

GLOBAL | REGENERATIVE
STRATEGIES IN ACTION

Circular Cities: Regenerative Practices for a Resilient Urban Future

This article explores real-world examples of regenerative urban development and highlights key enablers to scale regenerative urbanism.



Cristina Gamboa is the CEO of the World Green Building Council (WGBC), where she leads a network of more than 75 national Green Building Councils, representing 47,000 companies. She champions scalable solutions and effective local advocacy to secure the sustainable transformation of the built environment.



While resilience can be enhanced by upgrades and retrofits, more long-lasting solutions are achieved by optimising resources through future condition analyses and adopting regenerative design practices.



The Urgent Need for Resilient Built Environments

The urgent need for resilient buildings and infrastructure is being driven by escalating climate risks, ageing systems, and growing social and economic vulnerabilities. While resilience can be enhanced by upgrades and retrofits, more long-lasting solutions are achieved by optimising resources through future condition analyses and adopting regenerative design practices.

Regenerative building design promotes nature restoration through a whole system thinking approach, creating a more sustainable balance between

communities, the environment, and urban infrastructure. Analysing future conditions enables cities to account for imminent, shifting climate patterns and the increasing probability of hazards occurring.

This article will explore real-world examples of regenerative urban development and highlight key enablers to drive city resilience.

The Case for Circularity and Resilience in the Built Environment

While the built environment is the foundation of modern society, it has also been disruptive and a significant contributor to environmental degradation and climate change. Globally, strategies to reduce externalities have been implemented and innovative solutions keep emerging to not only improve the equilibrium across the three pillars of sustainability—social, environmental, and economic—but to actively revive natural systems.

Such a regenerative approach focuses on the properties and cycles of natural resources, which enable the design of buildings and cities to be optimised in a holistic way. For example, the combination of green and blue infrastructure, at building and city level—such as

green spaces and roofs, ponds, and wetlands—can help collect and purify water, whilst significantly mitigating extreme conditions such as heat. This enhances the resilience of both communities and the built environment. Beyond the building level, such integrated systems can also contribute to actively restoring nature.

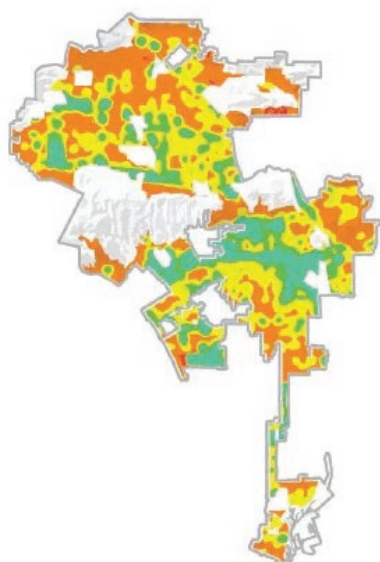
Circular economy practices also play a crucial role by promoting resource optimisation and value retention through closed-loop systems. The value and usability of construction products, including buildings, can be significantly increased by promoting circularity, mimicking naturally regenerative cycles in environmental ecosystems.

Global Case Studies: Regenerative Strategies in Action

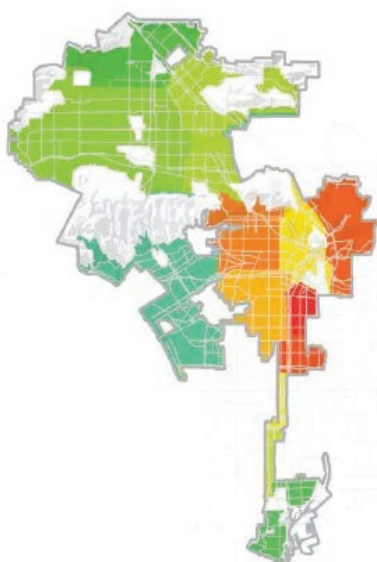
There are numerous examples of regenerative practices being applied globally. Here are a few notable cases:

