From Principles to Practice

Approaches for High-Quality Baukultur

Davos Baukultur Alliance

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Davos Baukultur Alliance

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Approaches for High-Quality Baukultur

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Foreword

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The places and communities we build today will determine how well we meet the defining challenges of our time – climate disruption, social fragmentation, economic volatility and environmental degradation. These crises are no longer abstract; they are compounding, accelerating and reshaping the very spaces we inhabit. This is why the Davos Baukultur Alliance exists.

The Alliance was created to catalyse a comprehensive shift in how we imagine, plan and shape the living environment – not as an industry apart, but as one of our most powerful levers for collective resilience, regeneration and well-being.

Achieving high-quality Baukultur is about developing, regenerating and preserving places, rooted in a deep commitment to supporting quality of life and strengthening our social fabric. Vibrant places promote economic opportunity and improve our health while respecting a sense of local ownership and community values. This human-centred approach recognizes that our choices about the built environment shape our culture. The various disciplines that build our world – architecture, urban planning, construction and engineering among them – and our decisions about public spaces, materials and cultural preservation all impact how we experience life and how well we can thrive.

We believe that places must become not just sustainable, but transformational – places that restore ecosystems, promote equity and reflect cultural identities that bring us together.

This report series offers approaches for action. It is the culmination of a year of global collaboration – across governments, businesses, practitioners and civil society – through the Alliance's thematic areas on **resilience and climate adaptation, sustainability and circularity, and affordability and social value creation**. Each chapter presents strategies, enabling tools and policy frameworks that translate the promise of high-quality Baukultur into practice. The Alliance's holistic approach integrates ecological restoration, cultural preservation, affordability and community agency, aiming to create thriving, future-proofed places that honour cultural heritage and promote environmental regeneration. This means considering whether the local economy is inclusive, the most vulnerable are housed, choices are sustainable and health is supported.

What binds these diverse areas of focus is a shared vision: that **high-quality places for people are not an afterthought, but a foundation**. Whether we are retrofitting our cities for climate resilience, regenerating land and materials, or creating equitable models for housing and infrastructure, what matters most is how these interventions shape human experience. Do they promote dignity, belonging and trust? Do they invite agency and creativity? Do they regenerate life – culturally, socially and ecologically?

This is the standard that we must hold ourselves to, as laid out in the Davos Baukultur Quality System and its eight criteria for high-quality – governance, functionality, environment, economy, diversity, context, sense of place and beauty.

Across these critical issues and areas is the need for forward-thinking collaboration, and partnerships are critical to addressing the challenges facing our communities. Coordinated strategies that address all phases of development and redevelopment are essential for places to adapt to the simultaneous local and global pressures facing places. Public-private partnerships (PPPs), cross-sector coalitions and community engagement are key to driving meaningful change.

Collective efforts are necessary to address current challenges and build resilient, sustainable and impactful outcomes for communities globally. The potential for transformative change through intentional and collaborative urban development is significant. Leaders from government, business and civil society are encouraged to review and consider whether the approaches and models presented in this report can help them embrace a radical shift rooted in holistic, global principles of high-quality Baukultur.

Baukultur is a shared language and a global commitment to shaping environments that nourish both people and planet. It reminds us that every material we choose, every public space we design, every regulation we write and every partnership we forge speaks to the kind of world we want to live in.

We invite you to explore this report not simply as tools and practices, but as a provocation: what if the built environment could be a driver of planetary repair, not harm? What if affordability, beauty, circularity, resilience and cultural continuity weren't trade-offs – but the starting point? The Davos Baukultur Alliance was created to answer these questions – with conviction, collaboration and care. We are proud to stand with the global – and growing – network of individuals and institutions that are making this fundamental shift real, and we look forward to what we will shape together.

The Davos Baukultur Quality System

Baukultur [*bow-cool-tour*] means building culture and sees the entire designed living environment as a coherent whole, from existing buildings to contemporary design, from small, handcrafted details to buildings and open spaces to large-scale infrastructures, and from the planning process through construction and operation to re-use. It recognizes the shared responsibility of all involved in transforming it to achieve high-quality Baukultur, with the aim of providing a more liveable and prosperous environment for all. Building is a cultural act and creates space for culture to thrive. The Davos Baukultur Quality System applies eight criteria for creating well-designed places with an emphasis on cultural context and human-centred design.

That is the purpose of the Davos Baukultur Quality System. It is an instrument enabling the assessment of Baukultur qualities in places with the help of the following eight criteria: governance, functionality, environment, economy, diversity, context, sense of place and beauty. Furthermore, the quality system supports planning and projects, competition judging and participatory processes. It also incorporates and weighs social, emotional and cultural values equally in technical and functional aspects.

The quality system includes an assessment form with a questionnaire for each criterion. This questionnaire can be adapted to the specific situation of a place or project and expanded if necessary. The completed questionnaire is used to determine the Baukultur quality of a place as well as its strengths and weaknesses from a Baukultur perspective.

The Swiss Federal Office of Culture (FOC) created the Davos Baukultur Quality System in cooperation with international partners. The quality system is a contribution to the ongoing Davos process that began in 2018 with the adoption of the Davos Declaration “Towards a high-quality Baukultur for Europe”. The quality system complements existing instruments and contributes to the maintenance and design of diverse, high-quality Baukultur places.

The Davos Baukultur Alliance builds on the objectives, values and principles of the Davos Declaration 2018 and the Davos Baukultur Quality System since its launch in 2023.

Baukultur [*bow-cool-tour*] means building culture

Read more about the The Davos Baukultur Quality System:

Eight criteria for a high-quality Baukultur

GOVERNANCE

High-quality Baukultur follows good governance. High-quality Baukultur promotes quality-oriented and place-specific processes, led by skilled actors working in teams. It facilitates public engagement and contributes to transparent and inclusive participatory governance for decision-making, management and care for the place.

FUNCTIONALITY

High-quality Baukultur fits the purpose. The design and construction methods of high-quality Baukultur satisfy the human needs for health, comfort, safety and accessibility. They are enduring and the results adaptable to existing and changing uses and purposes, whilst safeguarding built heritage.

ENVIRONMENT

High-quality Baukultur protects the environment. High-quality Baukultur contributes to conserving natural resources and biodiversity, mitigating climate change and thus supporting sustainability. It preserves, promotes and develops an intact natural environment and diverse cultural and natural landscapes through responsible land use and settlements, sustainable mobility, energy efficiency and use of durable construction materials and methods with regard to the whole life cycle.

ECONOMY

High-quality Baukultur adds economic value. High-quality Baukultur prioritizes cultural values and long-term investments over short-term economic gain, conserves and increases economic value, and is high value in use. It maintains and develops resources through long-term uses in alignment with the location and design, economy of construction and operation, and through the use of high-quality, long-lasting building fabric.

DIVERSITY

High-quality Baukultur connects people. High-quality Baukultur reflects and promotes inclusive societies and encourages mixed uses, thus facilitating interaction and shared responsibility, which lead to social and spatial cohesion. It contributes to a diverse culture of planning.

CONTEXT

High-quality Baukultur results in spatial coherence. Places of high-quality Baukultur refer to their built and natural context. They embrace built heritage and contemporary creation, and dialogue with local features and their characteristics in terms of age, scale, typology and materiality.

SENSE OF PLACE

High-quality Baukultur improves the sense of place. High-quality Baukultur shows characteristics that foster people’s emotional response to the place, establishing a positive relationship with it. It promotes attachment to the place through its strong identity and distinctiveness, thus contributing to fulfilling social, psychological and cultural needs.

BEAUTY

A place of high-quality Baukultur is beautiful. High-quality Baukultur takes into account the sensory perception and understanding of the relationship between objects, spaces and people, increasing people’s life satisfaction and quality of life. It emphasizes the need for positive aesthetic appreciation and a fulfilling relationship between people and the place.

Affordability and social value creation

Approaches to delivering affordability, ensuring equity and strengthening social well-being

Overleaf: Image from Bogotá's Care Blocks. Llano Fotografia

Introduction

The Davos Baukultur Alliance recognizes that for a place to achieve true quality, it must be intentional in uplifting its community – addressing not only physical design but the systemic challenges of delivering affordability, ensuring equity and supporting social well-being.

Today, the urgency of addressing the global housing and cost of living crises is clearer than ever. In 2024, the International Monetary Fund (IMF) found that housing affordability had deteriorated across 40 countries at the fastest rate since the 2008 financial crisis. Furthermore, the World Bank has tracked steady increases in global consumer prices over the past four years, further compounding the impacts of rising housing costs globally.[1] Compounding these pressures, income inequality has nearly doubled in the last decade, with wealth increasingly concentrated among the top 1% in nearly every nation.[2] These trends underscore a critical truth: affordability and social equity are not isolated issues but interconnected systemic challenges demanding holistic, cross-sector solutions.

The challenge of affordability and social value

For a place to be of high quality, it must improve not only the physical environment but enable its community to thrive socially and economically. It is essential to address the global challenges of affordability, equity and increasing efforts by government and the private sector to create greater social value through land development projects. Social value is defined here as the cumulative benefit of all social impacts generated by the built and natural environment – measured through both financial and non-financial outcomes – for individuals, communities and businesses.[3]

The Alliance's commitment, approach and vision

Globally, many regions are struggling with complex challenges that make addressing affordability and social value difficult, such as rising costs, regulatory complexities, capacity shortages, stakeholder management and land availability.

These issues not only significantly impact a project's ability to provide affordability and social value, but its viability and long-term success. The Davos Baukultur Alliance recognizes that cross-sector partnerships are essential to addressing these challenges. To help address these issues, the Alliance has focused on identifying approaches and mechanisms that can support positive long-term social outcomes and enhance a project's viability from the perspective of attracting investment across sectors. In this work, four interconnected impact areas have emerged: regulatory tools, planning approaches, economic models and political instruments.

Affordable, high-quality buildings and places that generate meaningful social value for communities embrace principles across the eight criteria outlined in the Davos Baukultur Quality System. These principles ensure that development promotes inclusivity, functionality, environmental sustainability, economic viability, diversity, context-specificity and a sense of place – creating spaces that contribute to both individual well-being and collective prosperity.

Practical strategies and pathways to action

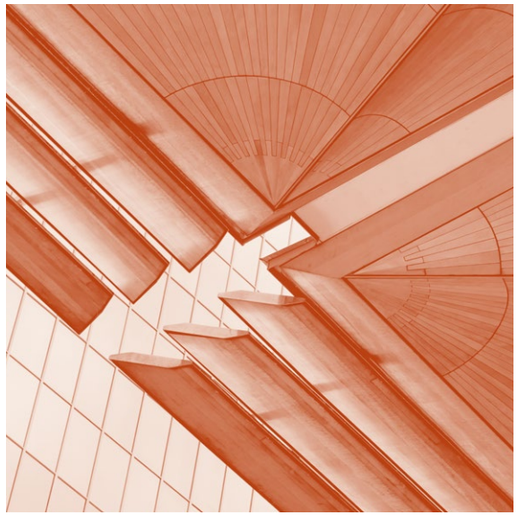
This paper explores how social value and affordability can be integrated into urban development, building on the principles identified in the World Economic Forum's 2024 white paper, Improving Social Outcomes in Urban Development: A Playbook for Practitioners. It also highlights practical strategies, drawing on case studies and policy frameworks that help bridge the gap between intent and action.

Here, the Alliance seeks to identify key challenges, value drivers, enablers and innovative practices that can advance solutions. The strategies considered must create viable projects in the broadest sense, including the following factors:

- A significant portion of the work has been completed.
- It is deemed successful by most stakeholders.
- It should strengthen the community by advancing social value and affordability outcomes through inclusive deliberation among stakeholders.
- The value created should be long-term, with widespread affordability and social value outcomes that are as widespread and equitably distributed as possible.

The following summary presents approaches and innovative practices identified through illustrative examples and case studies. These examples were chosen because they demonstrate how social value objectives anchor projects and shape their approach, aligning strongly with the Davos Baukultur Alliance's framework for assessing high-quality buildings and places. The case studies showcase multiple approaches in action, recognizing that their combined use, when feasible, will generate greater impact and success – although there may be limitations and challenges to implementing some approaches or they may not be relevant or feasible in every context. The goal is to offer potential proven pathways to implementation that advance social value.

The Davos Baukultur Alliance invites stakeholders at every level to engage in this vital dialogue, ensuring that the places we build today serve as foundations for a more equitable and sustainable tomorrow.



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Regulatory tools

Regulations play a crucial role in shaping the quality, speed and amount of development in a municipality, as well as ensuring long-term benefits. But what regulations have the strongest track records for enabling investment and producing better quality in the living environment and social outcomes? Can deregulations enable innovative investment methods that support social benefits without compromising quality? What are the key enablers that make these regulations effective?

The most impactful regulatory categories identified include land valuation, taxation and ownership; land management; building standards; and regulation through financial incentives. Land valuation, taxation and ownership regulations are essential for creating a predictable and transparent environment that attracts investment, building confidence among developers and investors and encouraging high-quality projects. They also create strategic roadmaps to promote affordability and social value. When combined with effective, forward-thinking planning approaches, these regulatory strategies offer the most impactful way to promote affordability and the creation of social value. To this end, the Davos Baukultur Alliance has identified the following regulatory and planning approaches:

APPROACH 1

Adopt land use regulations that promote affordability and the creation of social value

To promote affordability and social value, municipalities can implement targeted regulations that shape land valuation, taxation and ownership. Regulating how land is valued can help control price increases, ensuring that gains are distributed fairly among stakeholders and the community. Tools such as land banks[4] help facilitate redevelopment and community revitalization by allowing broader participation in land value appreciation. Strategic density regulations, including rezoning and land value taxation,[5] optimize land use while supporting sustainable development. Additionally, incentives such as discounted land costs and access to low-interest loans encourage investment in affordable housing, retrofitting and the revitalization of vacant properties.

Long-term affordability can also be ensured through resale restrictions on land developed or acquired with government backing, preventing speculative price inflation. Inclusionary housing policies require a share of new development to be affordable, either on-site, off-site or through an in-lieu fee system.[6] Local communities can be empowered through pre-emption rights (right to first buy), giving them priority in purchasing and developing land for social benefit. Public land can also be used effectively through leasehold models, where the government retains ownership while granting long-term leases to developers under quality frameworks that ensure projects meet design, sustainability and social value standards. This prevents speculative resale and aligns development with public interest goals.

Further measures to accelerate high-quality, socially beneficial development include fast-tracking approvals for projects with clear public benefits – such as significant provision of affordable housing units or community amenities – enhancing both project viability and policy implementation. Offering lower mortgage rates for socially responsible developers and high-quality projects may further encourage investment in developments that prioritize long-term social and economic well-being.

ZEIS – SPECIAL ZONES OF SOCIAL INTEREST, BRAZIL

This law helped cities in Brazil to rezone areas of land to increase the levels of housing, as well as provide targeted services for neighbourhoods and districts. A common use was for the rezoning of informal settlements to allow them to receive basic city services.[7]

Getty Images (left and right)

BALANCED DENSIFICATION, CHILE

In 2014, Chile introduced the National Policy for Urban Development (PNDU) to create fairer and more sustainable cities. To support this, the National Council for Urban Development (CNDU) launched the Balanced Densification strategy to manage urban growth while maximizing benefits and minimizing negative impacts. Aligned with recommendations from UN-Habitat and the Organisation for Economic Co-operation and Development (OECD), Chile's approach prioritizes densification that enhances connectivity, reduces socio-spatial segregation and ensures land serves public needs.

The CNDU addressed the concerns of communities regarding overcrowding and infrastructure by defining four principles: efficiency (optimizing infrastructure and promoting mixed-use spaces), equity (ensuring affordable access to urban opportunities), harmony (ensuring that new developments integrate well with existing neighbourhoods and promote the sustainable use of land and public space) and cohesion (building strong community ties). By following these, Chile is working towards making densification a tool for more inclusive and liveable cities.

APPROACH 2

Instil land use review processes

Instilling land use review processes that require proof of quality – such as adherence to the Davos Baukultur Quality System – at national, regional and local levels ensures that development meets long-term goals. Spatial planning principles benefit from formulating a clear aspiration for high overall quality and defining what quality means to the municipality. This fundamental quality standard must be specified at the appropriate level, ensuring that the objectives to be achieved are clear. Asking project developers to address key principles like diversity and sense of place can help ensure that the municipality and developers cater to a broad range of stakeholders. The eight criteria of the Davos Baukultur quality system provide a comprehensive framework for defining and assessing quality standards in development, ensuring that these objectives are met consistently. Additionally, quality standards and objectives can be more richly embedded through integrating independent review of development projects and initiatives by expert and community review panels at key stages throughout the process.

THE NEW EUROPEAN BAUHAUS

Started in 2020 by the European Commission, the New European Bauhaus (NEB) is a policy and funding initiative focused on building sustainability into the built environment. It emphasizes quality as a key objective, along with sustainability and inclusivity, and promotes the integration of quality criteria into the planning process. Here, quality is defined as the integration of beauty, aesthetics, healthy and safe spaces, and the quality of experience.[8]

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EMBEDDING BAUKULTUR IN URBAN DEVELOPMENT, MONTRÉAL

Since 2019, Montréal has integrated the principles of the Davos Baukultur Quality System into its 2030 Agenda and quality toolkit to ensure high standards in urban development. This approach mandates that land use review processes require proof of quality, not just at the outset of projects, but over time as well. By embedding criteria such as diversity and sense of place, Montréal encourages developers, architects and planners to consider the broader needs of various stakeholders. These criteria help ensure that developments contribute positively to the city's social, cultural and environmental fabric, creating long-term value for both the community and the city. This process supports national, regional and local authorities in holding developers accountable to high-quality standards, benefiting both urban growth and its inhabitants. Read more in Design Montreal's Quality Toolkit.

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APPROACH 3

Incentivize higher occupancy levels

Municipalities may consider taxing or regulating vacant units or short-term rentals to return residential supply to the local market. Policy-makers may also promote mechanisms for alternative mortgage models that incentivize occupation, and where the benefits of occupation are passed back to the owner. Regulations may also be used to rebalance occupation levels to allocate housing based on household size.

