecosystems (EEEs) for running projects and promoting incubation, acceleration, and investment readiness programmes. It also seeks early-stage venture capital financing and applying for DFI (Pan African Development Finance Initiative) funding. For example, innovation in energy and national infrastructure is encouraged through bank offers of long-term debt instruments with payback periods exceeding 19 years in some cases, which serve as a tool for municipalities and innovators alike to participate in the country's clean energy transition.

Stakeholder engagement, partnerships, and collaboration

SDG 17 directly promotes partnerships and collaborations at the local level as well as at regional and global levels. In our analysis of SDG 17 in Chapter 3, we find much evidence of belonging to national and international organizations, but not enough local engagement, partnerships, and collaborations in achieving other SDGs. Some of these are described under individual goals, but not by all reporting cities. Camillus (2008) drawing on Rittel and Webber (1973) shows that addressing 'wicked problems' requires many stakeholders with different values because the root issues are complex, tangled, and change quickly. In some cases, there is no precedent to deal with the issue, and there is no right answer, so that each city may need to find their own version of a solution. Camillus (2008) suggests that we need to involve stakeholders, document opinions, and communicate widely to engage people into the change effort and focus on action. This is also a call to investigate what others are doing and how we can learn from their mistakes and devise our own solutions for progress.

In addition to this section of the chapter, stakeholder engagement lessons are highlighted in some of the other sections, especially on governance (Chapter 2). This demonstrates the widespread importance of engagement and that it is diffused across almost everything cities need to do to localize SDGs.

Los Angeles has set-up city-to-city collaboration and information sharing. Networks of cities, both across the USA and globally, allow the city to brainstorm with partners elsewhere about creative ways to engage with the SDGs. One aspect of this is academic partnerships both within the city and

further afield. Many other cities have also learned from the Los Angeles approach. Complementing **Mexico City**'s largely top-down SDG localization approach (both in relation to the central government and internally), there are many consultations with city-based, Mexican, and international experts. This also takes place with citizens and other relevant beneficiary groups. For example, the Mexico City *Bienestar en tu Escuela, Mejor Escuela* programme[1] addresses infrastructure deterioration and the renovation of public school equipment. Parents, teachers, and administrators form a committee to determine maintenance and equipment needs. Parents' associations are resourced yearly to define repair and purchasing priorities. Similar community committees address health issues, renovating parks and public spaces, and security challenges. In contrast, **Kelowna**'s group of volunteers who are developing the VLR bottom-up collaborate closely with both civil society and Indigenous organizations. This creates shared knowledge by capturing the voices of different, often left-behind groups, thereby challenging preconceived ideas around 'viable' solutions which have typically not been successful in practice. Beyond the city, Kelowna also collaborates with the Province of British Columbia and regional universities, institutes, and other bodies.

Malmö undertakes inclusive public hearings and multi-stakeholder engagement and co-creation, involving the private sector, small and medium-sized enterprises (SMEs), academia, and citizens. All are taking an active part in shaping the changes needed in the city. **Gladsaxe** municipality collaborates intensely with businesses, civil partners, and citizens, creating partnerships for action, fully appreciating that it cannot make change by going it alone. There is a conscious decision to move away from 'city hall thinking' and become far more open in co-creating solutions. There is no fixed recipe, so it is important to be active, share experiences, and get inspired by others. The UN uses the Gladsaxe example as a good practice that can be adapted to many different circumstances. **Barcelona** is also dependent on inclusive stakeholder engagement with diverse public, private, and civil stakeholders, for example through the Barcelona + Sostenible programme which provides visibility for members, networking opportunities, access to grants, and guidance. Recognizing their key role, the city emphasizes the strategic involvement of these actors in innovation and development projects.