Design and Planning at City and Building Scales

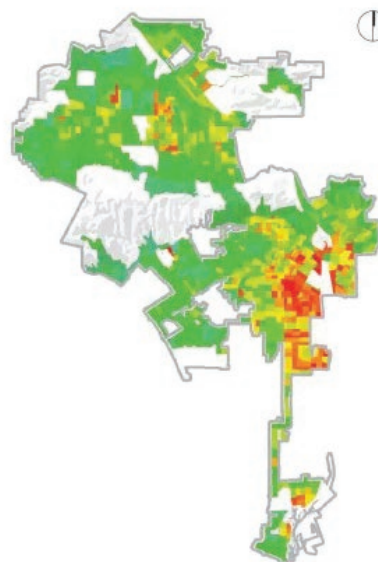
- RegenCities, an initiative of Skidmore, Owings, and Merrill (SOM), uses a “systems-based” methodology that maps and analyses the data of five urban systems—built, natural, infrastructure, socioeconomic, and cultural—to present solutions that improve the balance among them. The City of Los Angeles uses this methodology to tackle challenges such as liveability, waste reduction, water and energy dependency, and transportation.



JOB DENSITY



CHRONIC DISEASES



POVERTY

SOM Los Angeles research project RegenCities collects data from open source portals, combining with census tract data, deploying a systems-based methodology to understand vulnerabilities and opportunities.
Image: Architectural Record

Lapalala Environmental Education Centre received its Net-Zero rating last year.
Image: Lapalala Wilderness School



- South Africa has shown exceptional leadership in resilient and regenerative built environments. For instance, the Lapalala Wilderness School in the Waterberg region of Limpopo is a net zero, off-grid school designed to be functional and repairable by school staff and members of the local community.
- Project Tempelas in Kalimantan, Borneo is a cutting-edge albumin production facility that was created to support sustainable fish farming. It links a community with limited options to the global health market. This factory has sought to responsibly use the resources of the tropical peat swamp forest where it is located, and its included technologies such as solar energy to increase energy independency. By involving the community from conception, the design and construction was able to benefit from local knowledge, creating a building that responds to local climate conditions.



Beyond albumin production, other facilities like the function hall (pictured on the left) have been built to address the basic needs of the community.
Image: Project Tempelas



- The Arezzo Condominium is much more than a housing development; it represents a transformative vision of comprehensive sustainability and increased quality of life. Spanning 18,900 m², this project located in the municipality of Neiva, Huila, features 159 two-story homes designed using bioclimatic architecture principles. Its approach optimises natural resources and integrates nature-based solutions, such as sustainable drainage systems (SuDS), to ensure energy efficiency, thermal comfort without air-conditioning, and reduction of flooding risks.

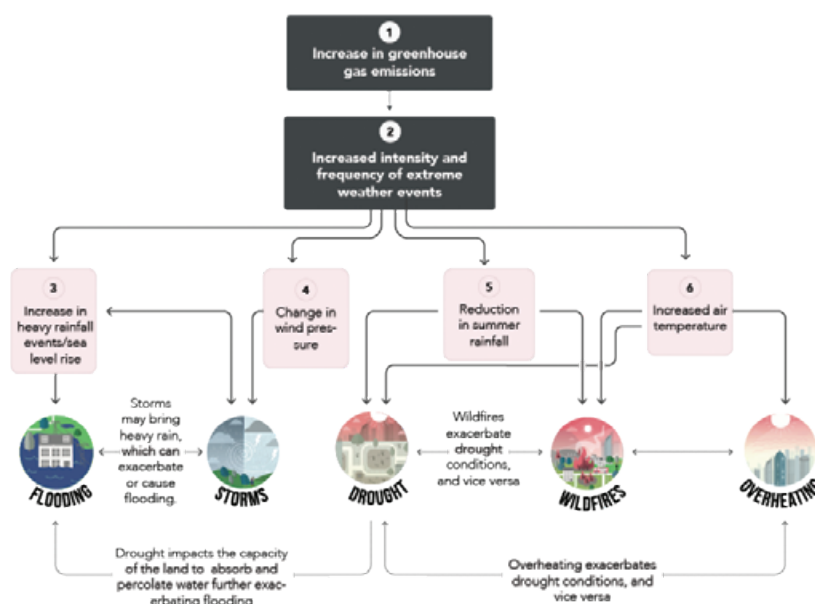
Establishing Guidelines

- The Green Building Council of Australia has published “Future in focus – Resilience in the built environment” as a set of guidelines for resilient buildings and neighbourhoods in Australia. A project that demonstrates resilience at the district-scale is the Resilient Communities in Residential and Mixed-use Development Action programme, led by Resilient Melbourne seated at the City of Melbourne. The programme oversees five pilot sites, each exploring innovative approaches to participatory planning and alternatives to conventional urban infill, greenfield planning, and housing models, with the goal of enhancing community-level resilience and cohesion.