SHORT-TERM LETTING RESTRICTIONS, VIENNA

In Vienna, restrictions on the short-term letting of flats were introduced on 1 July 2024. In view of the increasing conversion of residential space into tourist accommodations, the city authority felt compelled to take regulatory action. However, offering a flat exclusively for short-term letting is no longer permitted. Home sharing is allowed up to 30 days per year. Similar measures have already been taken in Amsterdam, Barcelona and Paris.[9]

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APPROACH 4

Address tenant security

Strengthening tenant security through clear tenancy regulations can improve the quality of rental accommodation, promote long-term stability and reduce displacement risks. Enforceable tenancy regulations can prevent sudden rent hikes, displacement and unfair practices. Measures such as controlled rent adjustments, relocation support during redevelopment and standardized tenancy agreements support a more predictable and equitable rental market. This stability not only enhances housing security but also supports tenants' health and well-being, as stable housing is closely linked to better physical and mental health. By improving rental conditions and ensuring long-term security, these policies help build more resilient and inclusive communities.

INTERNATIONAL EXAMPLES

Germany's Mietpreisbremse (rent brake) limits rent increases in high-demand areas to no more than 10% every three years above the local comparative rent, aiming to prevent rapid rent hikes and maintain affordable housing options.

In response to urban development pressures, Vancouver implemented the Tenant Relocation and Protection Policy (TRPP)[10] to protect renters from displacement due to new construction projects. The policy includes provisions such as:

- Providing financial compensation to displaced tenants
- Assisting with relocation to comparable housing
- Ensuring clear communication throughout the relocation process

Singapore has established standardized tenancy agreements that clearly outline the rights and responsibilities of both landlords and tenants. These agreements provide tenants with greater certainty regarding rental terms, dispute resolution mechanisms and protection against unfair practices, contributing to a stable and secure rental market.

Planning approaches

The Davos Baukultur Alliance promotes people-centred and evidence-led planning approaches to create social value and cultivate affordable, inclusive communities. Planning strategies that integrate reliable and comprehensive data to inform and guide the development of physical spaces more effectively ensure that development will meet the needs of the community and help shape places where all members of society can thrive while preserving and enhancing local strengths and identity. The Alliance has identified the following approaches to planning that can help advance social value:

APPROACH 1

Phased and integrated delivery in urban planning

Effective urban planning requires strategic phasing of development to ensure sustainable growth and community benefits. Although in most municipalities, large-scale planning is conducted by local and regional government, public and private sector coordination is essential to structuring delivery in a way that maximizes community benefits while maintaining long-term viability. Development planning should be advanced in close partnership between all public, private and community stakeholders and incorporate phased development strategies. This enables the early delivery of key elements that are crucial for enhancing place identity and community vitality, and support economic activity such as public spaces and community facilities.

Phased development allows for the prioritization of essential components that contribute to social value and affordability. Early delivery of these elements ensures that the community begins to experience the benefits of the development sooner, creating a sense of ownership and engagement. Additionally, this approach helps to build momentum and attract further investment, as initial successes can demonstrate the viability and positive impact of the project. This approach parallels the investment phasing approaches in the **economic models** section. Laying the groundwork for phased delivery can ensure that development is both inclusive and responsive to the needs of the community, ultimately advancing social value and affordability.

Tools and processes that will inform integrated delivery include feasibility studies, and detailed data reviews are used to further test the underlying assumptions of the plan, ensuring that early phases are well-informed and strategically sound. When implemented well, robust community engagement and co-creation processes can help ensure early collaborative alignment and buy-in from all and help minimize delays later in the process due to objections. “Action research” via interim physical projects and initiatives can play an important part, including integrating community priorities.

REGENT PARK, TORONTO, CANADA

In Toronto, Canada, the Toronto Community Housing Corporation (TCHC) worked with the Daniels Corporation to create a vibrant mixed-use, mixed-income neighbourhood through a multi-phase redevelopment that engaged the original residents throughout the planning process, ensured them a right of return and embedded their priorities through a social development plan. The community is now comprised of affordable and market-rate housing, as well as parks and sports facilities, office and retail, and a community centre. Read more in the World Economic Forum’s Regent Park case study.

APPROACH 2

Evidence-led frameworks to measure what matters

Spatial planning must integrate robust quantitative and qualitative evidence to create affordable, inclusive and sustainable communities – ideally with a specific focus on the well-being of the people and communities that should benefit from the planning mechanisms designed to create affordability and inclusivity. Cultural planning[11] and well-being frameworks provide structured approaches for embedding social, environmental and economic considerations into planning. The OECD's well-being guidelines,[12] the UK HM Treasury's *The Green Book*,[13] the UN Valuing What Counts gross domestic product (GDP) metrics[14] and health impact assessments (HIAs) outline standardized methodologies to ensure urban development reflects community needs, long-term sustainability and local identity. These various metrics, frameworks and approaches can be used throughout the entire planning life cycle – from forecasting and options appraisals to monitoring, evaluation and informing future/ongoing investment.

MEASURING WHAT MATTERS FRAMEWORK, AUSTRALIA

The Australian Government's Measuring What Matters Framework guides policy through well-being indicators aligned with the well-being budget to prioritize social, economic and environmental outcomes. The framework has been adapted at both state and local levels.

FIGURE 1

Measuring What Matters Framework, Australia

APPROACH 3

Supporting ecological, social and economic goals through early community engagement and community-led development models

Urban planning must prioritize the needs and perspectives of affected communities – taking both current and future generations into account – while ensuring that infrastructure and development projects are both socially equitable and environmentally sustainable. Harnessing existing social capital can improve planning and support and develop local organizations and networks that have direct insight into local needs. Effective and meaningful stakeholder engagement, including participatory budgeting and co-creation models, strengthens community involvement and enhances the integration of robust evidence in planning.[15] The co-creation model can strengthen trust and facilitate sustained collaboration. It is vital to ensure that all local underrepresented groups are equitably included in community engagement. Planning processes may also be explicitly constructed to require the engagement and agreement of key stakeholders to progress. Supporting and formalizing community-led governance structures[16] and organizations in planning processes will help build social cohesion and long-term economic stability.

Planners may also consider incorporating community-led development models, such as community land trusts and co-housing (among others), to promote affordability, local stewardship and inclusive growth. Community-led models are particularly effective at ensuring that development aligns with community needs, preserves affordability and strengthens local resilience.

SAFE AND SOUND CITIES, NAGA CITY

The Safe and Sound Cities (S^2Cities) programme, managed by the Global Infrastructure Basel Foundation (GIB), aims to enhance urban safety and well-being for youth aged 15 to 24. By empowering young people to collaborate with local governments and stakeholders, S^2Cities transforms underused public spaces into vibrant, safe environments.

In Naga City in the Philippines, the programme led to the creation of the Naga Youth Innovation Hub. This initiative harmonized the objectives of youth organizations with the city's master plan and private sector priorities through extensive consultations with government authorities and local business councils. The hub serves as a dedicated space for S^2Cities staff, youth innovation fellows and local youth organizations, encouraging innovation and community engagement. Its establishment was formalized through an executive order, ensuring its integration into the city's strategic development framework.

Similarly, in Bandung, Indonesia, the Kami Ruang Ketiga initiative revitalized a space beneath the Pasopati Flyover, creating a Film Park and football field. This project not only provided accessible recreational areas but also facilitated community engagement. The initiative has since secured legal recognition as a non-governmental organization (NGO), expanding its efforts to improve and revitalize more public areas.

These interventions exemplify S^2Cities' commitment to participatory design and relational well-being, ensuring that urban spaces meet the diverse needs of young residents.[17]

Read more in the Alliance's Safe and Sound Cities Programme case study.

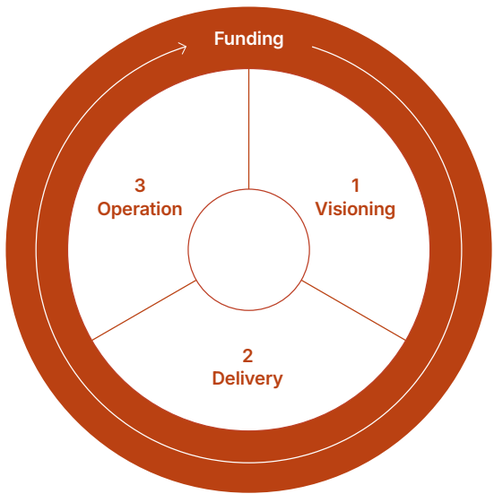
Economic models

"Economic models"[18] are defined here as specific instruments that can fund and operate development projects and help ensure positive long-term value and outcomes in the form of social benefits and a high-quality living environment. The Alliance seeks to answer the question: what mechanisms will work on the neighbourhood or district level, rather than a regional approach? What mechanisms can be identified that would be useful to a range of stakeholders including investors, banks, developers and municipal leaders? Where, within an integrated economic cycle (Figure 1), are the opportunities for the public and private sectors to use economic levers to ensure a Baukultur that delivers affordability and social value?

An integrated economic cycle considers each phase of a project's development – from planning to delivery and operation – and seeks to identify consistent funding sources and mechanisms that will best advance the goals of project stakeholders. It provides a framework for achieving this alignment through a project's key stages. This approach helps ensure that long-term affordability, sustainability and meaningful social value creation are robustly integrated into urban development. The economic models outlined here can – and should – be combined as needed and used with other approaches to follow.

FIGURE 2

Integrated economic cycle



The Alliance has identified the following approaches for government, business and civil society leaders to consider when seeking to improve a project's viability and create social value:

APPROACH 1

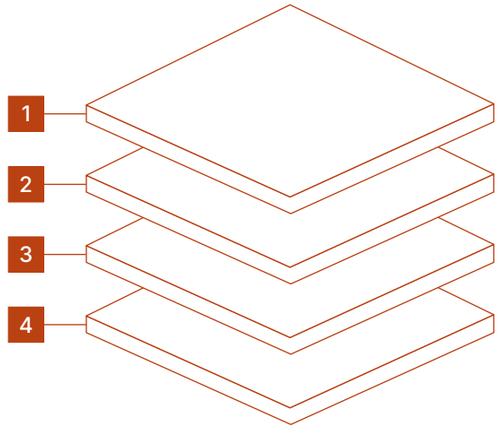
Consider collaborative funding models

These models offer innovative ways to pool resources. They can include multiple philanthropic organizations joining forces to create more impactful social programmes, as well as joint ventures, where each member retains their organization but creates a partnership through which to fund and deliver a project. Collaborative funding models help to distribute risk and can deliver a greater impact on social outcomes and the quality of living environments, if that is one of the model's objectives. They can also create challenges if the incentives and rewards for each funder are misaligned.

One type of collaborative funding model includes blended finance, which pools different kinds of finance and different rates of return to ensure that each funder can achieve the return that it requires. In this model, one entity might fund a project with a grant, while others may seek returns at market or other rates. The differing rates of return required by each funder support the project's overall viability.

FIGURE 3

Examples of blended finance models



1

Fund-level blended finance
This refers to the combination of concessional funding (public or philanthropic funds) with full return private capital for investments in companies' regular equity or bonds.

2

Company-level blended finance
Public or philanthropic investors provide credit enhancement through guarantees or insurance on below-market terms and subsized concessional loans through below-markets terms.

3

Outcome-based blended finance
Public or philanthropic investors invest in corporate bonds or loans with commitments to SDG impact, either in use of proceeds or the achievement of material sustainability targets.

4

Project-level blended finance
Public or philanthropic investors provide partial funding or guarantees for large infrastructure or energy projects that contribute to the SDGs to help attract further commercial funding.

Source: CFO Coalition for the SDGs. (n.d.). *Mapping Examples of Corporate Blended Finance*. https://www.cfocoalition.org/blueprints/p3-3-3-mapping-examples-of-corporate-blended-finance.

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THE RENEW DISTRICT FRAMEWORK

Bankers without Boundaries' (BwB) Net Zero Neighbourhood (NZN) model, part of the RENEW District framework, uses blended finance to fund large-scale home retrofits. By combining public grants, private investment and outcome-based financing, it reduces risk and attracts capital for deep energy renovations. Addressing the challenge of scattered homeownership, NZN integrates multiple properties into a single investment structure, enabling economies of scale and cost efficiency. Beyond energy upgrades, funds support community-wide improvements like green infrastructure and mobility enhancements. Long-term revenue streams, such as annuity payments from energy savings, ensure financial sustainability and make the model scalable and replicable for broader decarbonization efforts. Read more in the Alliance's RENEW Districts case study.

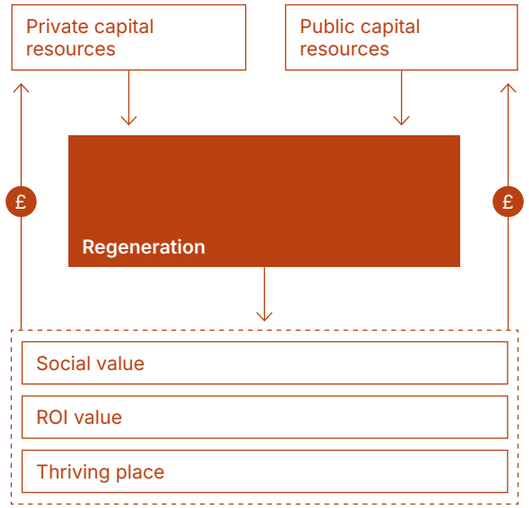
APPROACH 2

Share risk

In this model, a municipality develops a public investment strategy to catalyse private investment to regenerate a large-scale site or neighbourhood, particularly in underutilized or blighted areas. Government investment derisks development or regeneration, enabling private capital to unlock market potential. For example, a municipality may decide to offer low-cost loans for upfront infrastructure investment by the private sector such as in roads, energy systems, train stations and public parks, or in social assets such as affordable housing and schools. They may also fund the creation of early cultural or social value projects such as public art and creative placemaking; pop up markets, workspaces or spaces for small business; and public space investments that show that an area has value. The goal is to create the conditions for sustainable, inclusive and economically viable development by reducing perceived and actual risk by first movers and ultimately, to build a more desirable place for a diverse range of people and activities. This collective investment, marked by public funding, private capital and the provision of resources to support the delivery of social infrastructure and social value, reduces the overall risk of the project for private capital and helps to attract additional investment. If the first mover is a private investor selected to develop the area, they may be able to negotiate an additional premium for taking the initial risk, such as a percentage of the increased land value. Early investment can be a key strategy to reduce project risk and improve long-term outcomes for government, business and other stakeholders; the role of government here is also to ensure that benefits are distributed more equitably – for instances in which lower income households and small businesses experience the benefits of the investment.

FIGURE 4

Shared investment cycle



Related Argent Limited/John Sturrock

EARLY PUBLIC INVESTMENT UNLOCKING PRIVATE REGENERATION, BRENT CROSS

The £8 billion regeneration of Brent Cross highlights the power of early public investment in reducing development risk and attracting private capital. Government-backed funding for key infrastructure – including Brent Cross West station, new roads and public spaces – has enhanced connectivity, making the area more desirable for investors. Early investment in social infrastructure, such as affordable housing, schools and community facilities, has encouraged immediate and long-term inclusivity and vibrancy. This collaborative model has reduced barriers for private investors while ensuring benefits extend to local communities and small businesses. Guided by a comprehensive master plan, development of the 1.5 km^2 site continues through a cross-sector partnership between Hammerson, Aberdeen Standard Investments, Related Argent and Barnet Council. Learn more on the Transforming Brent Cross website.

APPROACH 3

Integrate performance-based metrics

Performance-based models use contracting, procurement and payment systems to ensure that social impact metrics are included in a project. Metrics and benchmarks are set for defined social impact delivery, and if they are met over a defined measure of time, additional funding is provided to the project operator or originator. This can help ensure that long-term stewardship is viable, and that the project's ongoing success is carefully considered at its outset. To prove successful, the metrics for success must be collectively defined by all stakeholders in a way that adequately reflects the social value objectives. As with social impact bonds, it is important that key performance indicators (KPIs) and performance-based metrics are aligned with local needs and do not replicate or replace existing social supports.

Social outcome-oriented funding instruments such as social impact bonds[19] may also support effective social impact through contracts based on performance that strengthen communities and places. One example may be private funders, including impact investors and philanthropists, providing the funding for specific social value activities. The government reimburses these funders if the project achieves outcomes that deliver public value, including the required rate of return for impact investors. Social impact investors will invest with the requirement that social impact goals are met, while government lenders may provide more favourable rates in exchange for verifiable progress on social value targets. When using this approach, funders may need to work closely with project delivery teams to ensure that they have defined effective KPIs for the development and ensure that the social value created is of high value.

SK GROUP'S SOCIAL PROGRESS CREDITS

SK Group has created Social Progress Credits, a concept similar to carbon trading. Here, social performance credits can be earned and traded. Credits are linked to monetary rewards.[20] Some impact investors are exploring broader tradeable impact markets, where social impact and outcomes are measured, quantified and traded.

APPROACH 4

Promote alternative ownership and financing models

A range of non-traditional ownership approaches – such as co-housing with upfront equity,[21] community land trusts[22] that lease land to homeowners and cooperative models where residents build shared equity – can incentivize development while preserving affordability. These can be paired with alternative mortgage structures to expand access to ownership and homeowner-led construction. Examples include shared equity with public or private investors, government-supported voucher systems that offer a pathway towards home ownership via a monthly fee, forgivable loans or down payment assistance. Though challenging to scale, combining these models can reduce risk and, when structured into auditable financial products (e.g. bonds), could attract institutional investment while delivering social and economic returns.

BLENDED FINANCE FOR HOMEOWNERSHIP, AUSTRALIA

Australia's Home Owners Partnering Equity (HOPE Housing) has created a successful mortgage product to enable homeownership while providing workforce housing. The model combines a down payment and mortgage from the homeowner with institutional investment funds to make homeownership possible for median income, workforce buyers. Buyers must select housing that is within a 30-minute commute to their place of employment to ensure quality of life. The mortgage repayment rate is capped at 30% of the home buyer's income. Unlike for rental investment, investors have no carrying or maintenance fees and see a consistent 9.2% annual growth.[23]

Getty Images

Urbanmetry

DATA-DRIVEN AI FOR HOUSING RETROFIT, MALAYSIA

UrbanWave provides an alternative mortgage product, powered by data-driven AI, which provides cash for renovations in support of retrofits for existing housing stock.[24] Funding can be provided to support the purchase of a house in need of substantial renovations, where the ownership of the renovated home is shared, with the homeowner having the majority stake and full occupancy rights. The funds are supported by private funds and a platform called Urby.ai, which supports property investment through profit-share contracts.[25] Funding is not a mortgage but rather allocates a share of the residence's appreciation value to investors. Read more in the Alliance's UrbanWave Innovative Practice Case Study.