Engaging the private sector in **Shah Alam** is essential but needs to overcome hurdles related to cost concerns and lack of awareness of long-term benefits. Stakeholder engagement involves diverse entities, including the local community, professional bodies, academic institutions, and international organizations. For example, the Low Carbon City 2030 policy is supported by central governmental, private, industrial, educational, and community entities. **Minamata** relies heavily on the restructuring of community relations, community–private sector relations, and citizen–government relations, that together establish a state of readiness as a key element of any new undertaking. In **Cape Town** the role of social EEEs is a main SDG instrument used

in implementing the SDGs by transferring administration to local entrepreneurs, inventors, and scientists to address community vulnerabilities. For example, Cape Town's internationally recognized Day Zero campaign aims to mitigate its intense water crisis through significant public communications, engineering interventions, easy consumption habit changes such as the 'save like a local' campaign, and consumption tips like 'only flush when necessary'.

Implementation, monitoring, and impacts

Cities' successful implementation strategies are just as varied as their diverse contexts and needs. Nevertheless, many valuable good practices and challenges can be highlighted and applied elsewhere if the specifics of each individual city are fully considered. One significant problem in producing VLRs seen across many cities is the difference between implementation inputs, outputs, and outcomes/impacts. For example, when cities report on inputs, such as the number of agencies working on specific initiatives, or the investment made to fix a challenge, these are often not used to measure the output or outcome against an established measurable goal or a shared vision. Similarly, reporting on the status of a challenge year-to-year, such as the difference between the number of homeless from one year to the next, without understanding why there is a difference or how we can make a more significant difference, is not useful. Cities need to set measurable goals, identify the resources that are available to work on these goals, and monitor progress to be able to adjust where necessary.

Los Angeles uses a four-phase methodology for implementing localized SDGs:

- Phase 1: Mapping and Alignment, mapping local activities that were already taking place in the public, private, and non-profit sectors onto the SDG framework.
- Phase 2: Gap Analysis, identifying gaps in current activity at the city level on each target.
- Phase 3 Localization, adapting the SDGs, their targets, and indicators to fit the local context and setting.
- Phase 4: Mobilization, ongoing work to marshal support for the project, share ideas about best practices, and create new partnerships within and outside the city.

The city deploys online shareable data using reporting portals to measure local SDG implementation. The portal allows the city to monitor the process of adapting SDG goals and targets to the local context, provides detailed mapping of city programmes, information on policies and actors that contribute to the goals, reports on progress, and highlights connections with community partners. In **Mexico City** public policies are always implemented

in contexts of conflicting interests between multiple actors, communities, and citizens' groups, using the city's Program 19–24 as a guide but not a rigid prescription. Constant measurement of results enables flexible procedures and actions which are key to addressing emerging problems and the needs of different groups. For example, the successful agile decision-making to redirect resources, both human and material, to deal with the COVID-19 pandemic.

Being designed and largely implemented by a team of local volunteers, **Kelowna**'s SDG implementation has been highly bottom-up and grounded at the small scale addressing specific concrete challenges. This relies on incredible commitment, perseverance, and discipline in navigating highly complex processes entailing many challenges and (un)learning moments, for example around controversial topics such as racism and poverty. Careful reflection and consideration of Indigenous Peoples' perspectives, priorities, and interests are needed, together with informal support from City staff attempting to ground and align the work in relation to existing municipal projects. However, inequitable political, economic, and governance systems remain significant barriers towards achieving the SDGs. In Kelowna, it is important to embed relevant community-level indicators and other key performance indicators (KPIs) into all areas of governance, municipal-level plans, strategies, and other programmes and initiatives. The intersectionality of the SDGs means they remain broad, with significant barriers and gaps to successful implementation. Relying solely on quantifiable data is not adequate in providing a true analysis, so qualitative results and disaggregated demographic data are also required to share insights, gain understanding, and brainstorm solutions. Collaboration with civil society and Indigenous organizations is needed to obtain such information, to identify and resolve data gaps, and to unlearn many preconceived ideas, even prejudices.