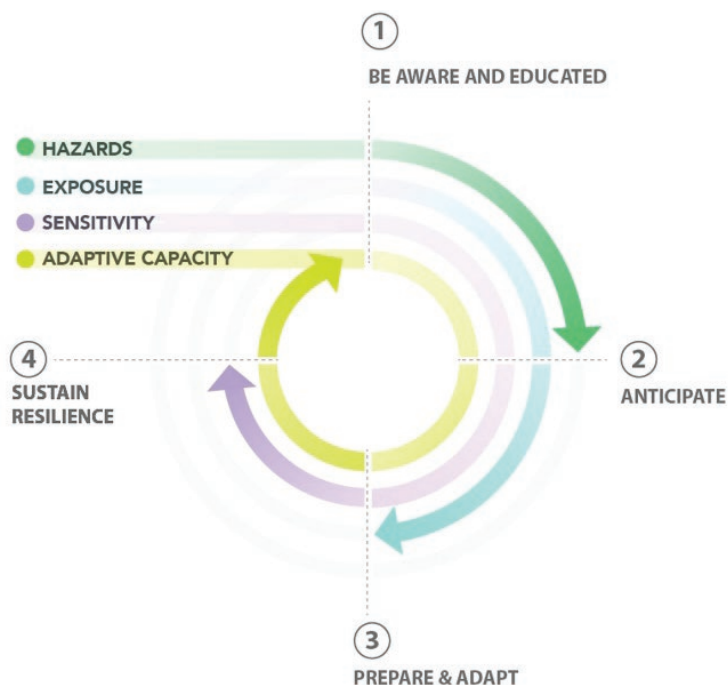
The Arezzo Condominium and surrounding sustainable drainage systems.
Image: Condominio Arezzo

- The UK Green Building Council recently launched the “Climate Resilience Roadmap”, setting out a vision for a climate resilient built environment for the UK, sharing clear recommendations for industry and policy with next steps needed to increase climate resilience. The roadmap details seven key principles towards building climate resilience: 1) Assessment and Planning, 2) Policy and Advocacy, 3) Designing and Adapting, 4) Energy, Materials and Resource Use, 5) Urban Planning and Transport, 6) Eco-centric Approach, and 7) Awareness and Collaboration.



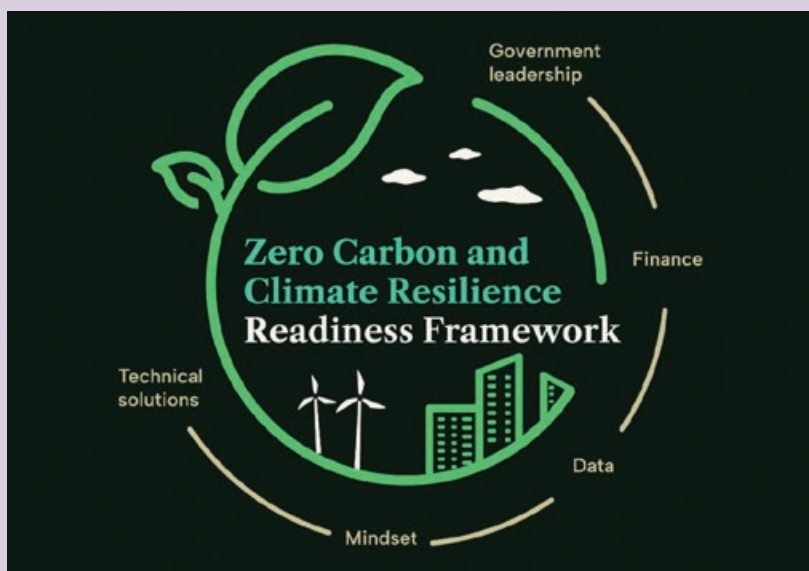
Communication and Visualisation Tools

- The Dutch Green Building Council has developed a "Framework for Climate Adaptive Buildings" (FCAB), i.e. an open and transparent methodology for performing a building level Climate Vulnerability and Risk Analysis (CVRA). The methodology prescribes the use of publicly available geodata from the Dutch Climate Impact Atlas, "Klimaat-effectatlas". The risk score is defined by combining exposure, using geodata, and vulnerability, determined by building characteristics. The FCAB framework is widely used by banks, investors and insurers in The Netherlands for reporting on climate risk and developing climate adaptation action plans.