Political instruments

Political leaders and government officials face complex challenges in making well-informed and effective decisions. These include governance misalignment, fragmented policies and capacity gaps that often obstruct progress. These officials can be helped or hindered in their pursuit of high-quality and successful land use development. Therefore, what strategies can help ambitious development projects weather the potential upheaval of election cycles?

Political instruments, including policies, governance frameworks and regulations, provide the foundation for informed decision-making and long-term positive social outcomes. Equipping public-sector leaders with essential knowledge, effective decision-making tools and collaborative frameworks strengthens governance, embeds high-quality Baukultur principles and enables higher-quality living environments and thriving communities. These resources enable public-sector leaders to advance high-quality development as a key political objective rather than a costly complication. To address how to enable political leaders to make high-quality decisions, the Alliance has identified the following approaches:

APPROACH 1

Enable risk reduction through collaborative governance and depoliticized models

Embedding multiparty contracts, consortium-based approaches and governance mechanisms enhances policy stability, reduces risk and ensures continuity beyond political cycles. Independent oversight bodies and national policy frameworks facilitate cross-party collaboration, strengthen investor confidence and safeguard long-term planning. Depoliticized decision-making, shared accountability and collective governance structures, including participator governance processes, can help create resilient frameworks that balance political, economic and social risks. They can also align political leadership with communities and stakeholders across sectors around shared goals and pathways to cultivate high-quality living environments.

CROSS-SECTOR COLLABORATION FOR BUILDING CULTURE, AUSTRIA

The Austrian Advisory Board for Building Culture demonstrates how bipartisan governance and cross-sector collaboration can enhance policy stability and long-term planning. Advising federal departments since 2009, it brings together stakeholders from architecture, construction and public administration alongside policy-makers to ensure that building culture remains a shared priority beyond political cycles.

Housed within the Federal Ministry for Art and Culture, the board operates as an independent body, promoting cooperation across political and professional boundaries. By encouraging shared accountability and depoliticized decision-making, it helps create resilient frameworks that support high-quality living environments and align leadership with community needs.

APPROACH 2

Embed long-term goals into governance frameworks

Short-term political cycles often disrupt long-term transformation. Governments should mandate sustainability targets, integrate resilience measures into policy design and ensure long-term affordability through a revolving reinvestment system[26] protected from political shifts. Impact-tracking frameworks should be applied in policy execution, while regulatory consistency and performance-based governance models ensure policies remain effective beyond electoral terms. Uncoordinated policies can lead to inefficiencies and regulatory uncertainty, so governments should harmonize regulations, develop unified evaluation metrics and embed cross-jurisdictional policy alignment. Standardization reduces administrative bottlenecks, increases transparency and streamlines urban development processes. International models demonstrate how clear policy benchmarks drive coherence and ensure measurable urban outcomes.

APPROACH 3

Harnessing collective knowledge to drive systemic change

Public-sector leadership should extend beyond governance structures in shaping broader systemic change that can weather election cycles. Mobilizing key stakeholders, and building coalitions and cross-sector networks accelerate policy implementation and enhance alignment with public- and private-sector economic and sustainability goals. Decision-making can be greatly strengthened through strategic partnerships with the private sector, civil society and global institutions to reinforce execution capacity, drive investment and expand political influence.

HABITAT FOR HUMANITY, MALAWI

By using the National Pilot Grant, under Habitat for Humanity's Home Equals campaign,[27] Habitat for Humanity Malawi advocated for the finalization and enactment of Malawi's Disaster Risk Management (DRM) Act. Malawi enacted the Disaster Preparedness and Relief Act in 1991 as a legal instrument to manage the disasters. However, the act only included provisions regarding the response measures once disasters had occurred. The policy was more reactive than proactive in nature. In 2019, the government started the review of the DRM Act, but the process stalled. Habitat for Humanity Malawi worked in collaboration with CSOs under the Civil Society Network on Climate Change (CISONECC) and followed up with the Department of Disaster Management (DoDMA) and Ministry of Justice (MoJ) on the progress of the finalization and enactment of the DRM Act. It also engaged the Parliamentary Committee on Natural Resources and Climate Change on the importance of the DRM Act and lobbied for its passage when tabled in Parliament.

APPROACH 4

Strengthen capacity-building for high-quality decision-making

Public sector leaders, especially at local levels, need more tools and resources to address complex urban governance challenges and advance high-quality development that provides affordability and social value. Impactful capacity-building initiatives, including structured leadership training, knowledge-sharing platforms and governance upskilling programmes, help strengthen the expertise required to implement policies that promote improved social outcomes, affordability and high-quality Baukultur. In addition, the development and deployment of practical, data-driven tools such as policy toolkits, digital governance platforms and evidence-based frameworks enhance decision-making. These tools, when effective and responsive to public-sector needs, can improve policy coherence, inter-agency coordination and community resilience, while real-time data, scenario modelling and adaptive mechanisms enable leaders to assess trade-offs, navigate complexity and align policies with long-term Baukultur priorities.

BANKERS WITHOUT BOUNDARIES AND THE EU

BwB is working closely with its partners within the EU's Cities Mission to increase the knowledge capacity of city officials to help drive the inclusion of private finance into its city planning, urban governance and multi-sectoral project development. A critical part of this has involved hiring and deploying "city finance specialists" across all 112 cities, who are finance experts working within city infrastructure, closely liaising with all departments within the city. This initiative is working to "bridge the gap" between public-sector local government and institutional private finance, two sectors which – at best – have a language barrier, and – at worst – have extremely misaligned incentives and harbour distrust.

HABITAT FOR HUMANITY – BANGLADESH

Habitat for Humanity works closely with the Government of Bangladesh to enhance the government's capacity and raise awareness regarding climate resilience in the national policies. Habitat for Humanity conducts dialogues with relevant government stakeholders, such as the Ministry and Department of Disaster Management and Rehabilitation, Housing and Public Works, and local government entities, to influence their action on building climate resilience. Habitat for Humanity Bangladesh also works with relevant parliamentary standing committees to reach the policy-makers.

Conclusion

Identifying regulatory tools, planning approaches, economic models and political instruments that are most likely to produce high-quality, affordable places requires a paradigm shift in how development is planned and delivered. By prioritizing consistent financial mechanisms, facilitating inclusive stakeholder engagement and addressing the unique needs of each project stage, these models can drive spatial development that delivers affordability, cultural vibrancy and social value creation, which are inherent in high-quality Baukultur.

The Davos Baukultur Alliance calls for collective efforts to advance models that address current challenges while building resilient, sustainable and impactful outcomes for communities globally.

Innovative practice

The innovative practice studies showcase practical examples of how affordability and social value can be effectively integrated into urban development. These projects highlight diverse strategies and approaches that respond to the urgent need for affordable housing, equity and sustainable community development. By embracing innovative models, these studies demonstrate how high-quality outcomes can be achieved when affordability and social value are prioritized throughout the development process.

These examples illustrate how a combination of regulatory mechanisms, economic models and community-driven approaches can address systemic challenges in urban development. They also highlight the role of cross-sector collaboration in achieving long-term, sustainable social outcomes. While each project is context-specific, the strategies presented offer adaptable pathways for other regions facing similar challenges. By using both local knowledge and global best practices, these case studies provide valuable insights into how affordability and social value creation can be scaled and implemented in diverse urban environments.

Vienna, Austria

2004-present

Fotostudio Huger

Gentle urban renewal in Vienna

HIGHLIGHTS
FROM THE DBQS
GOVERNANCE
FUNCTIONALITY
ECONOMY
DIVERSITY
SENSE OF PLACE

Vienna's gentle urban renewal programme revitalizes older apartment buildings, preserving affordability and preventing tenant displacement.

Launched in the early 2000s, the programme offers financial subsidies for renovating buildings in central districts, improving living conditions while maintaining the neighbourhood's historic character. Tenant participation is central, ensuring their needs are met and rent increases are kept minimal. This approach has become a model for other cities seeking to balance urban renewal with social stability.

Vienna's gentle urban renewal programme is designed to ensure the preservation of older apartment buildings while avoiding the gentrification and displacement that often accompany urban renewal projects. The programme subsidizes rehabilitation efforts of pre-1950s apartment buildings, ensuring that the renovations are affordable for tenants while maintaining the architectural and cultural heritage of the city. The initiative is built on the principle of gradual and respectful development, focusing on maintaining the social fabric of neighbourhoods.

A key aspect of the programme is its emphasis on **small-scale block renewal**. This approach avoids the large-scale demolition of existing buildings, instead investing in the renovation of specific blocks. This allows for the modernization of infrastructure and improvements in living conditions while minimizing disruptions to tenants' lives. The focus is on preserving affordable housing stock in central, well-connected areas and protecting low- and middle-income residents from being pushed out due to increasing rent.

In addition to improving physical structures, the programme promotes active **community participation**. Residents are encouraged to take part in the planning and decision-making processes through workshops and consultations, ensuring that their needs and concerns are heard and incorporated into the designs. This participatory approach helps facilitate a sense of ownership and pride in the renewal efforts, making them more likely to succeed in the long term.

To date, Vienna's gentle urban renewal has rehabilitated more than 10,000 residential units across the city, with a focus on districts that are undergoing natural processes of urban change. By 2023, the initiative had led to a substantial reduction in tenant displacement, providing affordable living options in areas traditionally at risk of gentrification.

Key outcomes

GOVERNANCE Vienna's gentle urban renewal programme encourages collaborative governance by ensuring that tenants are actively involved in the renewal process. The programme encourages participation through public consultations, local workshops and direct involvement in the decision-making process. This level of community engagement ensures that the needs and preferences of current residents are considered, making the programme more inclusive and responsive. Moreover, the Vienna Housing Fund plays a central role in managing funding, guiding policy decisions, and coordinating stakeholders from public and private sectors to achieve long-term neighbourhood sustainability.[28]

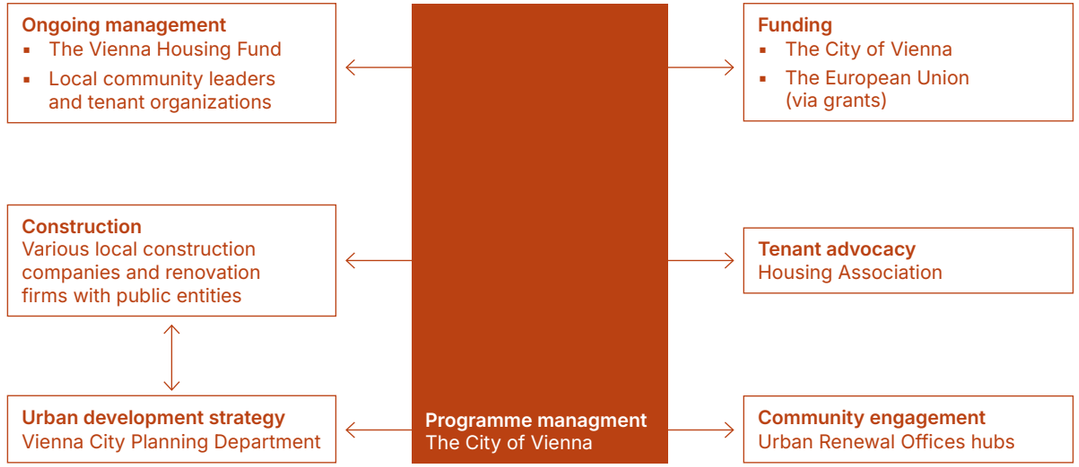
FUNCTIONALITY The approach focuses on small-scale urban interventions rather than large-scale demolitions, which helps avoid disruption and preserves the neighbourhood's social fabric. The programme prioritizes upgrading building infrastructure, such as energy-efficient heating systems and modernized plumbing, without significant architectural alterations. These rehabilitations improve living conditions while maintaining the building's historical integrity. To receive subsidies, private owners must comply with specific regulations aimed at preserving affordability and preventing tenant displacement. This includes agreements on rent controls and tenant protections post-renovation, ensuring that the social objectives of the programme are met. Beyond the buildings, the public realm is upgraded with better lighting, pedestrian-friendly design and traffic calming measures, improving walkability and safety.

ECONOMY In exchange for subsidies, private landlords agree to maintain affordable rents and tenant protections. This means they may forgo higher market rents in return for public financial assistance. The programme not only preserves affordable housing but also stimulates the local economy by creating jobs in sustainable construction, renovation and local services. It ensures that neighbourhood renewal benefits the community rather than displacing it, thus preventing the kind of market-driven rent increases seen in other urban renewal projects. The investment in building improvements also results in better energy efficiency, which lowers long-term costs for tenants and the city.[29]

DIVERSITY By keeping tenants in place during renovations and preserving the existing community, the programme creates long-lasting social value. Its emphasis on community participation encourages community resilience and cohesion, as residents have a say in how their neighbourhoods are transformed, ensuring that renovations reflect their needs and values. This inclusive approach prevents social fragmentation and enables the continued flourishing of diverse communities in central urban areas.[30]

SENSE OF PLACE By preserving the existing architecture while adapting buildings to modern needs, the programme funds the revitalization of inner courtyards, transforming them into communal gardens, playgrounds and other recreational spaces. By maintaining the authenticity and continuity of neighbourhoods, the programme cultivates a strong local identity and cultural heritage.

Stakeholders



Gebietsbetreuungen Stadterneuerung

Replicability and lessons learned

Replicable or scalable aspects

- **Community-driven planning**: Encouraging residents to participate in the renewal process creates a sense of ownership and helps tailor interventions to the community's needs. This participatory model supports the city's aims to retain affordability and avoid community displacement.

- **Preserving housing affordability**: By focusing on small-scale, targeted interventions rather than large-scale redevelopment, Vienna ensures that the housing remains affordable and accessible for low- and middle-income families.

- **Long-term sustainability**: Vienna's programme integrates energy efficiency improvements into the renovation work, ensuring that the buildings are not only more comfortable but also more sustainable, reducing long-term costs for residents and the city.

Lessons learned

- **Engage the community early**: Actively involving tenants and local residents in the planning stages ensures that their concerns and needs are considered, helping avoid resistance to urban renewal and promoting long-term success.

- **Focus on small-scale interventions**: Instead of large-scale demolition, focusing on preserving the existing structure of neighbourhoods allows for gradual improvements without the disruption of displacement during construction. This strategy helps maintain the social fabric of communities and avoids the need for often complex and challenging right-to-return plans for existing tenants.

- **Balance preservation with modernization**: Retaining the architectural and cultural value of the neighbourhood while implementing modern upgrades can revitalize neighbourhoods without compromising their historical significance.

- **Support long-term affordability**: Subsidizing renovation efforts helps preserve affordable housing options, preventing extended temporary or permanent displacement that often results from typical models of market-driven or public-sector-led redevelopment.

Challenges

- **Coordination**: Ensuring the historic value of buildings is maintained while updating infrastructure to meet modern living standards can be a complex task, requiring careful planning and technical expertise.

- **Managing tenant displacement**: While the programme aims to avoid radical displacement, managing the delicate balance between affordable housing and the need for renovation often involves negotiations and can be a source of tension among tenants and property owners.

- **Securing sustainable financing**: The programme relies heavily on public funding, subsidies and private partnerships, potentially limiting the long-term financial sustainability of the initiative based on the availability of public funds, especially as the scale of the programme expands.

- **Coordination between stakeholders**: Coordinating between multiple stakeholders – including the government, private developers, tenants and community organizations – requires strong governance and can sometimes result in delays or conflicting interests.

- **Public perception of urban renewal**: While the goal is to preserve affordability, residents sometimes fear that renewal projects will lead to gentrification, raising concerns about rent increases and potential displacement. Clear accessible information through various mediums including in person is key. In Vienna, this was led by the city's Urban Renewal Office's mobile community hubs.

- **Alternative land ownership contexts**: A wider challenge is the continued adaption of the model to different land ownership contexts. Vienna's model is, in part, supported by the city's significant ownership of homes.[31] Further testing is needed to see if core features like subsidies and long-term affordability can work on privately owned land.

Next steps

- **Expansion of the programme**: The gentle urban renewal initiative is expected to expand to more districts in Vienna, particularly those with large stocks of older housing that are at risk of deterioration.

- **Replication globally**: Vienna's gentle urban renewal programme has inspired cities like Berlin, Barcelona and Paris to adopt similar strategies focused on affordability and preventing tenant displacement. Recognized by international institutions such as the OECD and the EU, the programme is praised for integrating community participation and affordability in urban renewal. Global housing networks, including the International Union of Tenants (IUT), also cite Vienna as a model for addressing gentrification and housing affordability challenges.[32]

Presented by the World Economic Forum

Bogotá, Columbia

Bogotá's Care Blocks

Alejandro Arango

In 2020, the Mayor of Bogotá, Claudia López Hernández, with support from a broad coalition of international organizations and non-governmental organizations (NGOs), launched Bogotá's Care Blocks – a system of health, employment and social support aimed towards the city's caregivers.

These caregivers, almost all women, are calculated to be responsible for up to 13% of the city's GDP and 20%[33] of the country's GDP, though their labour is unpaid. In total, 90% of them are low income, 70% do not have secondary school experience and all of them lack economic autonomy.