Strong emphasis is placed in **Malmö** on innovation and symbolism in implementing the SDGs. For example, flagship projects like Bo-01 and Turning Torso which, despite some initial controversial resistance, served as game-changing flagships. The city's long-term vision is being implemented through five key processes described earlier. Their collaborative approach ensures that transformation aligns with the needs and aspirations of the community, fostering a sense of shared responsibility for the SDGs. Feedback, monitoring, and evaluation are important in achieving long-lasting outcomes and impacts using established impact indicators based on quantitative and qualitative measurements. A unique approach is the development of urban action plans in close liaison with stakeholders to achieve inclusion and buy-in as well as shared ownership, using continuous feedback loops.

Gladsaxe integrates each SDG into core operations, services, and activities, not just as stand-alone extra layers. The SDGs are translated by professionals into tasks and practices which make sense locally, as well as being suitable for absorption into the political and strategic management of the municipality. Focus is on how the SDGs can contribute to the transformation of the public

sector and find new ways to create public value. This requires a flexible approach able to adapt to changing needs and priorities. Gladsaxe started out with those SDGs most important at the time, where significant differences could be made, and now all 17 goals are potentially in play. There were initial challenges in starting up given the complexity of the wicked problems being addressed and in making them relevant to the Danish welfare model. Gladsaxe also recognizes the need to be specific, get started, keep it simple, and focus on both long-term structural changes and smaller actions and experiments in practice. It is important to empower employees with a 'license to act' on innovative ideas in everyday practices to complement the large-scale management projects. Top management creates motivation by not micromanaging but collaboratively developing future visions and transforming ideas into action. Measurement attempts to avoid the technocratic trap that sees indicators themselves as the purpose rather than simply as guides towards achieving real goals. An annual progress report is prepared based on quantitative data and qualitative cases – not only what is measured counts – and these help guide future focus areas and directions.

An important element of **Barcelona**'s approach is implementing showcase pilot projects involving different stakeholders that can then be scaled up. For example, the CO-MIDA and RESPIRA projects were initiated within the scope of the 'Proactive City' call, a municipal initiative by the Bit Habitat foundation. The city has adopted an integrated budgeting and monitoring approach by linking the SDGs to municipal strategies and to the budget. The cross-sectoral progress monitoring framework is a key tool linking various projects so that municipal developments, urban innovation initiatives, and research projects funded by the municipality can all be assessed and evaluated in alignment with the SDGs.

Although **Shah Alam** needs to work within the framework of state and federal policies, SDG implementation otherwise follows a bottom-up approach aimed to adapt and align activities with the city's needs, priorities, and existing policies and community projects. When new projects are initiated, each department selects a specific SDG or project, outlines stakeholders, identifies the target community or area, creates a budget and timeline, and establishes methods to measure progress. Collaboration and community involvement are emphasized with awareness playing a pivotal role to keep everyone informed and accountable. This encourages the generation of innovative ideas through meticulous planning, teamwork, and ongoing commitment. Challenges include project continuity, private sector engagement, and resource limitations, so it is important to identify 'quick-wins' and 'low-hanging fruit' as this can strengthen buy-in and stakeholder engagement through identified immediate positive impact. In Shah Alam these include raising community awareness, implementing waste reduction campaigns, enhancing green spaces, improving public transportation, promoting sustainable practices in businesses, involving youth in sustainability efforts, and

establishing transparent progress dashboards. However, it is also important that such short-term gains, although significant, do not distract from or disrupt the need to focus on more important longer-term impacts represented by the SDGs themselves. The division of work and leadership roles during implementation demonstrates a collaborative synergy among stakeholders that is needed to address complex challenges. The strategy fosters open communication, shared commitments, and sustained community involvement, emphasizing inclusivity, partnerships, effective communication, and awareness.

Minamata has not remained focused solely on environmental and health concerns but plans and implements initiatives for all the SDGs. Soon after its 1950s crisis, Minamata went on to build and to rely on the reform of community relations and on implementing structures for a return to economic viability and for justice. It is restructuring community relations, community–private sector relations, and citizen–government relations to produce a key element of any new undertaking: a state of readiness. Projects are monitored according to short- and medium-term goals and targets. A problem, common to many cities worldwide, is how to make the SDGs and other initiatives economically viable, and this is addressed by Minamata's development of initiatives that are both local and transnational at the same time given that it cannot ultimately thrive in isolation. Despite being small and remote, Minamata recognizes the need to implement SDGs simultaneously locally and beyond borders.