The UK Climate Resilience Roadmap by the UK Green Building Council (UK GBC).
Image: UK GBC

The Zero Carbon and Climate Resilience Readiness Framework.
Image: WorldGBC



Looking Ahead: Scaling Regenerative Urbanism

As we face intensifying climate risks and growing urban vulnerabilities, the need for resilient, regenerative built environments has never been more urgent.

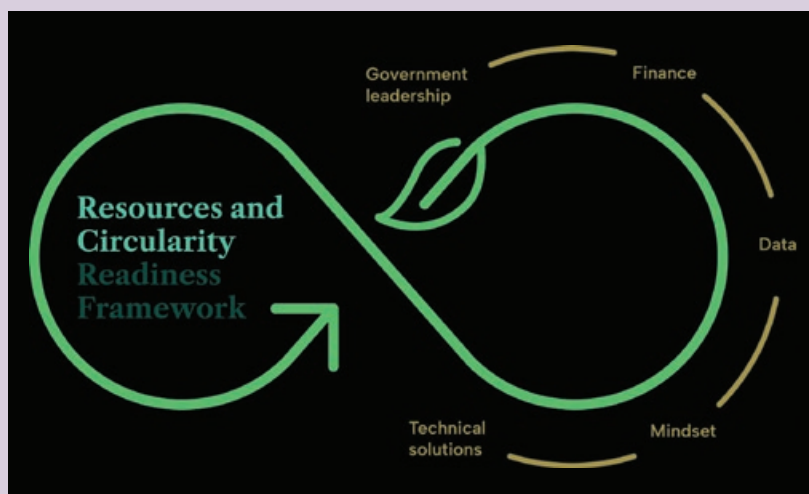
To achieve World Green Building Council's (WorldGBC) mission of leading the built environment community in driving local action and strengthening global momentum for people and planet to thrive, we are prioritising

the development of national decarbonisation roadmaps and comprehensive zero carbon and resilience frameworks.

At WorldGBC, we believe that frameworks are an essential tool for turning ambition into action, and for providing structured guidance to align stakeholders at a regional and global level—from policymakers to developers, manufacturers, and building users.

Accordingly, we have developed the Zero Carbon and Climate Resilience Readiness Framework and the Resources and Circularity Readiness Framework—to help translate complex sustainability goals into actionable strategies, grounded in core principles such as energy and resource efficiency, enabling policies, and financial mechanisms and recommendations that increase transparency and accountability.

The Resources and Circularity Readiness Framework.
Image: WorldGBC



Both frameworks are underpinned by five categories... that are crucial for transition to a zero-carbon future and circular economy.

Both frameworks are underpinned by five categories, each with its own set of detailed goals that are crucial for transition to a zero-carbon future and circular economy. They are:

1. **Government leadership**—A commitment to the zero-carbon and circular economy target, setting out national roadmaps on clear policies and regulations that can guide supply chains and development projects.
2. **Technical solutions**—The adoption of new and innovative technologies in areas such as energy performance, construction techniques, and sustainable materials.
3. **Finance**—Optimising green financing and creating a sustainable business case through disclosure, incentives, investment instruments, and budgeting.
4. **Data**—Well-governed, transparent, and actionable for use in tracking, reporting, and benchmarking.
5. **Mindset**—Inspiring behavioural change for all stakeholders and decision-makers.

More recently, in August this year, WorldGBC also launched the Resilience Readiness Framework, showcasing essential strategies for ensuring that sustainable buildings are also climate resilient. This Framework provides key facets of a sustainable building that all built environment stakeholders should consider ensuring future ready built environments. They highlight the importance of CVRA, and of designing buildings and cities in accordance with future climate scenarios.

WorldGBC is committed to scaling actionable green building solutions. By working in collaboration with our global network of more than 85 Green Building Councils and their 48,000 members, we are delivering a regenerative, circular, and resilient urban future that enables both people and planet to thrive. 🗨️