To address the challenges faced by this group, the city created consolidated social services centres that were located within a 20-minute walk of projected users. Each centre, or Care Block, provides professional skills and training, income-generating activities, and health and wellness services, in addition to caregiving services for children and the elderly.[34]

The Care Blocks were incorporated into Bogotá's Urban Master Plan in 2021, which includes and budgets for 45 Care Blocks by 2035.[35,36] Today, there are 23 functioning Care Blocks in carefully selected locations throughout the city. Bogotá used data analysis tools to identify locations with high concentrations of caregivers that also have significant deficits in social infrastructure.[37]

Key outcomes

GOVERNANCE

Through civic engagement, Bogotá identified that its main focus for the care system should be to allocate more free time for caregivers, enabling them to access further education, engage in wellness activities and participate in community activities. In the development phase of the care system, the city facilitated 21 focus groups, 17 interviews and 17 additional discussions with caregivers. These sessions involved women with various racial backgrounds, sexual orientations and disabilities, offering a broad range of viewpoints. The insights, aspirations and lived experiences of nearly 5,500 women have played a crucial role in shaping Bogotá's public policies on women and gender for the 2020-2030 period.[38]

Bogotá established the Intersectional Commission of Care system to ensure that caregivers have a continued voice and vote in decision-making.[39] The system is coordinated by the Secretary of Women and involves an intersectoral commission of 10 public entities involved in care-related services. Care Blocks operate under the principle of co-responsibility, involving the state, society and the community in addressing care needs.[40] It is supported further by a CARE Alliance, a group of NGOs, funders, international organizations and academia, as well as local organizations.

2021-present

FUNCTIONALITY The core functionality of the Care Blocks is to provide needed services to unpaid caregivers (estimated to be one-sixth of Bogotá's population) as well as care receivers. The necessary functions were determined through co-design with caregivers and consultation with more than 10 governmental divisions and commissions care services providers.

Each Care Block is recommended to have the following functions:

- The location of each Care Block was designed to maximize functionality and access. The location needed to meet a minimum threshold of 25% of the local population having a high demand for care, and account for caregiver density, multidimensional poverty in women and participatory budgeting.[41]

- Locations needed to be within a 20-minute walking distance for projected users.[42]

- Each Care Block was recommended to have public and private spaces for caregivers (such as classrooms, psychological and legal services rooms, a laundry room and a gym) and for care receivers (such as playrooms, an auditorium) and the general public (workshop rooms, auditorium).

The SuperCADE Manitas anchors Bogotá's first Care Block in Ciudad Bolívar, spanning 800 m^2 and offering over 30 services under the District Care System (see image overleaf). Designed to reduce the care burden on caregivers, it features open spaces, multi-purpose rooms and landscaped areas. Services include flexible education, job training, life skills courses, entrepreneurship workshops and healthcare. Additional facilities within the wider block include a public nursery, supermarket and laundromat. Strategically located near the TransMiCable, the Care Block ensures easy access for residents, especially those with limited mobility, by connecting them to Bogotá's main transit network.

ECONOMY Through supporting the economic autonomy of caregivers, the Care Blocks enhance long-term economic vibrancy and inclusion of their contexts. Providing educational and professional training to support income-generating activities for caregivers enriches the economic and social value of a place in an array of ways. The blocks also provide child care and elderly care to enable caregivers to take full advantage of their services.[43]

Manzanas del Cuidado

Stakeholders

Users
1 million caregivers
(as of end of 2024)

Programme lead
City of Bogotá

Additional technical support
- The UN Economic Commission for Latin America and the Carribean's (ECLAC) development of prioritization index to determine locations for Care Blocks
- UN Women
- Government of Sweden
- OSF
- International Finance Corporation (IFC), member of the World Bank
- UN Development Programme (UNDP)

FUNDING

Ongoing programme funding
- City of Bogotá

Additional grants and funding awards
- Open Society Foundations (OSF) for Care mobile unites
- The Bloomberg Global Mayors Challenge[44]
- The Carter Center's Inform Women, Transform Lives campaign

Key stakeholders
- 5,500 women who contributed to the planning phases
- Intersectional Commission of Care
- Secretary of Women
- The Care Alliance

Replicability and lessons learned

Replicable or scalable aspects

- **Integrated service delivery**: Care Blocks bring essential services – such as job training, childcare and healthcare – under one roof, making support more accessible and efficient. This approach reduces the burden on caregivers and can be adapted to other cities facing similar social and economic challenges.[45]

- **Strategic location planning**: Using data to identify neighbourhoods with high caregiving demands and service gaps ensures resources reach those who need them most. This evidence-based strategy enhances impact and is transferable to other urban settings.

- **Collaborative governance**: The establishment of an Intersectional Commission of Care, involving multiple public entities and stakeholders, ensures coordinated service delivery and policy-making. This collaborative framework promotes shared responsibility and can serve as a model for other municipalities aiming to implement comprehensive care systems.

- **International recognition and adaptation**: The Care Blocks have been acknowledged globally, receiving awards such as the Guangzhou International Award for Urban Innovation and recognition from the OECD.[46] Their success has inspired discussions of replication in cities like San Pedro Garza García, Mexico, and Freetown, Sierra Leone, demonstrating the model's adaptability across diverse cultural and socioeconomic contexts.[47]

Lessons learned

- **Engage the community early**: Involving caregivers and the broader community from the planning phase ensured that the Care Blocks aligned with the needs and expectations of those who would use them, encouraging trust and support for the programme.

- **Focus on gender-responsive urban planning**: Placing Care Blocks within walking distance of caregivers' homes demonstrated a gender-sensitive approach to urban design. This not only addressed the practical needs of caregivers but also alleviated their time poverty, a key barrier to women's economic autonomy in particular.

- **Harness technology for efficiency**: Implementing digital solutions early on streamlined processes like registration and data collection, which allowed for better resource allocation and improved the user experience for caregivers seeking support.

- **Secure legal and institutional support**: Formalizing the care system as a legal entity, backed by the Women's Advisory Council and local government, was essential for ensuring the programme's long-term sustainability and integration into broader city policies.

Challenges

- **Challenging gender norms**: Addressing deeply ingrained societal norms around gender roles required significant cultural transformation efforts. Overcoming resistance and promoting the value of redistributing care responsibilities necessitated continuous community engagement and education.

- **Long-term financial stability**: While initially funded by the city and international partners, securing continued investment is essential for sustainability. Diversifying funding sources and integrating care services into long-term urban policy are critical steps.

- **Intersectoral coordination**: Coordinating among various public entities and stakeholders to deliver integrated services posed logistical challenges. Establishing clear communication channels and delineating responsibilities were essential to ensure effective collaboration and service delivery.

- **Encouraging participation**: Many caregivers were unfamiliar with institutional support systems, requiring proactive engagement to build trust and encourage service use. Demonstrating tangible benefits was key to encouraging long-term involvement.

Addressing these challenges has strengthened the initiative's foundation, making it a viable model for cities seeking to invest in social infrastructure and gender equity.

Aerial view of the SuperCADE Care Block in Ciudad Bolívar, Bogotá. Alejandro Arango

Next steps

- **Expansion of Care Blocks**: Bogotá plans to increase the number of Care Blocks from the current 23 to 45 by 2035, as outlined in the city's Urban Master Plan. This expansion aims to enhance accessibility and support for caregivers across the city.[48]

- **Implementation of mobile care units**: To serve caregivers in rural and hard-to-reach areas, the city has introduced Care Buses – mobile units that provide similar services as the Care Blocks. These buses relocate periodically to maximize reach, ensuring that caregivers in underserved regions receive necessary support.[49]

- **Home-based care services**: Recognizing that some caregivers are unable to leave their homes due to their responsibilities, Bogotá has developed the Care Home Delivery programme. This initiative delivers services directly to caregivers and their dependents within their residences, addressing the needs of those who cannot access Care Blocks or Care Buses.[50]

2024-2027

Ahualulco, Jalisco, Mexico

Ahualulco Land Ownership and Development Programme

New lots in Ahualulco de Mercado, Mexico. New Story

HIGHLIGHTS
FROM THE DBQS

ECONOMY
DIVERSITY
GOVERNANCE
FUNCTIONALITY

Presented by New Story

New Story's innovative market-based solution addresses the global housing crisis by empowering families to become landowners and homeowners in thriving communities.

According to UN-Habitat, more than 1.8 billion people worldwide lack adequate housing, with projections indicating this number could rise to 3 billion by 2030. New models at scale are needed in response.

This global housing crisis often disproportionately affects women and children, perpetuating cycles of poverty. New Story's model addresses the causes of this crisis by empowering vulnerable families through projects that promote land and home ownership – providing a foundation for stability and improved living conditions.

In towns like Ahualulco de Mercado in central Mexico, with a population of more than 23,000 and a 41% state poverty rate, traditional housing markets have failed to serve vulnerable families – only 39 affordable homes have been sold in this area in the last five years.

In partnership with local developer UR+PA, New Story delivered 401 serviced lots with essential infrastructure (water, sewage, electricity and roads). This had a tenfold impact, affecting 1,500 individuals (340 families). Additionally, 66.5% of the landowners are women – more than double Mexico's average of 30%.

By engaging local actors, New Story is addressing a critical housing shortage by creating a housing market for low-income families. This cost-effective approach breaks the cycle of poverty and enables families to build homes and generational wealth for the first time.

Key outcomes

ECONOMY New Story's land programme creates substantial economic benefits for participating families. Families can use their land title and two years of consistent savings payments to serve as collateral and demonstrate creditworthiness for their first major loan to finance a home build. Only 26% of Mexican adults have access to formal housing finance.

The programme transforms "unbanked" beneficiaries into traditional market actors with clear paths to asset accumulation. This market-based approach enables families to purchase property and invest in homes they desire and can afford, creating long-term equity and intergenerational wealth transfer. The economic impact extends beyond individual families, stimulating broader economic activity in previously underdeveloped communities and regions.

DIVERSITY The programme has demonstrated powerful outcomes for gender equality, with 66.5% of participating landowners being women, compared to just 30% in Mexico's national average. This directly contributes to women's economic empowerment, enhancing their agency within households and communities. Land ownership gives women autonomy over their lives and futures, elevating their status and reducing vulnerabilities.

By securing land rights for women, the programme addresses historical gender discrimination in property ownership, creating pathways to financial independence and decision-making power. This approach ensures that traditionally marginalized populations have equal access to the economic benefits of land ownership.

GOVERNANCE New Story's approach brings together municipal governments, financial institutions and land developers like UR+PA to provide innovative housing solutions to vulnerable families.

Municipal governments partner with New Story to identify well-located land and streamline permitting processes for more efficient housing solutions. This condenses the homeownership process from 15 years to two years. New Story also partners with financial institutions to adapt its products for this population, enabling previously excluded families to build creditworthiness.

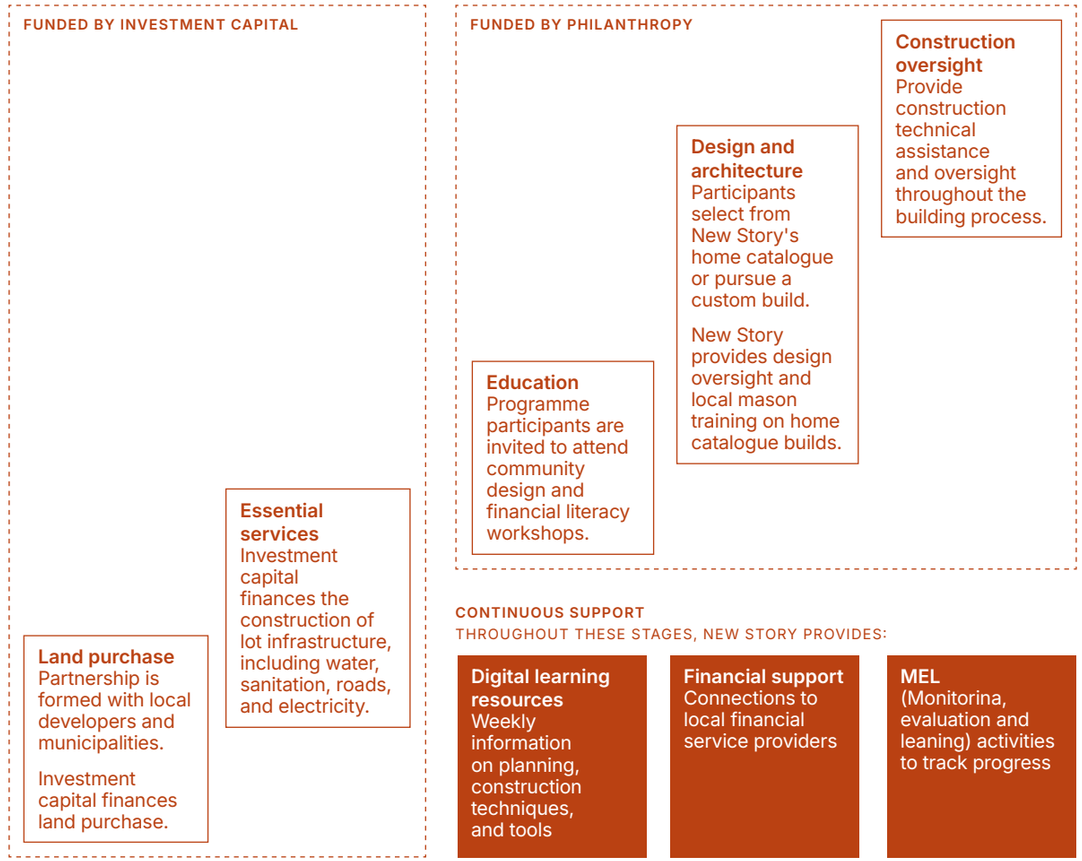
FUNCTIONALITY Land developers like UR+PA, which has experience implementing social development models, transform land into serviced lots with essential infrastructure, including water, plumbing, electricity and roads. This ensures long-term functionality while promoting comfort and health of the homeowners.

The Ahualulco Land Title Ceremony, March 2025. New Story

Stakeholders

FIGURE 5

The housing continuum



Replicability and lessons learned

Replicable or scalable aspects

- **Blended finance model**: Combining philanthropic and investment capital creates a sustainable and scalable approach adaptable to various contexts. This approach streamlines infrastructure development while maintaining operational quality.

- **Financial institution partnerships**: Training local financial institutions to serve low-income populations creates lasting infrastructure beyond the immediate programme. Financial institutions can use proven data that shows these families are potential customers.

- **Land appreciation strategy**: Purchasing undeveloped land, adding infrastructure and harnessing the resulting value increase can be replicated across geographical contexts and cultures.

- **Layaway payment structure**: The affordable monthly payment system simultaneously builds savings habits and creditworthiness for previously unbanked populations, moving them from beneficiary to customer.

Lessons learned

- **Community engagement**: Low-income families in Mexico often hesitate to trust new programmes or services due to the country's long history of corruption. Engaging families excluded from formal markets requires deep community involvement, transparent communication and a long-term commitment to delivering results. At the same time, ensuring that developers see a viable and profitable model is essential for scaling this programme to new states and regions. By promoting trust at the community level and demonstrating the model's financial sustainability, programmes can bridge the gap between affordability and investment, creating a lasting impact for both families and developers.

- **Financial institution collaboration**: Traditionally, financial institutions did not see low-income families as viable customers. By readying families through financial literacy training and supporting them throughout their land payments, the programme de-risked these families and moved them from beneficiaries to traditional market actors. Local financial institutions now see them as responsible and reliable customers, ready for their first loans.

The Ahualulco Land Title Ceremony, March 2025. New Story

Challenges

- **Creating a new housing market**: New Story is the only organization within Mexico using a market-based model that combines philanthropy and investment to solve global homelessness and poverty. No direct competitors exist because home developers and financial institutions do not see low-income, unbanked families in Mexico as customers. New Story has created a model that de-risks these families and unlocks a land and housing market that currently excludes them.

- **Embedding sustainable practices**: Less-sustainable construction materials such as traditional concrete are often found to be preferred by communities and developers New Story works with. In response, New Story is seeking to further embed circular and sustainable construction and materials into the development model by building a robust economic and longevity case for families, investors and developers they work with. This will serve to further improve the quality of the homes built.

- **Incentivizing private sector actors**: Without support from New Story, private sector actors cannot take on the workload to implement the activities. Therefore, New Story is actively working with land developers and financial institutions in target regions to understand how they can effectively implement this strategy independently. In particular, New Story is working to better understand the top criteria for success, including:

    - **Profitability**: Ensuring the minimum profit needed for land developers to take this innovation seriously and understand that they will benefit from it

    - **Demand**: Opening their opportunities to a new, high-demand market with huge potential, unlocking a new segment they may not have been able to access before

    - **Ease of implementation**: Providing these actors with a simple guide to adopt and incorporate without any challenges

Next steps

- New Story is expanding this model across Mexico, targeting 10,000 new families in 10 states by 2027. To scale this programme, New Story aims to continue raising investment and philanthropy capital. This includes partnering with 8-10 financial service providers to offer specialized financing products in new geographic regions.

- The programme will continue refining its approach to reducing philanthropic unit costs while maintaining quality and impact. New Story is developing enhanced training programmes for financial institutions and plans to enter the sub-Saharan African market once the approach is proven in Latin America.

- A key focus is strengthening the measurement of long-term outcomes, particularly intergenerational wealth transfer and women's economic empowerment, through longitudinal studies tracking how land ownership transforms families' economic trajectories.[51]

Resilience and climate adaptation

Strengthening the biosphere through regeneration and culture-based climate action

Overleaf: Image from Revitalizing Lake Texcoco. Iñaki Echeverria

Introduction

The escalating impacts of climate change – rising sea levels, extreme weather events and prolonged droughts – are not only reshaping our natural landscapes, cities and living places but also the cultural spaces that define our shared heritage. From ancient coastal settlements submerged by rising tides to Indigenous communities displaced by desertification, the loss of cultural spaces is a stark reminder of the interconnected crises we face. The United Nations Educational, Scientific and Cultural Organization (UNESCO) estimates that one in six cultural heritage sites[1] globally are under threat from climate-related hazards. These losses are not just physical – they represent a threat to traditions, knowledge systems and identities that have sustained communities for generations.

In response, the Davos Baukultur Alliance advocates for a regenerative approach to design and development – one that goes beyond sustainability to actively restore ecosystems, replenish resources and strengthen community resilience. Culturally based, regenerative design and development, as outlined in this paper, seeks to create net-positive impacts by embedding nature-led strategies, cultivating adaptive urban systems and integrating Indigenous and traditional knowledge into the built environment. By rethinking relationships between people and nature, regenerative design offers a framework for addressing ecological degradation and cultural loss. It ultimately ensures that urban development not only mitigates harm but actively contributes to the health of the biosphere and the well-being of communities.

