

Chapter 4

WORKING TOWARDS REGENERATIVE CITIES

As cities continue to make progress in regenerative urban development, this chapter shares how scaling action involves building a collaborative ecosystem and sharpening assessment capabilities.

The Punggol Digital District in Singapore redefines the relationship between education, industry and community through an integrated mixed-use model that responds to the evolving patterns of how people work, live, learn and play.

Photo courtesy of Ng Sze Xuan



IMPLEMENTING REGENERATIVE URBAN DEVELOPMENT

Cities today stand at a pivotal inflection point in addressing climate change. On one hand, cities can continue to respond reactively to climate impacts as they occur through emergency measures, short-term fixes and incremental adaptations. On the other hand, cities can turn climate challenges into opportunities to create a liveable and resilient future by taking a long-term, integrated approach to mitigation and adaptation actions, and by identifying co-benefits in what we do to maximise the impact of our actions. This is the pathway offered by regenerative urban development.

This approach guides cities to move beyond just reducing harm in the course of urban (re)development, to doing more good for a city's residents. By addressing both the built and natural environments, regenerative

urban development can support cities to decarbonise and reduce climate risks and vulnerabilities in ways that optimise resource use and create communities that thrive alongside nature.

Distilling insights from the Centre for Liveable Cities' (CLC) research and engagements with leading experts across diverse sectors around the world, this publication offers evidence-based ideas and guidance for city leaders and practitioners to implement regenerative urban development, primarily at the district-scale and wider. Acting at this scale is crucial, because when every district implements regenerative strategies, the cumulative effect multiplies across the city, creating an exponential impact that transforms urban environments into thriving socio-ecological systems.

To help shape the thinking for regenerative projects, this publication presents a set of conceptual ideas that are foundational to the regenerative city—**paradigm shifts** for development to build onto sustainability efforts and pivot towards regenerative approaches, **a definition** for the regenerative city, which provides a common understanding of how regenerative cities function, and **principles** of the regenerative city that clarify values and form pathways for implementation.

To support the operationalisation of regenerative developments, we provide a **Regenerative City Framework** which outlines outcomes, strategies and enablers, and **examples of assessment indicators** to measure regenerative outcomes (progress in implementation) and capacities (existing conditions of the site). While a fully regenerative city remains aspirational, this publication documents many regenerative-aligned projects at different scales around the world that provide inspiration for action.

To find out more about the:

- *Paradigm shifts, refer to page 34 of Chapter 1.*
- *Definition, refer to page 60 of Chapter 2.*
- *Principles, refer to page 61 of Chapter 2.*
- *Regenerative City Framework, refer to page 63 of Chapter 2.*
- *Assessment indicators, refer to page 154 of Chapter 3.*

SCALING REGENERATIVE CITIES

While these ideas and guidance provide a consolidated starting point for implementation, there are also avenues for further work to strengthen the application of the regenerative approach.

The cross-system, multi-faceted and place-based nature of the regenerative city requires a deeper understanding of the city to strengthen and scale its implementation through the following avenues.

Building a Regenerative City Through a Collaborative Ecosystem of Stakeholders

Ideas and strategies of the regenerative city work when they are tailored to the local climatic, socio-cultural, governance and urban context, as exemplified by the case studies in this publication. The Regenerative City Framework and assessment indicators invite cities to develop place-specific solutions by considering how different strategies and enablers can interact to maximise co-benefits for the local urban ecosystem.

The key to successful implementation of regenerative urban development is having a strong collaborative ecosystem of stakeholders across sectors who are able to maximise the potential of each regenerative strategy and enabler. The public sector plays a crucial role in long-term planning, public communication and creating frameworks that catalyse collaboration,

integration, experimentation and learning, while the private sector plays a partnership role by piloting new technologies, designs and financing mechanisms that enable scalable and replicable approaches. Research and academic institutions help ensure that innovations are evidence-based and provide capacity building for implementation. Local communities and citizen groups contribute ground-up insights and initiatives that help to mobilise city-wide implementation. Beyond the city's localised ecosystems, international organisations facilitate knowledge exchange, reporting, benchmarking and access to best practices between cities and regions. Together, these sectors form an interconnected collaborative ecosystem that accelerates the adoption and scaling up of regenerative urban development.