An important implementation tool in **Cape Town** is the role of EEEs, as outlined above, by devolving decisions and activities to local enterprises and other local stakeholders. Innovation is crucial, particularly in enhancing data capture, management, and reporting for more effective development interventions. Interdisciplinary projects use cross-departmental resources to address multiple SDGs at the same time to improve outcomes, although some teams report mandate restrictions that adversely affect their ability to deliver projects effectively. Overcoming jurisdictional restrictions and siloed working groups requires harmonizing the flow of information and decision-making across sectors through knowledge sharing and shared project management technologies. For example, in instances where skills development is needed among low-income groups, EEEs can help to deconstruct innovation processes, making technology more affordable and accessible, and 'gamifying' the process through hackathons and innovation sprints. EEEs are also strong proponents of circular economy models via local bartering and exchange. Data collecting processes are improved using existing technologies (like GIS databases) to move from monthly or periodic updates by manual inputs, to automated, consistent, and real-time interfaces.

To support SDG implementation in European cities, the EU's **Joint Research Centre** provides centralized data and tools for Member States, especially those with limited capacities or skills. This consists of a top-down common reference framework, including suggested indicators given that early

VLRs lacked coherence and sometimes robustness and comparability. Training is provided in using this framework, but so is help in the bottom-up development and use of indicators when countries and cities require this for localization purposes. Thus, the following order of priority applies to indicators:

i Official indicators harmonized and used at European level, produced by either European or other international institutions.
ii Official indicators not harmonized at European level, produced or collected by national/local statistical offices and used locally.
iii Experimental indicators produced by individual cities or organizations/institutions through innovative and experimental methods and harmonized at European level so available for all EU countries.
iv Experimental indicators, as (iii) but not harmonized at European level and only used locally.

Sustainability

This final section summarizes some of the good practices in this book that cities can learn from and adapt to sustain successful SDG localization and similar strategies over the longer term, thereby strengthening their resilience to shocks and threats. Sustainability is not an implementation step, nevertheless it is a common vision of cities working on the SDGs and we were curious to find out how cities describe, plan, and implement for sustainability.

Los Angeles has shown that by innovating and piloting new approaches to SDG implementation, it has emerged as a leader in burgeoning national and global city-to-city networks for implementing the SDGs, and in city participation in global governance more generally. Local, national, and international exchanges of good practice, mutual learning, and support are a key ingredient of enhancing and sustaining progress on the SDGs. While much remains to be done in **Mexico City**, successful SDG implementation is leading to important impacts. The city has received 67 national and international awards in the last five years, almost half of which are related to environmental policies. Through significant investments in infrastructure, constant monitoring of results, coordination between the different government agencies, new forms of citizen participation, and association with the private sector, the city government is making sure no one is left behind over the longer term. In addition to presenting the **Kelowna** VLR at numerous conferences, institutes, and bodies, the volunteer team was one of many across Canada engaging in knowledge mobilization on climate action and equity. This facilitates learning about, and accessing, tools and strategies used elsewhere. Kelowna also contributes to a Tourism Impact Data Portal and dashboard that is being launched with four other tourism regions across the province of British Columbia.