The Davos Baukultur Alliance, a global network committed to high-quality, sustainable and resilient design, recognizes that addressing these challenges requires more than technical solutions. It demands a holistic approach that integrates ecological restoration, cultural preservation and community agency. By drawing on Indigenous knowledge, traditional practices and innovative technologies, it's possible to redefine urban development as a process of ecological and social renewal. The Alliance calls for a collective effort to embed regenerative principles and culture-based approaches into global frameworks, policies and governance structures, offering actionable strategies for practitioners. Through these lenses, it provides approaches that highlight the importance of nature-led solutions, public-private collaboration and the integration of cultural wisdom into climate strategies to drive meaningful change.

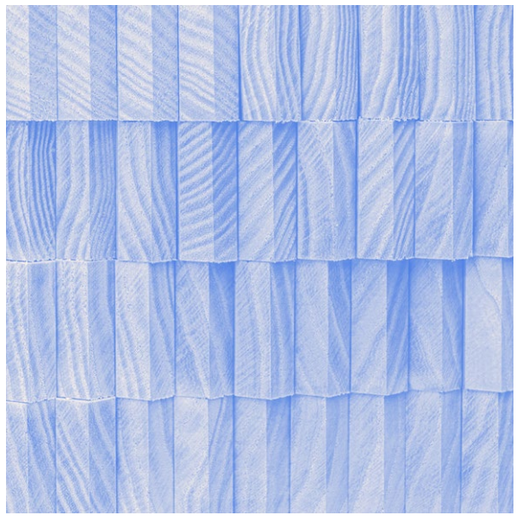
Resilient and adaptive Baukultur

The Davos Baukultur Alliance is committed to cultivating high-quality, liveable places through sustainable, regenerative and resilient design and development practices. The Alliance's approach centres culture, well-being, community agency and ecological balance in living environments. Resilience and climate adaptation, a core focus of the Alliance, can reduce vulnerabilities from climate hazards by enhancing local capacity to withstand and accommodate change. This principle can also strengthen the biosphere, restoring ecosystem health and altering relationships between people and nature through enduring, context-driven design and community-led strategies.

Resilient, climate-adaptive and high-quality Baukultur, as promoted by the Alliance, embraces principles that strongly align with the eight criteria outlined in the Davos Baukultur Quality System. These interconnected dimensions drive the Alliance's holistic approach to integrating resilience into high-quality Baukultur and urban development. They can empower communities, sustain cultural legacies and enable innovation to withstand – and thrive in the face of – climate challenges.

To advance these principles in practice, this paper explores two key impact areas: regenerative development for a thriving planet and culture-based climate action. Regenerative design and development focus on restoring and enhancing ecosystem health, embedding nature-positive strategies into the living environment and cultivating adaptive urban systems that replenish resources over time. Culture-based climate action emphasizes the role of local knowledge, heritage and social identities in shaping climate adaptation strategies, ensuring that resilience measures are contextually relevant and deeply rooted in the communities they serve.

The following sections explore these two critical topics, examining their role in advancing resilient and adaptive Baukultur. They also offer cross-sector approaches for practitioners and decision-makers. These outline actionable strategies for integrating regenerative approaches into urban development and harnessing cultural frameworks to drive effective climate adaptation and long-term resilience.



Unsplash

Regenerative design and urban development

The Earth's biosphere is a complex network of living and non-living things that sustain all life and regulate the planet's many systems and cycles. The biosphere's functional resilience has been pushed beyond the boundaries that the planet can safely sustain, threatening the delicate balance that supports life as humanity knows it. Notably, 44% of global GDP in urban areas is at risk due to nature loss.[2] What's more, the built environment significantly contributes to environmental degradation, generating over 40% of global CO_2 emissions,[3] and projections indicate that global natural resource consumption will increase by 60% by 2060 compared to 2020 levels due to urbanization and population growth.[4] Implementing regenerative practices offers a pathway to address these challenges.

The Davos Baukultur Alliance considers regenerative design to be a transformative approach to development that reconciles the need to strengthen the biosphere with the need to accommodate the resilience of human populations and settlements. The premise of a regenerative development model is to design solutions that generate net-positive impacts in perpetuity, restore ecosystems, replenish resources and strengthen community resilience.[5] This approach involves seizing every opportunity to embed nature-led design, systemic thinking and social equity in the built environment,[6] ensuring ecological and social regeneration. The regenerative design and development model is underpinned by three key dimensions that cumulatively create a holistic framework for aligning development with climate and social resilience. By applying this model, it's possible to cultivate thriving, future-proof cities that regenerate natural, social and technical systems.

TABLE 1

Three dimensions of regenerative interventions: a framework for future-oriented design and development

DIMENSION	GOAL	EXPLANATION
1 DYNAMIC	Design systems that can recognize, address and accommodate change, responding to uncertain conditions to protect and restore ecosystem health.	Draw from nature's systems as they shift in response to disturbances and changes. Know how to manage them, and embed this flexibility in built infrastructure, managing services and developing new programmes and collective processes. Identify different levers for embedding adaptability and consider trade-offs early, ensuring actions are systemic in scale and cross-sectoral.
2 MULTI-SCALAR	Transform interrelationships across social and natural ecosystems, from buildings and neighbourhoods to cities and regions.	At any scale, an intervention looks to give back more than it takes from its context (e.g. generate energy, clean air, harvest and purify water, store carbon, restore its ecosystem, deliver healthy spaces and/or strengthen social systems). It makes use of re-used and recycled materials to reduce or stop resource extraction and is designed to enable its users to lead regenerative lifestyles, thus carrying its objectives through to operational stages.
3 PLACE-BASED	Drive relationships that enhance natural and social ecosystem health locally.	It is crucial that development enables all life to thrive by restoring and replenishing local ecosystems, resources and social networks. It is equally essential to integrate local values, needs and opportunities into design and policy decisions, prioritizing inclusive and equitable outcomes. Another key aim is to strengthen connections between communities and their environments by embedding culturally relevant practices, sustainable livelihoods and community co-benefits into planning and development.

A common language for regenerative development

To accelerate the adoption of regenerative development, it's crucial to develop a common language and understanding to align public- and private-sector actors on objectives. The meaning of "regenerative development" may differ across places and people and will be influenced by local values, needs and cultural contexts. More consistent, shared and contextually tailored language will help bridge differences and ensure clear communication of regenerative goals across industries and communities. This includes formal and informal cross-sector collaborations to:

- Develop compelling narratives and accessible data that highlights the biodiversity, climate and social benefits of regenerative solutions.
- Shape shared rhetoric that resonates with diverse stakeholders, from policy-makers to local communities.
- Use multi-platform engagement strategies – such as media campaigns, convenings and pilots – to engage broader audiences and build support for regenerative practices.

Through effective storytelling and collaborative communication, it's possible to drive broader public understanding and inspire action for cities that thrive ecologically and socially.

Recognizing the need for continuous innovation

Regenerative design and urban development demand bold, continuous innovation across multiple scales. There is no singular blueprint – only a dynamic process of learning, adaptation and localized action. The Alliance embraces this complexity and calls for a regenerative approach that strives for continuous innovation, driving diverse, context-specific interventions that can be tested, refined and scaled to accelerate impact. Inspired by the ethos[7] that no regenerative process is ever complete, the Alliance recognizes that it's crucial to act now. The path forward is one of continuous improvement.

Regenerative design and development approaches

The Davos Baukultur Alliance advocates for a regenerative approach to design and urban development – one that goes beyond sustainability and resilience to actively restore and revitalize urban systems, nature and society. These approaches outline strategies to create net-positive impacts, ensuring that urban development not only meets today's needs but also adapts to future challenges, demands and ways of living. By integrating nature, cultivating social inclusion and designing spaces that prioritize community well-being and replenishing resources, regenerative design and urban development can serve as a powerful framework for building thriving, adaptive and ecologically harmonious places.

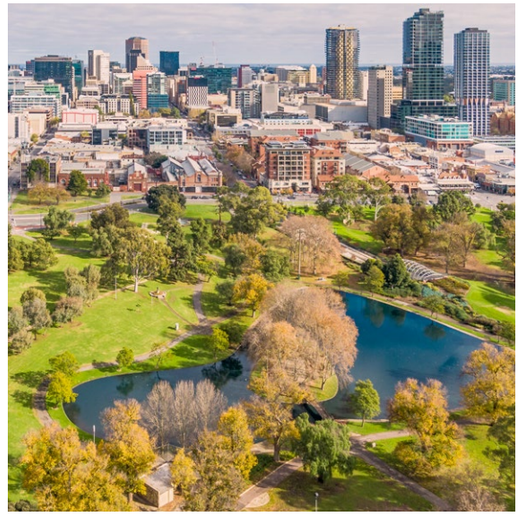
APPROACH 1

Create the right enabling environment through policies and regulations to incentivize regenerative solutions

To shift away from linear and segregated models of development and drive regenerative solutions, policy-makers must establish an enabling regulatory framework that creates strong business cases[8] and financial incentives. This includes:

1. Developing policies that reward regenerative initiatives through tax breaks, subsidies[9] and performance-based financing for projects that prioritize ongoing net-positive impacts on environmental and social ecosystems
2. Integrating regenerative design requirements into building codes, zoning laws and urban planning processes

By aligning incentive structures with regenerative goals, governments can help de-risk investments in green solutions, encourage innovation in nature-based infrastructure and drive a shift towards regenerative practices across urban development sectors. These policies should also promote long-term, measurable outcomes (such as increased biodiversity and planetary health), resource replenishment and community well-being, ensuring that these transitions benefit both the environment and society.



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AUSTRALIA'S CIRCULAR ECONOMY FRAMEWORK

International policy examples should explicitly embed regenerative aspirations. One example is Australia's national Circular Economy Framework, which integrates regenerative design principles alongside circularity to restore ecosystems and reduce environmental harm. By shifting away from a linear "take-make-waste" model, it promotes designing products and systems that actively regenerate nature. A key focus of the framework is eliminating waste and pollution to prevent environmental degradation while prioritizing materials and processes that replenish soil health, restore biodiversity and reduce resource extraction. It encourages the adoption of circular principles to minimize ecological impacts, reducing reliance on virgin resources to prevent habitat destruction. By aligning economic activities with ecological limits, the framework cultivates a system where nature and industry can coexist sustainably, ensuring long-term benefits for both people and nature. This national policy has been complemented by industry commitments such as the Australian Institute of Architects' mission statement and associated tools and resources[10] to enable built environment sectors to embed regenerative design.

THE EUROPEAN HORIZON PROJECT

Located in Gran Canaria, this project exemplifies how policy and fiscal innovation can drive regenerative development. This initiative is pioneering a localized tax system to directly fund nature-based solutions, ensuring long-term investment in ecosystem restoration and community resilience. By embedding regenerative goals into municipal tax structures, the project establishes a financial mechanism that rewards environmental stewardship while securing sustained funding for green infrastructure.

Key components of the initiative include:

- Tax incentives for regenerative practices: Businesses and property owners receive tax breaks for investments in green infrastructure, such as urban wetlands and biodiversity corridors.
- Performance-based financing: Projects demonstrating measurable ecological and social benefits, such as carbon sequestration or enhanced public health outcomes, qualify for financial support.
- Integration into urban planning: Regenerative design principles are embedded into zoning laws, requiring new developments to incorporate NbS elements that enhance biodiversity and climate resilience.

By aligning fiscal policies with regenerative development principles, Gran Canaria's approach de-risks investment in green solutions, boosts community participation and ensures that ecological restoration becomes an integral part of urban development. This model demonstrates how municipalities can harness tax mechanisms to finance long-term environmental and social well-being, setting a precedent for other regions seeking to integrate regenerative solutions into their urban policies.

APPROACH 2

Cultivate public-private collaboration and cross-sector partnerships

Regenerative urban development requires strong collaboration between the public and private sectors, across cities and regions, and with non-governmental organizations (NGOs) and civil society. This facilitates resource sharing and knowledge exchange, helping scale expertise – especially in the public sector – to prevent capacity delays and accelerate the systemic shift to regenerative solutions. This could include:

1. Establishing multistakeholder coalitions or local champions as a "broker" to align public policies, private investments and community initiatives, and drive scalable nature-based solutions
2. Facilitating city-to-city and regional knowledge exchanges to share best practices, develop standardized frameworks and accelerate implementation

Through early and active engagement with local communities in the co-design and governance of regenerative projects, it's possible to maximize buy-in and impact, and ensure social inclusivity. Strengthening public-private and cross-sector collaboration enables more efficient resource allocation, policy alignment and long-term investment in regenerative solutions, thereby creating thriving, resilient and ecologically restorative urban environments.

GREEN CORRIDORS INITIATIVE IN MEDELLIN

In Medellín, Colombia, the Green Corridors Initiative demonstrates how public-private collaboration can drive regenerative development. The project convened private investors, NGOs and local communities to create 30 green corridors across 18 main roads and 12 waterways. These corridors have expanded the city's green spaces by over 70 hectares and facilitated the planting of approximately 880,000 trees and 2.5 million smaller plants. Acting as a broker, the city aligned public policies, private investment and community initiatives to deliver scalable, nature-based solutions that have reduced urban temperatures by up to 2°C and improved air quality. Early engagement ensured that designs reflected local priorities and that training programmes empowered residents to maintain the spaces. Medellín has since shared its model with other Latin American cities, catalysing regional knowledge exchange to accelerate climate resilience and regenerative practices.[11]

APPROACH 3

Mainstream regenerative practices by measuring impact and quantifying natural, technical and social resources

To mainstream regenerative practices in urban development, it's crucial to quantify their performance indicators by developing 1) standardized measures for ecosystem restoration, biodiversity gains and climate resilience (embedded into policy and practice), 2) metrics that capture how resources are used and replenished across sectors and 3) the means to predict and monitor their financial and technical viability over the long term.

Investors need clear, data-driven indicators to assess the economic, social and environmental returns of regenerative practices. Such indicators reduce investment risks and unlock capital for regenerative, nature-based solutions. Some examples of existing tools to measure and manage biodiversity gains include the Global Biodiversity Metric[12] and the UK Government's version 4.0 of the Biodiversity Net Gain Metric.[13] More broadly, the International Sustainability Standards Board (ISSB) has recently launched standards designed to enable companies to communicate to investors about the sustainability-related risks and opportunities they face over the short, medium and long term.[14]

By embedding measurable and data-driven benchmarks – such as carbon sequestration rates, urban cooling effects, air quality, ecological connectivity and soil regeneration – regenerative projects can demonstrate impact, drive policy alignment and scale adoption. While it's true that all data gathering and representations have limitations, quantifying the benefits and impacts of regenerative capacities strengthens investor confidence, supports performance-based financing and ensures that regenerative practices become a viable, mainstream strategy for building climate-adaptive and ecologically thriving cities. For comprehensive strategies on financing the urban nature transition, see the World Economic Forum's January 2025 report, Nature Positive: Financing the Transition in Cities.

Launchpad Project in Kalampaka in the Thessaly Region in Greece. Getty Images

NATURE FOR CATCHMENT LAUNCHPAD

The Nature for Catchment Launchpad by Global Infrastructure Basel (GIB) integrates nature-based solutions into water management, as well as restoration of wetlands, forests and riparian zones to improve water filtration, aquifer recharge and flood resilience. The initiative tracks key metrics like biodiversity gains, carbon sequestration and cost savings for utilities and municipalities.

A critical component of this effort is its emphasis on data-driven decision-making. The programme provides tools for measuring and tracking regenerative outcomes, ensuring that investors and policy-makers have clear metrics for water security, ecosystem health and climate adaptation.

Moreover, the initiative cultivates cross-sector collaboration by engaging municipalities, utilities and private-sector partners. By embedding performance-based financing models and aligning financial incentives with quantifiable regenerative benefits, the Launchpad helps scale NbS investments beyond individual projects, making nature-positive water management a mainstream approach in urban planning.

APPROACH 4

Develop tools to assess a systems approach to urban development

To achieve regenerative design and urban development, new tools must be developed to facilitate systems thinking, considering resource flows and interdependencies, as well as collaboration across disciplines and sectors. These tools could model, measure, analyse, visualize and monitor the interconnectedness of urban systems. They may consider:

1. Resource flows (i.e. energy, water, waste) and material cycles (i.e. life cycle approaches through recycling and re-use) as part of a closed-loop system that restores, protects and regenerates ecosystems

2. The interdependencies between urban elements, such as green-blue and grey infrastructure, public services and spaces, housing quality, etc.

3. Ecosystem health (e.g. biodiversity, air, water and soil quality, etc.)

4. Public health, social networks, socioeconomic conditions, community initiatives and cultures

For example, new digital twins can support practitioners in designing integrated systems that maximize benefits across regenerative scales – from buildings to biospheres – to meet today's needs while continuously adapting to tomorrow's challenges, demands and ways of living.

AMARAVATI – DIGITAL TWIN IN INDIA

The newly founded city of Amaravati, capital of Andhra Pradesh, a state in south-eastern India, uses a digital twin to drive regenerative urban development and ecological restoration. This virtual model simulates land use, biodiversity and water management to minimize environmental disruption and promote sustainable growth. By analysing resource flows and ecosystem interactions, it supports closed-loop systems for waste reduction, water conservation and energy efficiency. Although much of the new city is still under development, the digital twin is playing a key role in sustainable development by allowing planners to test different scenarios and predict environmental impacts before construction, ensuring that ecological disturbances are minimized.

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Culture-based climate action

The Davos Baukultur Alliance defines culture-based climate action as a paradigm that recognizes the profound influence of cultural narratives, heritage and traditions in shaping resilient, regenerative and place-based responses to climate change. Rather than treating climate action as a purely technical or policy-driven endeavour, this approach harnesses the power of storytelling, place-based knowledge and lived experience to bridge past, present and future solutions. By integrating cultural identities and traditional knowledge into climate strategies, culture-based climate action cultivates a deep, intrinsic mindset shift. This shift highlights the perception of environmental stewardship as a continuation of long-standing human relationships with the land, water and the built environment (rather than as an obligation).