Sharpening the Assessment Capabilities of the Regenerative City

The examples of assessment indicators introduced in this book articulate what to measure. Three areas for further development will sharpen assessment capabilities for scaling up.

First, advancing cities' understanding of correlational and/or causal relationships between regenerative strategies and their respective co-benefits can improve the precision of regenerative action and enable calibration for greater impact. As regenerative urban development requires practitioners to plan across numerous urban systems and possibly administrative or organisational boundaries, being able to identify and measure the social, economic and environmental co-benefits at a district level or beyond can refine the application of approaches like nature-based solutions and design-for-disassembly.

Second, in order to enhance strategic planning and efficient resourcing for implementation, cities need to deepen our understanding of the relationship between regenerative outcomes and capacities, and assessment of the socio-ecological processes that connect them. This can build on existing research on interactions between people and nature, such as ecosystem services provision and stewardship.⁶⁹

For instance, conducting financial valuation of the ecosystem services provided by nature-based solutions that go beyond conventional economic metrics to include environmental, social and governance outcomes will more holistically capture the cost and benefits associated with implementing nature-based solutions at particular sites.

Third, there needs to be more robust validation and tracking of regenerative outcome and capacity indicators across timescales and district typologies. For a brownfield redevelopment project, measuring the existing site using outcome indicators provides a baseline to track the effectiveness of implementation, and measuring capacity guides and calibrates the application of regenerative strategies and enablers. Tracking outcomes and capacities post-implementation over time assesses the effectiveness of interventions, and informs the extent to which investments in capacity are associated with desired outcomes across the development lifecycle. Once validated, the indicators can be applied to guide greenfield development projects.

These areas of enquiry will be developed as the CLC works towards building up the Regenerative City Self-Assessment Tool.

 *To find out more about the Regenerative City Self-Assessment Tool, refer to page 184 of Chapter 3.*

A COLLECTIVE COMMITMENT

The United Nations Sustainable Development Goals are targeted to be achieved by 2030. The post-2030 era will not mark the end of global sustainability efforts but rather a pivot to a new, more integrated framework. In early 2027, the Intergovernmental Panel on Climate Change (IPCC) will release its Special Report on Climate Change and Cities. This is a significant report, being the first IPCC report to spotlight cities both as sources of climate risks and engines of climate solutions and innovation.

Against this backdrop, regenerative urban development offers a pathway for cities to not only respond, but to lead the way in climate action. The Regenerative City Framework, developed by the CLC with support from the Singapore University of Technology and Design, allows for different cities to tailor their solutions to the scale, complexity and conditions of their own contexts.

To be clear, embracing regenerative urban development does not require cities to dismantle existing sustainability efforts, nor does it eliminate all trade-offs inherent in planning and development choices.

Instead, it guides cities to build on existing initiatives, integrating more closely across urban systems to maximise co-benefits across liveability, resilience and resource outcomes for people and the built and natural environments. By tightening connections across communities, infrastructure and nature, regenerative approaches can amplify the impact of existing strategies.

This moment requires collective commitment and action. Scaling regenerative urban development requires stakeholders across sectors and cities to collaborate as an ecosystem. Platforms such as the United Nations Framework Convention on Climate Change's Conference of the Parties (COP), World Cities Summit and the City Network for the Lee Kuan Yew World City Prize (LKYWCP Network) provide avenues for cities to learn from one another, validate what works, and build the momentum to make regenerative approaches commonplace. Even in a climate-changed and resource-constrained world, we can build a liveable, resilient and regenerative future for our cities together.

Secondary rainforests, like the Southern Ridges in Singapore, are regenerated forest patches that can help cities adapt to intensifying heat stress and flooding.

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