Malmö focuses strongly on resilience through the monitoring and evaluation of activities and programmes that play a critical role in achieving long-lasting impacts. Despite being buffeted by many serious internal as well as external challenges, including repeated criticisms, cynicism, and legal action from less enlightened and future-oriented interests, Malmö's persistence and leadership have carved a new development path. City management has become more creative, innovative, and courageous, thinking and acting 'outside the box'. Similar approaches are taken by **Gladsaxe** where the SDGs are grounded in interlinked and cohesive municipal priorities, rather than separate strategies, providing a holistic lens and focus for local sensemaking and action by leaders, staff, and partners. The clear commitment for staff to exercise 'license to act' powers, with responsibility and transparency, incentivizes innovation, sustainable solutions, and activities in everyday work, and builds shared commitment. Political continuity is also prioritized based on widespread support among political parties that ensures the stability of the SDG strategy and provides the basis for ongoing municipal budgets. **Barcelona**'s approach agrees with the general idea that the SDGs can be a useful mechanism for guidance, prioritization, and warning, for both the City Council and the city as a whole. This is demonstrated by aligning municipal projects and initiatives with Agenda 2030 while recognizing alignment cannot always be direct. This enables innovators to explore new ideas over the longer term while balancing this with a more explicit approach for achieving specific SDG impacts.

Success for **Shah Alam** is not solely reliant on data, rather, it is profoundly influenced by the city's leadership, political inclination towards the SDGs, financial capacity, and the availability of human resources devoted to the project. The long-term development of the city's SDG strategy encounters challenges that need to be addressed openly and constantly, such as project continuity; fostering collaboration among diverse groups, including private sector engagement; and resource limitations. **Minamata**, as in many parts of Asia, has relied on traditional and localized notions and practices of what later came to be called 'sustainability'. Like other small towns in exurban Japan, the city exists in an area where major firms and other providers of employment have not wished to locate. Confronting this head-on, the city has achieved both city-wide adoption of, and progress towards, a new sustainability vision, and has become a transnational resource for sustainability knowledge and practice as well as for the regional economy. In **Cape Town**, data disaggregation, people participation, and venture capitalization to boost local value added (and capture) are the main requirements for long-term sustainability, as they are for South Africa as a whole. Specialized ecosystems drive innovation efficiency, mitigating high upfront costs while making solutions that are culturally and socially relevant, as well as cheaper and easier to use. On this basis, Cape Town can experience administrative and managerial economies of scale as the tools position it to report more positively and insightfully, while saving time, optimizing capacity and resource expenditure, and driving impacts that are more accurate.

The approach used by the EU's **Joint Research Centre**, in providing sustainable long-term support to European cities in implementing SDG-related activities, has recently moved from being output-oriented, as this depends on the specific SDGs a country selects and its own context, towards a process-oriented system. However, given that all Member States do support EU-level policies, there is also more support in using good practice processes to achieve outcomes and impacts related to these. This creates three main spin-offs. First, further analyses and monitoring of the European 'Leave No One Behind' principle at the local level, with a focus on slums and informal settlements. Second, in collaboration with the European Parliament and the EU's Regional Directorate, the Joint Research Centre is addressing data gaps existing at the regional and local levels. Third, tackling the SDG interlinkages challenge at the local level by analysing all published VLRs and the association between indicators and SDG targets, resulting in a database of local SDG indicators useful across European cities. In future, 'failure indicators' will be included, i.e. indicators that do not necessarily reflect success stories but help local governments focus on achieving their SDGs. This will shed light on ways to bridge monitoring and achievement as the end of Agenda 2030 approaches.

Although the sample of SDG cities in this book is not scientifically representative, it does provide fair geographic coverage, and a good range of city sizes, contexts, and needs. We can conclude that localizing the SDGs has, overall, been a clear success that has helped to boost the self-confidence and visibility of participating cities, as well as concretely enhance their ability to deliver real sustainable development impacts. A major finding is that SDG cities perform much better when they not only design and implement SDG projects within their boundaries, but also collaborate, learn together, align measurement frameworks, and exchange good practices. This is even more important as political, social, and economic interaction between cities around the globe is increasing rapidly. Despite the important differences between city contexts, needs, and the implementation pathways they take, which must always be at the front and centre of implementation decisions, there are many challenges and successful practices that they experience in common. Naively copying practices from another city is never desirable, but recognizing relevant good practices and analysing whether and, if so, how they can be adapted in a different context are beneficial to all concerned.

Note

1 The literal translation of this programme would be *Welfare at School – Better Schools*.

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