Indigenous and local knowledge systems are increasingly recognized for their crucial role in climate adaptation and biodiversity conservation, with platforms like the Local Communities and Indigenous Peoples Platform (LCIPP) under the United Nations Framework Convention on Climate Change (UNFCCC) supporting these efforts. The Climate Heritage Network and the UNFCCC's Work Plan on Culture stress the importance of recognizing the role of cultural heritage, arts and creative sectors in advancing climate action. These initiatives emphasize that culture and heritage are invaluable resources for reducing greenhouse gas emissions and strengthening adaptive capacity. Key global efforts, such as United Nations Educational, Scientific and Cultural Organization's (UNESCO) Culture 2030 Indicators, the Global Research and Action Agenda on Culture, Heritage and Climate Change, and upcoming convenings like MONDIACULT 2025 and the 2025 United Nations Climate Change Conference (COP30), are pivotal for advancing these goals and integrating culture into climate strategies.

Furthermore, the Alliance asserts that culture-based climate action goes beyond incremental change. It seeks to fundamentally transform how societies perceive and engage with sustainability in living environments by drawing on historical wisdom, Indigenous practices and local craftsmanship. The Davos Baukultur Alliance calls for a culture-based approach to inform strategic frameworks that guide policy-makers, urban planners, designers, developers, builders and asset managers towards climate solutions that are both innovative and rooted in legacy. By embedding cultural perspectives into climate adaptation and resilience efforts, it's possible to create high-quality, future-proof interventions that honour and learn from the past while addressing contemporary place challenges. These perspectives ensure that climate action is not only effective but also deeply resonant, cultivating a shared sense of responsibility and belonging to place that drives collective transformation.

Climate impacts on cultural heritage

The loss of cultural heritage due to climate impacts – such as rising sea levels,[15] extreme weather events[16] and desertification[17] – poses profound consequences for communities, particularly Indigenous groups who have long-standing ties to their lands. Forced displacement not only severs these deep-rooted connections but also threatens the intergenerational transmission of traditional knowledge, languages and cultural practices essential for sustainable stewardship. As ancestral lands become uninhabitable, entire ways of life risk erasure, reinforcing the urgency of embedding cultural resilience into climate strategies. Recognizing and protecting these cultural dimensions ensures that climate adaptation not only focuses on physical survival but also on preserving identities, histories and relationships to place – all of which are at the heart of culture-based climate action.

Reframe climate action as an opportunity for reinvention

The way in which climate narratives are developed affects responses. Positioning climate adaptation as an opportunity for cultural reinvention, social justice and well-being can inspire proactive engagement and collective movement. Viewing climate challenges as a chance to address inequality, cultivate resilience and promote human flourishing prompts communities to see potential for transformation, not just preservation.

Indigenous wisdom, exemplified by the Aboriginal saying, "if you look after country, country will look after you", underscores the deep interconnectedness between people, culture and the environment. This wisdom reflects the vital relationship between environmental stewardship and human flourishing. Reframing climate action in this way expands the conversation beyond mitigation, allowing it to serve as a tool for advancing equity, improving access to clean water, creating green jobs and promoting sustainable land use.

Centring cultural reciprocity and knowledge transfer

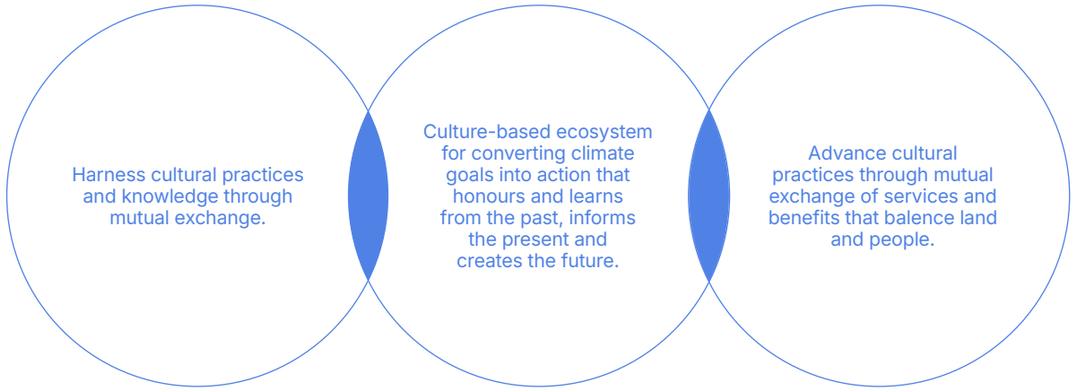
The Alliance advocates for cultural reciprocity and the transfer of knowledge – learning from Indigenous and local knowledge and integrating it into design and sustainability strategies while acknowledging, respecting and giving back to the communities that provide this wisdom. The Alliance recognizes the vast potential of traditional and Indigenous knowledge (encompassing botanical contexts, entire ecological systems and diverse physical and cultural landscapes) in informing climate solutions. Indigenous ways of life are deeply intertwined with the natural world. This symbiotic relationship underscores a fundamental truth – land and people are inseparable, each shaping and sustaining the other.

Integrating the concept of a mutual exchange of services and benefits between land and people into architecture and urban planning across sectors – while promoting cooperation and shared responsibility – is essential to a culture-based approach to climate action. By honouring Indigenous perspectives that view humans as interconnected with nature rather than dominant over it, it's possible to cultivate value systems that guide the design and construction of spaces in harmony with their physical and cultural landscapes. This perspective challenges the extractive tendencies of conventional development and instead promotes a stewardship model in which the built environment exists in mutual respect with natural systems.

FIGURE 1

Framework for culture-based climate action

The development of the ecosystem for converting climate goals into action starts with bottom-up solutions driven by local and Indigenous community needs, knowledge and expertise.



Culture-based climate action approaches

The Davos Baukultur Alliance champions a culture-based approach to place-based climate interventions – one that recognizes the transformative power of cultural narratives, traditions and heritage in shaping sustainable, resilient futures. By embedding Indigenous philosophies of interconnectedness into urban planning and development, it's possible to move towards holistic climate solutions that honour ecological balance and cultural continuity. The Alliance seeks to advance human-centred design, ensuring that created spaces not only mitigate environmental impact but also cultivate well-being, social cohesion and a deep sense of belonging.

The following approaches outline strategies to centre cultural wisdom (including traditional knowledge and technologies, innovation, community engagement and individual voices) as a key driver of climate resilience. They seek to ensure that climate action is not only effective but also deeply rooted in local identity and experience, considering the history and unique characteristics of each place to cultivate sustainable communities and a sense of belonging.

APPROACH 1

Harness traditional knowledge for innovative climate-resilient urban development

Traditional knowledge and pre-fossil-fuel-era technologies are vital sources of climate innovation – rooted in adaptation, ecological stewardship and vernacular craftsmanship. These time-tested methods – developed in harmony with local ecosystems – demonstrated resilience and efficiency long before industrialization and provide critical insights for modern climate adaptation.

From the thermal efficiency of ancient, rammed earth structures to the flood-resistant properties of stilt houses and passive cooling of wind catchers, traditional engineering solutions demonstrate resourcefulness in addressing environmental challenges. Studying these durable, low-impact materials and climate-responsive designs can inform modern applications that reduce emissions, enhance resilience and minimize resource depletion. Beyond simply preserving these practices, it's crucial to actively reinterpret, integrate and mainstream them into contemporary contexts, cultivating innovation by ensuring that these practices remain dynamic and applicable.

One way to do this is by improving the industry's ability to incorporate Indigenous design within both industry and design education,[18] ensuring that these knowledge systems are not just referenced but actively integrated in design. This would require expanding how Indigenous perspectives are adopted and moving beyond surface-level engagement to deep, context-driven applications that reflect both physical and cultural landscapes.

Diriyah Company

THE DIRIYAH GATE IN SAUDI ARABIA

The Diriyah Gate project is a large-scale urban development in Diriyah, Saudi Arabia aimed at transforming the historic birthplace of the Saudi state into a global cultural and heritage destination. Led by the Diriyah Gate Development Authority (DGDA), the project emphasizes the preservation and revival of Najdi architectural traditions, integrating traditional building techniques with modern sustainability principles. This is guided by the establishment of a dedicated Najdi Traditional Material facility to provide workforce training and a large-scale, traditionally rooted materials supply. Traditional techniques include rammed earth construction, adobe and mud-brick walls, palm trunk beams and timber roofing, and local limestone and earth plaster finishes. The materials (which are locally sourced and thermally efficient) and the eco-friendly building techniques that result in passive cooling contribute to sustainability and lower energy consumption while honouring local heritage. Read more in the Alliance's At-Turaif and Bujairi Terrace District Innovative Practice case study.

APPROACH 2

Embed cultural heritage and traditional knowledge into land governance and stewardship

Strengthening climate resilience requires more than technological advancements – it demands a deep engagement with cultural heritage, traditional knowledge and community-driven adaptation to embed learnings into contemporary land management for long-term stewardship and resilience. For example, Indigenous ecological wisdom, cooperative water management and traditional land stewardship have long sustained landscapes and resources, offering proven governance models for modern climate action.

Effective urban planning and policy should integrate cultural narratives, sustainable practices that align with Indigenous environmental stewardship values and place-based resilience strategies into land use, resource allocation and environmental regulations. Strengthening resilience requires engagement with lived experiences and knowledge systems that have sustained ecosystems for generations. This means moving beyond symbolic recognition to ensure these practices actively shape land governance and climate strategies.

To achieve this, governments, cultural institutions, research bodies and international organizations should collaborate with Indigenous and local communities to facilitate knowledge sharing and embed cultural perspectives into climate policies, urban development and educational frameworks.

AUSTRALIA'S INDIGENOUS PROCUREMENT POLICY (IPP)

This policy was launched in 2015 and updated in 2025. It aims to support Indigenous participation in urban development by setting targets for government contracts with Indigenous businesses and requiring agencies to meet minimum standards for Indigenous involvement in major projects. It includes a "mandatory set aside" for certain contracts (ensuring Indigenous businesses have fair opportunities) and Indigenous participation requirements for high-value projects, particularly in construction and infrastructure. These measures seek to integrate Indigenous perspectives into urban development, cultivating inclusive, culturally responsive spaces while promoting economic growth and sustainability.

TRIBUNAL DE LAS AGUAS DE LA VEGA DE VALENCIA

The Valencia Water Tribunal is a historic water management system in Valencia, Spain that has governed irrigation for over 1,000 years. Recognized by the United Nations Educational, Scientific and Cultural Organization (UNESCO) as an Intangible Cultural Heritage of Humanity, the tribunal operates as a democratic, community-led institution that resolves water disputes orally and in public without written records. Rooted in Islamic-era irrigation traditions, the system ensures equitable water distribution among farmers by managing the region's intricate network of ditches (acequias). This governance model exemplifies sustainable, place-based resource management, demonstrating how traditional knowledge can inform modern water conservation and climate resilience strategies.

Pexels

APPROACH 3

Harness storytelling to inspire climate action

To drive meaningful climate action and address the challenge of rising "green fatigue",[19] it's crucial to embrace storytelling as a transformative tool that humanizes climate science, cultivates empathy and mobilizes communities and sectors towards collective action. Climate advocacy should go beyond statistics, incorporating lived experiences, cultural values and ancestral knowledge. Indigenous storytelling traditions not only document environmental change over generations but also offer valuable frameworks for resilience and adaptation, making them essential to climate education. Oral traditions, Indigenous cosmologies and community histories can be elevated as foundational sources for climate education.

Compelling storytelling not only translates climate challenges into relatable experiences but also strengthens community bonds and collective responsibility. Tailoring climate action messaging to cultural norms enhances participation, ensuring that climate solutions resonate with local realities.

To achieve this, immersive storytelling methods – such as film, theatre and speculative fiction – should engage diverse audiences. Participatory storytelling workshops and digital platforms can amplify community voices, particularly from frontline and Indigenous communities who hold invaluable ecological knowledge. Storytelling can also be a tool for policy advocacy, with climate narratives informing decision-making and inspiring systemic change. By integrating storytelling into policy-making, education and advocacy, it's possible to shift climate action from an obligation to a shared purpose. Crafting narratives of hope, resilience and innovation can counter dystopian paralysis and inspire proactive solutions. Literature, film and other cultural productions shape public imagination, helping communities envision sustainable, just and regenerative futures.

Beyond broad cultural production, speculative design and design fiction offer structured methodologies for exploring alternative futures. These can be powerful tools allowing designers, policy-makers, communities and other practitioners to experiment with hypothetical scenarios and visualize climate-adaptive societies shaped by both technological advancements and cultural heritage. Future-focussed thinking opens pathways for real change, transforming climate challenges into opportunities for bold, creative action.

To maximize impact, climate-positive speculative storytelling can extend beyond isolated creative exercises and be actively integrated into climate governance, education and community engagement. Through participatory workshops, exhibitions and interactive media, speculative narratives can serve as both a reflection of potential risks and a roadmap for regenerative futures.

TIPPING POINTS HUB

Part of the Global Collaboration Village, the World Economic Forum's Tipping Points Hub uses immersive simulations and data-driven insights to illustrate how critical climate thresholds can trigger cascading global impacts. By integrating virtual reality, climate modelling and interactive scenario planning, the hub enables decision-makers to visualize the risks of climate tipping points – such as rising sea levels and extreme weather – on businesses, supply chains and communities. As a decision-making tool, the hub helps businesses and policy-makers assess vulnerabilities, develop adaptation strategies and advocate for stronger climate policies. By transforming complex climate science into tangible experiences, it bridges the gap between research and action, driving informed and proactive responses to climate risks.

STORYTELLING PROJECTS

Notably, three recent notable projects exemplify the power of speculative storytelling.

1. **Liam Young's Planetary Redesign** (2023) at the National Gallery of Victoria presents radical speculative design ideas in response to the climate crisis. Through immersive visual storytelling, it challenges audiences to think of planetary-scale infrastructure and the built environment as tools for climate adaptation.

2. **Superflux's Mitigation of Shock (London)** envisions a future apartment adapted for climate-disrupted living, where resource scarcity and extreme weather are daily realities. This experiential installation encourages visitors to explore resilience strategies for a changing world.

3. Harvard GSD's **Designing for the DNA of a Place** reimagines architectural pedagogy by focusing on process, ethics, and the overlooked influences of Indigenous design. Led by Mariam Kamara, the course challenges students to design speculative projects informed by the region's Indigenous heritage, addressing the inequities of a Western-dominated architectural canon and expanding the ethical considerations of architectural practice.

Play the City

PLAY THE CITY

Play the City organization that uses games to engage communities in exploring complex urban issues, with a focus on topics like sustainability, climate resilience, social inclusion and urban planning. Through participatory game design, the initiative creates immersive, interactive experiences that encourage citizens, policy-makers and stakeholders to collaboratively address challenges. One notable project, "Climate and the City", used a game to involve participants in decision-making about climate adaptation strategies, helping to identify local vulnerabilities and solutions. By blending play with critical thinking, Play the City cultivates a deeper understanding of urban issues and empowers people to take meaningful action.

APPROACH 4

Actively collaborate with local communities, the private sector and cultural preservation organizations

Indigenous knowledge, heritage-building practices and community-driven strategies must be integrated into contemporary climate policies through co-creation. Climate adaptation strategies should not be imposed but developed collaboratively with local communities. Tailored and culturally appropriate engagement processes with Indigenous groups are crucial to cultivating relationships based on trust and mutual respect (rather than transactional exchange). It's crucial to learn about cultural protocols, values and traditions, ensuring that these relationships are built on a foundation of long-term commitment rather than short-term objectives.

Partnerships between cultural heritage bodies, NGOs, private-sector organizations and regulatory bodies can ensure that traditional knowledge informs modern climate solutions. However, these collaborations must also prioritize reciprocity, ensuring that what is taken from communities is also given back in meaningful ways. This could involve supporting the communities' goals and helping strengthen their capacity to protect and preserve their own cultural heritage and ecological wisdom. By acknowledging that the process of collaboration is iterative and ongoing, it's possible to demonstrate a genuine commitment to these relationships beyond immediate climate goals.

Private-sector actors must play a role in funding and scaling climate initiatives that integrate cultural wisdom into business models and sustainability strategies. Culture-based solution should be embedded into existing climate funding.[20] However, these contributions should be mindful of the long-term needs of the communities and should reflect a holistic approach to both economic development and cultural preservation. Through collaboration rooted in trust and respect, it's possible to create sustainable, culturally sensitive solutions that benefit all stakeholders.

Erik (HASH) Hersman, via Wikimedia Commons

INTEGRATING CULTURE-BASED APPROACHES IN LAMU OLD TOWN

The culture-based approach in Lamu Old Town emphasizes a collaborative approach to addressing climate action, urban development and cultural preservation challenges. UNESCO, in partnership with local communities, the private sector and cultural heritage organizations, has implemented initiatives such as the Lamu Old Town Management Plan and Waste Management Policy. Community empowerment workshops have been crucial in documenting Indigenous knowledge and training residents in sustainable practices. Partnerships with conservation groups support mangrove restoration, while collaboration with local businesses promotes eco-friendly waste management. By integrating traditional knowledge with modern policies, this multistakeholder effort strengthens resilience, safeguards cultural heritage and cultivates sustainable development. Read more in the Alliance's Lamu Old Town Innovative Practice case study.

Conclusion

The Davos Baukultur Alliance recognizes resilience and adaptation as critical to the future of living places and urban development, and calls for a fundamental shift in how leaders design, develop and sustain built and natural environments. Strengthening the biosphere through regenerative design and development is not a quick fix but a long-term commitment to rethinking how places are planned, built and maintained across all sectors and communities. By prioritizing nature-led solutions, embracing circular resource flows and cultivating inclusive co-creation, it's possible to establish the conditions for high-quality Baukultur that not only minimizes harm but actively contributes to ecosystem regeneration, climate resilience and community well-being.

At the same time, culture-based climate action highlights that true transformation emerges from within communities and their cultural traditions. Integrating ancestral knowledge across sectors, shifting societal mindsets and cultivating a collective sense of responsibility can serve as a powerful catalyst for innovation, social equity and environmental regeneration. It is not enough to change technical practices without addressing the deeper cultural and societal perceptions that shape climate action.

The Davos Baukultur Alliance calls for a collaborative effort to embed both regenerative development and culture-based climate action into global frameworks, policies and governance structures. By aligning these two approaches, leaders and communities can build a future where climate resilience, social justice and environmental regeneration go hand in hand – creating cities and communities that not only endure but thrive for generations to come.

Getty Images

Innovative practice

The innovative practice studies explore projects that have embraced both regenerative design and development and culture-based climate action as transformative approaches to urban resilience. These studies highlight how high-quality outcomes can be achieved through diverse strategies, such as restoring urban biodiversity, harnessing traditional knowledge and co-creating spaces with local communities. By integrating ecological restoration with cultural and social frameworks, these examples demonstrate how cities can become more adaptable, inclusive and environmentally regenerative.

Each case study provides practical insights into how context-specific, scalable and holistic solutions can drive ecological and social renewal across multiple scales. By showcasing innovative models that embed regenerative principles and cultural resilience into the built environment, these studies offer valuable lessons on cultivating thriving, future-ready cities.

2019-2023

Iwan Baan

Rwanda Institute for Conservation Agriculture

Eastern Rwanda

The Rwanda Institute for Conservation Agriculture (RICA) integrates education, research and practice to equip the next generation of agricultural leaders with the skills needed for climate-resilient, conservation-driven farming.

In 2019, the Howard G. Buffett Foundation, the Government of Rwanda and MASS Design Group launched RICA. Located on a 1,378 hectare site in eastern Rwanda, RICA's design emphasizes sustainability, using local materials and labour to build a carbon-positive campus. The project prioritizes environmental conservation through ecosystem restoration, renewable energy solutions and sustainable water management practices. The campus serves as a living laboratory where students engage hands-on in regenerative agriculture and livestock management.

The design also reflects Rwanda's cultural and ecological context, incorporating traditional construction techniques, locally sourced materials and regional architectural styles. The project has provided training and employment to hundreds of local workers, including 16% women, and has strengthened Rwanda's capacity for sustainable building practices.

Since the completion of its first phase in 2019, RICA has welcomed its first cohort of students and is continuing to develop as a centre of excellence for agricultural education. The project represents an integrated model of sustainability, governance and local engagement, positioning Rwanda as a leader in conservation agriculture in Africa.

HIGHLIGHTS FROM THE DBQS

GOVERNANCE
ENVIRONMENT
CONTEXT
SENSE OF PLACE

SIZE

3,400 acres

COST

$75 million

Presented by MASS Design

Key outcomes

GOVERNANCE RICA embeds a collaborative, multistakeholder approach that integrates government support, philanthropic investment and community engagement. The partnership between the Howard G. Buffett Foundation, the Government of Rwanda and MASS Design Group ensures quality, place-specific processes led by skilled teams. Additionally, RICA trains local workers – including 16% women – in sustainable construction, promoting transparency, capacity-building and long-term participatory governance in decision-making, management and stewardship. The institute operates with a long-term vision, ensuring governance structures and knowledge transfer remain resilient beyond initial implementation.

ENVIRONMENT RICA contributes to sustainability by prioritizing conservation, biodiversity restoration and carbon sequestration, with the goal of achieving operational carbon positivity by 2032 and full climate positivity by 2038. The project preserves ecological corridors, restores degraded landscapes and integrates agroforestry practices to support regenerative farming. Powered by off-grid solar energy, the campus also employs sustainable water treatment systems and incorporates durable, locally sourced materials with low environmental footprints. Passive cooling techniques, natural ventilation and rainwater harvesting enhance comfort and resilience while minimizing resource consumption. RICA's environmental strategy aligns with Rwanda's national sustainability goals and serves as a model for future rural development projects.

CONTEXT RICA's campus design is deeply integrated with its natural and cultural surroundings, embracing Rwanda's agricultural heritage through vernacular materials and regional construction techniques. The use of locally sourced stone, earth and timber aligns with the site's landscape, ensuring that new development harmonizes with existing spatial and ecological characteristics. The project respects and enhances the region's rural character while setting a new standard for educational and agricultural facilities in the country.

SENSE OF PLACE RICA creates a strong identity by celebrating local craftsmanship, incorporating handcrafted furniture and fittings by Rwandan artisans, and embracing traditional construction methods. The design emphasizes sensory experience, spatial harmony and a deep connection between people and place. The architecture balances functionality with aesthetic quality, using natural materials and organic forms that blend with the surrounding landscape. The campus reflects the country's agroecological traditions, strengthening emotional connections between students, faculty and the land. By embedding cultural and agricultural practices into its design, RICA nurtures attachment to place and supports the social, psychological and cultural needs of its community.

Stakeholders

Design
MASS Design Group

CONSULTANTS

Civil engineering
Arup

Environmental systems design
Transsolar

Agricultural consulting
Curry Willey Associates

Specifications and technical writing
Conspectus

Quantity surveying
MEW Consultants, Arabella

RICA's faculty and student body

Local communities

Funding
- Howard G. Buffett Foundation
- Government of Rwanda
- Additional funding from MASS Design Group

Construction
- MASS.Build
- Costwise Contractors
- Remote Group

ADDITIONAL SUPPORT

Climate-resilient agricultural practices – technical and financial support
The United States Agency for International Development (USAID) and other international agencies

Training in sustainable construction methods, and materials and certification
International Green Building Councils

ONGOING MANAGEMENT

Day-to-day management
Local management teams with rotating leadership structures to ensure sustainability and local ownership

Ongoing technical support
MASS Design Group

Integration into Rwanda's national agricultural strategy
The Rwanda Ministry of Agriculture and Animal Resources

Monitoring and compliance
The Rwanda Environment Management Authority (REMA)

Owner
Rwanda Institute for Conservation Agriculture

Iwan Baan

Replicability and lessons learned

Replicable or scalable aspects:

- **Community-driven design and co-creation**: A highly replicable aspect of RICA is its participatory design process, which involved local communities and stakeholders from the outset. The project used data and feedback from local populations to shape the campus's educational programming, infrastructure and sustainable farming practices. This community-led approach can be scaled to different geographical and cultural contexts by involving local stakeholders in planning and decision-making.

- **Integration of local materials and techniques**: RICA's use of locally sourced stone, timber and earth materials, alongside vernacular construction techniques, can be replicated in regions with similar ecological contexts. This reduces costs, supports local economies and maintains cultural relevance while ensuring sustainability.

- **Multi-sectoral collaboration**: RICA demonstrates how environmental sustainability, agriculture and education can collaborate to address complex challenges. This model can be scaled in other rural or developing countries where agriculture, environmental stewardship and education are intertwined. The collaboration between the government, local non-governmental organizations (NGOs) and international organizations in Rwanda showcases how cross-sector partnerships can sustain development projects.

- **Climate resilience and agroecology**: RICA's focus on climate-resilient agriculture practices is another scalable aspect. By integrating agroecological principles that prioritize biodiversity, water conservation and soil health, the model can be adopted in regions facing climate-related agricultural challenges.

- **Hands-on education and research**: RICA's combination of academic learning and hands-on research in regenerative farming offers a scalable educational model. Students gain practical experience through real-world farming systems, which can be replicated in agricultural training institutions to facilitate practical knowledge.

Lessons learned:

- **Prioritize community involvement**: Engaging local communities throughout planning and execution is critical. This ensures the design meets local needs, and cultivates ownership and long-term sustainability. Understanding local culture and needs is key to serving target populations.

- **Integrate sustainability from the start**: Building environmental sustainability into the project design from the beginning is crucial. RICA's focus on energy efficiency, biodiversity conservation and sustainable farming practices can be replicated in any region facing environmental or climate challenges.

Iwan Baan

- **Create multi-sector partnerships**: Involving diverse sectors (government, NGOs, the private sector and local communities) ensures access to expertise, resources and support. These partnerships bridge gaps in funding and expertise, making the project more adaptable.

- **Building educational infrastructure with local context**: Design educational infrastructure to align with the local cultural and ecological context. Using local materials and traditional construction techniques ensures the infrastructure resonates with the community, cultivating ownership.

- **Gradual capacity-building**: RICA's experience highlights the need for a phased approach to capacity-building. Training local workers and educators to sustain operations is essential for long-term success.

Challenges

- **Securing sustainable funding**: Securing long-term, consistent funding from diverse sources was one of the project's most difficult aspects. While initial philanthropic support was critical, maintaining funding to scale and sustain operations remains a challenge.

- **Local capacity-building**: There is a gap in skilled workers to sustain the project's activities. Developing local capacity to manage infrastructure and programmes has been an ongoing challenge.

- **Bureaucratic and governance challenges**: Coordinating across multiple government agencies and the private sector has created delays. Overcoming bureaucratic hurdles and ensuring effective governance structures is still a work in progress. Establishing clear governance frameworks from the start could streamline processes.

- **Balancing scalability with local adaptation**: Scaling the model while adapting it to local ecological, cultural and economic contexts is challenging. RICA's success is closely tied to its integration with the local environment, and replicating this in different regions requires careful adaptation.

Next steps

- Moving forward, RICA plans to scale its model to other regions within Rwanda and neighbouring countries, adapting its approach to different contexts. Expanding educational programmes and vocational training will be a priority, with a focus on reaching underserved communities.

- RICA will continue to enhance its sustainability efforts, aiming to become carbon-positive within six years, and will work on extending eco-friendly systems to surrounding areas. Strengthening local capacity for managing and maintaining the campus will ensure long-term impact, while international partnerships will help advocate for the model's broader adoption.

Mexico City, Mexico (Lake Texcoco Basin)

2020-present

Revitalizing Lake Texcoco

Iñaki Echeverria

The Lake Texcoco Ecological Park, known as Parque Ecológico Lago de Texcoco (PELT), is a transformative urban ecological restoration project in Mexico City.

Inaugurated on August 30, 2024 by President Andrés Manuel López Obrador, the park spans approximately 14,300 hectares (35,300 acres), making it one of the largest urban parks in the world. Located in the historically significant Lake Texcoco basin, the park serves as both a critical ecological reserve and a vibrant public space.

This initiative is founded on a shift away from the region's long history of hydrophobic engineering, which has sought to control and suppress water since the fall of Tenochtitlán over 500 years ago. Today, a new vision is emerging that seeks to heal the ecological wounds of the valley, with PELT representing the first major project to put this restorative approach into action.

The park was created following the cancellation of the controversial new Mexico City Airport project, which would have further disrupted the area's delicate ecology. Instead, a visionary plan for adaptive re-use, led by architect Iñaki Echeverría and supported by local and federal government agencies, aims to restore native ecosystems and provide a sustainable space for recreation, education and environmental stewardship.

The ecological park integrates advanced flood management, ecosystem restoration and the creation of green spaces, transforming a site once threatened by industrial development into a symbol of resilience and regeneration. The project seeks to balance environmental conservation, cultural preservation and urban resilience while providing areas for public recreation, education and community engagement. The park now supports over 300 species of flora and fauna, including more than 150,000 migratory aquatic birds, thriving in its diverse ecosystems.

HIGHLIGHTS FROM THE DBQS

GOVERNANCE
ENVIRONMENT
ECONOMY
SENSE OF PLACE

SIZE

35,300 acres
(14,300 hectares)

COST

Estimated at
$100 million (ongoing)

Presented by the World Economic Forum

Key outcomes

GOVERNANCE The Lake Texcoco project adopts a collaborative, multistakeholder approach that integrates government agencies, local communities and environmental organizations. The project emphasizes public engagement and transparency, cultivating an inclusive decision-making process throughout the planning and execution phases. By ensuring the active participation of local communities and stakeholders, the project lays the foundation for long-term stewardship, facilitating adaptive management that can respond to evolving environmental conditions and community needs.

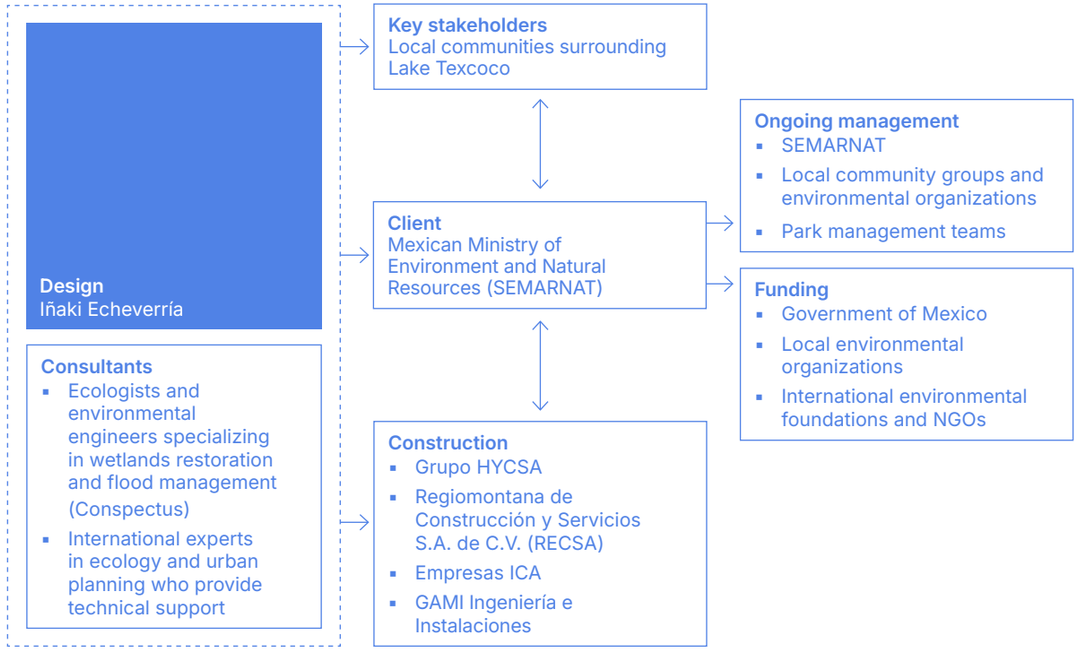
ENVIRONMENT The revitalization of Lake Texcoco focuses on ecosystem restoration, biodiversity conservation and climate change mitigation. The project employs sustainable land management practices to restore the lake's wetlands and surrounding habitats. This includes water management techniques, erosion control and habitat restoration, all aimed at preserving and enhancing the local ecosystem. By focusing on regenerative land practices and responsible resource use, the project contributes to the region's long-term environmental resilience.

ECONOMY The revitalization of Lake Texcoco integrates long-term economic sustainability with environmental restoration. The project prioritizes cultural values and the preservation of natural resources over short-term economic gains, ensuring the area's long-term economic viability through tourism, sustainable agriculture and ecosystem services. By restoring the wetlands and improving biodiversity, the project enhances local livelihoods through ecosystem-based industries. It also promotes local job creation and skill development, ensuring the sustainable operation of the revived ecosystem and creating lasting economic benefits for the surrounding communities. The project's design considers the economic impact of sustainable land use and construction, ensuring the efficient use of resources throughout its life cycle.

SENSE OF PLACE Revitalizing Lake Texcoco strengthens the cultural and emotional connection between the local community and their environment. By restoring the lake and its surrounding areas, the project enhances the region's identity and promotes cultural attachment. It celebrates the area's ecological and historical significance, cultivating a deeper bond between people and place. Through its focus on environmental restoration and cultural heritage, the project ensures that the revitalized space resonates with the community and that it will continue to do so for generations to come.

Structures from the unfinished airport have been repurposed at the park. Iñaki Echeverria

Stakeholders



Replicability and lessons learned

Replicable or scalable aspects

- **Community-driven planning**: The participatory design process, which incorporated feedback from local stakeholders, can be replicated in other urban ecological restoration projects to ensure local needs are addressed and cultivate long-term ownership.
- **Nature-based solutions for urban challenges**: The park's approach to using wetlands for flood mitigation and water management can be replicated in cities facing similar environmental challenges.
- **Cultural integration**: The integration of cultural heritage and public spaces can be applied to other projects that seek to reconnect urban populations with their natural environment and historical legacy.

Lessons learned

- **Long-term governance structures**: Creating a governance framework that includes local communities and ensures adaptive management is crucial for the long-term success of such projects.
- **Balancing ecological and social objectives**: Ensuring that ecological restoration efforts also meet social needs, e.g. by providing public spaces for recreation and cultural activities, is key to broad community support.
- **Sustainable funding**: Developing a sustainable funding model that includes both government and private-sector support is essential for the continuity of the park's operations and further development.

Challenges

- **Overcoming past damage**: Addressing the legacy of industrialization and urban development in the Lake Texcoco basin, while restoring ecosystems and creating a public space, presented significant challenges. Overcoming these historical barriers required innovative engineering solutions and careful management.
- **Balancing urban growth with ecological preservation**: As Mexico City continues to grow, ensuring that the ecological park remains a priority amid competing development projects is an ongoing challenge.

Next steps

- The Lake Texcoco Ecological Park continues to evolve, with plans to expand its biodiversity and enhance its educational offerings. Future efforts will focus on deepening community engagement, promoting environmental education and strengthening the park's role as a regional model for urban resilience.
- With continued investment in sustainable management practices, the project aims to serve as a global example of how large-scale urban ecological restoration can provide solutions to both environmental and social challenges.

Iñaki Echeverria

Sula Valley, Honduras

2022 to present

Building climate resilient housing in Honduras' Sula Valley

Build Change

HIGHLIGHTS
FROM THE DBQS

GOVERNANCE
ENVIRONMENT
FUCTIONALITY
SENSE OF PLACE

Retrofitting homes to enhance structural resilience and access to essential resources, including energy, water and waste management, preserving cultural identity and ensuring that communities could withstand future climate events.

In 2022, Build Change partnered with the Honduran Red Cross to pilot a climate-resilient housing programme in Honduras' Sula Valley. The Sula Valley is one of the most important economic centres in Honduras, with Porto Cortez playing a critical role in trade with Europe and North America. However, the region is increasingly vulnerable to extreme weather events, which cause widespread flooding and destruction. When people cannot live and work in the Sula Valley, the ripple effects on the national economy are significant. In response, Build Change piloted the programme with communities in Lupo Viejo and Potrerillos, collaborating with the Honduran Red Cross. This partnership combines Build Change's retrofitting expertise with the Red Cross's emergency response experience.

The programme includes retrofitting existing houses to make them resistant to earthquakes, floods and strong winds. This retrofit involves the addition of a "dry" second story that provides safe refuge during floods, and the installation of photovoltaic panels, rainwater harvesting systems and biodigesters to improve access to energy, water and sanitation. These improvements ensure access to basic services even during emergencies and reduce environmental risks during floods. The rainwater system provides a week's worth of water for a typical family, connected to a fully functional bathroom on the second story. This approach helps to prevent involuntary migration and addresses the socioeconomic and psychological challenges of displaced communities.

The pilot phase successfully upgraded eight homes, with ongoing efforts to retrofit more homes in the Sula Valley and create long-term systems change for climate-resilient housing currently under way. The first phase was recognized by the Latin American Development Bank as one of the top 10 innovations for social impact in Latin America.

Key outcomes

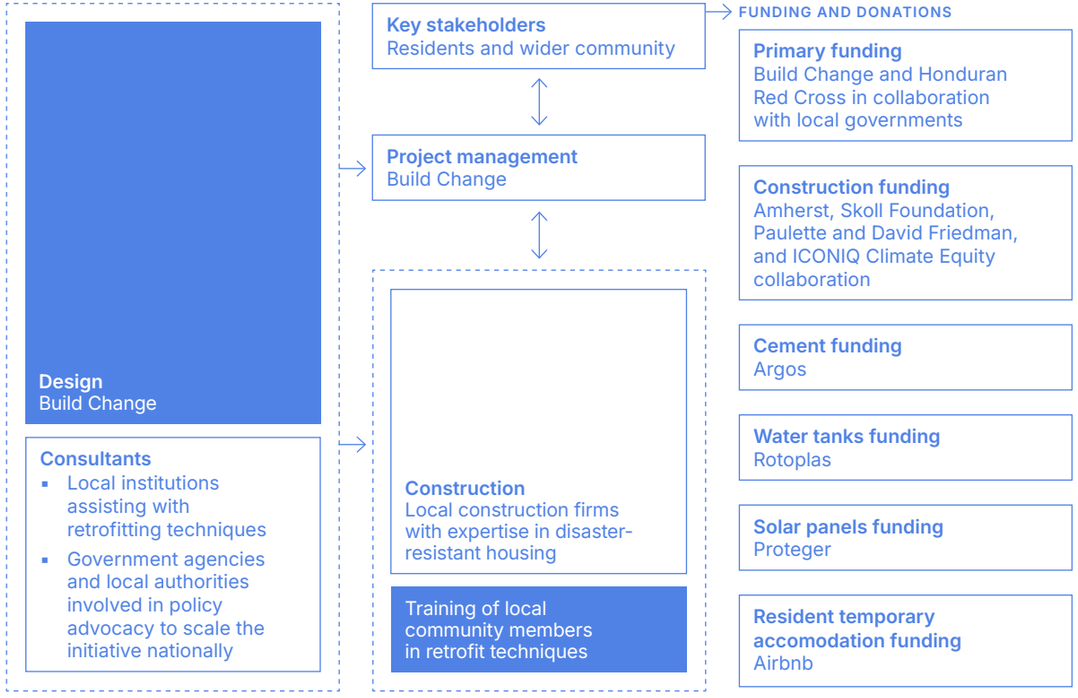
FUNCTIONALITY This project meets community needs by ensuring health, safety, comfort and accessibility through its design and construction methods. It prioritizes long-term adaptability, with features that can evolve to accommodate future uses. The project also integrates durable, high-quality materials, ensuring enduring functionality that meets diverse, changing needs while safeguarding built heritage.

GOVERNANCE With multiple teams of skilled stakeholders collaborating on it, the Sula Valley project exemplifies this principle through transparent, inclusive decision-making. Public engagement is prioritized and that that local communities are involved in shaping the space, ensuring the design is culturally appropriate and responsive to the needs of residents. This governance approach drives long-term sustainability, capacity-building and effective management while also improving capacity for maintaining and replicating the solutions, contributing to resilience beyond initial implementation. The project has also set a precedent for policy advocacy on resilient housing, engaging government bodies at national and local levels to drive systemic change.

ENVIRONMENT The project supports sustainability through responsible land use, energy efficiency and the use of durable construction materials. It incorporates climate-resilient design features and aims to mitigate environmental impacts to preserve natural ecosystems and enhance biodiversity. The use of energy-efficient technologies, sustainable mobility solutions and renewable energy sources further aligns the project with environmental stewardship and sustainability goals. Additionally, the project helps prevent water and soil contamination during floods, addressing pressing environmental challenges in flood-prone regions.

SENSE OF PLACE This project cultivates strong emotional connection by creating a distinct identity that resonates with the local community. Its design reflects local characteristics and considers cultural and social needs, promoting attachment to the space. This sense of place enhances the community's relationship with the environment, supporting social cohesion and contributing to a fulfilling and positive experience for its users. By utilizing locally sourced materials and engaging local builders, the project not only contributes to the local economy but also reinforces the community's connection to its built environment. The retrofitting of homes to improve resilience against climate events enhances the sense of security and well-being, cultivating deeper community ties as people feel safer in their homes.

Stakeholders



Replicability and lessons learned

Replicable or scalable aspects

- **Community-led adaptation**: The participatory approach to retrofitting homes, in which communities are directly involved in decision-making, can be replicated in other disaster-prone areas.
- **Sustainable and scalable systems**: Integrating solar energy, rainwater harvesting and waste management systems into housing retrofits is an approach that can be scaled in regions facing similar climate risks.
- **Multi-sector collaboration**: The combination of technical expertise (from Build Change) and emergency response experience (from the Honduran Red Cross) makes this model adaptable in other contexts, especially those facing both disaster risks and poverty.

Lessons learned

- **Community involvement is crucial**: The success of this project is due in large part to the direct involvement of local communities in the design and execution phases. This ensured that solutions were contextually relevant and accepted by the people.
- **Capacity-building for local workers**: Training local builders and engineers is essential for long-term project sustainability, helping to ensure the retrofitting work can continue after the pilot phase.
- **Addressing broader policy advocacy**: Building partnerships with national and global actors is critical for securing funding and supporting scale-up of the initiative.

Challenges

- **Scaling retrofitting to a larger population**: While the pilot phase was successful, one of the toughest aspects of the project is finding ways to scale retrofitting efforts across a large number of homes while retaining quality and sustainability.
- **Long-term funding**: Ensuring that there is sufficient funding to continue retrofitting and scaling the project to other regions remains a challenge. Securing long-term investment is crucial for the future impact of the project.

Next steps

- Moving forward, Build Change plans to expand its work in the Sula Valley, retrofitting more homes and further enhancing community resilience. The initiative will also prioritize building local capacity by training more engineers and builders in the retrofitting techniques.
- In addition to the on-the-ground efforts, Build Change's global team has initiated an advocacy campaign to raise awareness of the role resilient housing plays in preventing involuntary climate migration. This includes efforts to drive policy change at national and global levels. Such efforts promote increased investment in climate-resilient housing solutions in regions facing similar climate challenges. Notably, Build Change organized the Building for a Billion: The Resilient Housing Implementation Lab (the first event of its kind focused on resilient housing) at COP27, with backing from the Marrakesh Partnership, a key UN coalition on climate action.
- Furthermore, Build Change founded the Climate Resilient Housing Initiative as part of the Race to Resilience campaign. This initiative engages decision-makers and homeowners to cultivate climate resilience through events, shared resources and increased visibility of housing, climate and migration issues. This advocacy and coalition-building work ensures that resilient housing continues to gain global attention and support.

Build Change

Christian Jepsen/NRC

Sustainability and circularity

Advancing circularity through Phase Zero and end-of-life re-use

Overleaf: Resource Rows, Copenhagen. Rasmus Hjortshøj

Introduction

The way we shape our living environments is a significant factor in creating thriving economies, communities and ecosystems, influencing both prosperity[1] and planetary health. It accounts for 13% of global gross domestic product (GDP),[2] yet is responsible for over a quarter of global greenhouse gas emissions and generates 100 billion tonnes of waste annually.[3] The urgency of rethinking how we design, construct and repurpose our buildings and infrastructure has never been greater.

To address these challenges, the Davos Baukultur Alliance promotes a shift towards sustainable and circular Baukultur, ensuring that cultural, environmental and economic considerations are embedded from the earliest planning stages – Phase Zero – through to the end-of-life re-use of materials and structures. Phase Zero plays a critical role in reducing waste and emissions before a project even begins by integrating circular principles, optimizing land use and driving community engagement. Meanwhile, end-of-life re-use prioritizes the repurposing of buildings, infrastructure and materials, helping to cut embodied carbon, preserve resources and reinvigorate spaces.

Circular practices are gaining momentum worldwide. Studies show that retrofitting and adaptive re-use can reduce carbon emissions by up to 50%[4] compared to new construction.

Meanwhile, urban mining and material recovery can significantly reduce reliance on virgin resources by reclaiming valuable materials from existing urban structures and waste,[5] conserving natural resources and supporting sustainable construction practices. Moreover, recent policy amendments, such as Serbia's 2023 Planning and Construction Act, are paving the way for more systematic re-use at scale.

This paper highlights actionable strategies, case studies and policy approaches demonstrating how Phase Zero and end-of-life re-use can unlock a more sustainable, inclusive and resilient built environment. By embedding circularity into planning and construction, it's possible to reduce environmental impact, cultivate economic opportunity and shape a supportive environment for future generations.

Beyond outlining these approaches, this paper reflects a broader commitment to improving the quality of living places. The Alliance seeks not only to implement these strategies within its own network but also to inspire their adoption and acceleration beyond its boundaries.

Sustainable and circular Baukultur

The Davos Baukultur Alliance is a global network of stakeholders committed to cultivating high-quality living places through more sustainable practices in the built environment that prioritize culture and well-being. “Baukultur” is a compound German word that translates to “building culture”. It encapsulates a holistic approach to designing, building and maintaining human habitats, with an emphasis on locally relevant building practices and the cultures from which they emerge. **Sustainability and circularity** represent one of the four impact areas of the Alliance, driving sustainable and circular construction models, re-use and retrofitting of buildings and infrastructure, demand reduction and improved spatial planning to advance net-zero and nature-positive communities.

High-quality, sustainable and circular Baukultur integrates circular objectives within a more holistic framework of social, spatial and economic outcomes. It is aligned with the eight criteria of the Davos Baukultur Quality System. These interconnected dimensions inform the holistic approach to embedding sustainability and circularity into high-quality Baukultur and urban development, optimizing resource use, reducing environmental impact and creating lasting economic and social value.

To advance these principles, this paper explores two key impact areas:

- **Phase Zero** emphasizes early-stage planning and governance structures that embed sustainability from the outset, ensuring long-term resilience and adaptability.
- **End-of-life re-use** focuses on extending the life cycle of buildings, materials and infrastructure by repurposing and reintegrating existing assets.

Through case studies, best practices and policy approaches, this paper outlines actionable strategies for embedding Phase Zero approaches into urban development and maximizing end-of-life re-use to reduce environmental impact and create lasting value.

Phase Zero

The Davos Baukultur Alliance defines Phase Zero as “the critical, iterative process at the earliest stages of planning and urban development – often considered the preparatory or exploratory stage – which establishes the foundational conditions for integrating sustainability, circularity and cultural considerations”. Phase Zero is not linear. It emphasizes collaboration and necessitates a systems approach that balances regulatory frameworks with stakeholder alignment and community engagement on circular land use, buildings and materials. By addressing these key considerations early, Phase Zero embeds Baukultur principles in strategic planning, governance and economic models across public and private sectors. This sets the foundation for high-quality urban transformation aligned with climate and societal goals.

Demand-side decisions in Phase Zero

In Phase Zero, focusing on demand-side decisions is crucial for enhancing resilience and preventing inefficiencies, making it essential in policy-making, business strategy and sustainable development. By understanding and managing demand from the start, stakeholders can ensure that resources are used effectively, system loads are balanced and sustainability and resilience goals are aligned. This approach reduces unnecessary spatial expansion and facilitates cost savings through demand management strategies.

Demand-side decisions are critical for shaping subsequent choices and mitigating risks before committing significant resources, and guiding investments towards the most impactful and regenerative solutions.

Universal applications for Phase Zero across public and private sectors

Phase Zero can be effectively used for planning and investment projects of all scales. While Phase Zero applies universally, its implementation varies between the public and private sectors due to differences in scope, governance and strategic priorities. In the public sector, Phase Zero may focus on long-term public benefits, equity and stakeholder engagement, driven by regulatory requirements and community needs. Public interventions prioritize resilience across diverse populations and may involve coordination with multiple stakeholders.

In contrast, the private sector tends to focus on operational efficiency, risk mitigation and profitability. For the private sector, Phase Zero is often geared towards optimizing internal processes, reducing costs and adapting to external shocks.

Public- versus private-sector interventions in Phase Zero:

Public-sector applications (long-term strategic planning): Governments and municipalities use Phase Zero to shape policy frameworks, zoning regulations and sustainability mandates that set the foundation for resilient urban growth. This includes:

- Establishing long-term land-use strategies that prioritize climate adaptation, biodiversity and inclusion
- Defining zoning and regulatory incentives to encourage mixed-use development, resource efficiency and circular economy integration
- Implementing stakeholder-driven co-creation processes to integrate community needs, cultural identity and equitable resource distribution into planning

Private-sector applications (project-specific planning and investment): Developers, investors and businesses align projects (ranging from single buildings to large-scale urban developments) with sustainability goals while managing risks and optimizing financial returns. Key interventions include:

- Conducting market and demand assessments to ensure infrastructure and resource use align with needs, avoiding inefficiencies
- Exploring low-carbon, sufficiency-driven designs that reduce material consumption and extend asset longevity
- Embedding adaptive, circular business models that prioritize re-use, shared spaces and regenerative development to future-proof investments

Recognizing regional variations in Phase Zero definitions

It is important to acknowledge that the definition and application of Phase Zero varies across planning practices and geographies, with some regions already incorporating structured frameworks. For example, in Germany, the Federal Ministry for Housing, Urban Development and Building (BMWSB) defines Phase Zero as a strategic conception phase that precedes formal planning. This approach emphasizes needs assessments, stakeholder participation and feasibility analysis to optimize sustainability and avoid errors.

Germany also integrates Phase Zero into certification systems such as the German Assessment System for Sustainable Building (BNB), and the German Sustainable Building Council (DGNB) sustainability certificate, ensuring regulatory alignment and facilitating funding access. These examples highlight how Phase Zero can be adapted to different governance structures and sustainability goals.

A holistic systems approach, beginning with the earliest stages of urban development

The Alliance asserts that Phase Zero should operate as an iterative, non-linear process that establishes the conditions for sustainable and equitable urban development. It is a critical point where decision-makers can embed circular economy principles and align planning with long-term societal and climate goals.

Core components of Phase Zero (across public and private sectors):

- Identifying needs and objectives: Define demand requirements (e.g. energy use, infrastructure needs, market trends) to ensure equitable access to essential services.
- Assessing constraints: Recognize limitations related to cost, policy, technology and stakeholder priorities to set realistic parameters for decision-making.
- Gathering and analysing data: Use historical trends, life cycle analysis, cultural mapping and stakeholder insights to guide sustainable and demand-driven strategies.
- Exploring scenarios: Evaluate various growth, reduction and resource-sharing pathways, identifying implications for long-term resilience and efficiency.
- Stakeholder engagement and co-creation: Involve policy-makers, businesses and local communities – especially vulnerable populations – to co-design solutions that reflect cultural identity and needs.

Strategies for embedding circularity and sustainability within Phase Zero (non-exhaustive):

- Circular resource planning: Map material, energy and water flows to enhance resource efficiency, reduce waste and promote regenerative systems.
- Sufficiency and low-impact development: Reduce land consumption by prioritizing need-based development, shared spaces and longevity-driven design.
- Stakeholder co-creation through inclusive and participatory planning: Strengthen community resilience by engaging local actors early to shape solutions that preserve culture, reduce inequality and enhance place-based identity.
- Resilient and climate-aligned strategies: Set goals for social inclusion, carbon neutrality, biodiversity enhancement and climate adaptation using nature-based and circular approaches. Integrate local and traditional knowledge and culture-based practices.
- Adaptive land use and zoning: Design for flexibility in land use (e.g. mixed-use spaces, re-use models) to support evolving priorities like housing, jobs and public health.

Unsplash

Phase Zero approaches

The Alliance proposes a holistic approach to advancing sustainability and circularity in urban development.

APPROACH 1

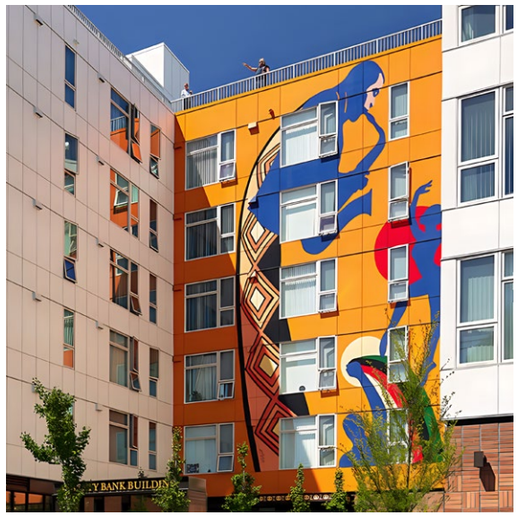
Stakeholder co-creation and participatory decision-making

Engaging diverse stakeholders early in the decision-making process is essential for aligning priorities, preventing harmful development patterns and ensuring urban development reflects local needs and values. This requires a shift from traditional, top-down planning towards a circular, community-driven approach that prioritizes inclusive participation.

Currently, a key barrier to effective co-creation is a gap in practitioner expertise on how to facilitate meaningful engagement (rather than a gap in community knowledge). Insufficient stakeholder participation – particularly in Phase Zero – often results in environmentally and socially harmful development patterns that are difficult to reverse later.

To enable meaningful, evidence-based decision-making, Phase Zero must prioritize robust engagement strategies that empower communities, policy-makers, professionals, investors and developers to collaborate effectively.

For the **public sector**, this means integrating participatory decision-making into early policy and planning frameworks, ensuring that infrastructure investments and land-use strategies reflect local needs. For the **private sector,** this involves embedding community engagement into feasibility assessments and project design from the outset, and aligning business objectives with long-term urban resilience.



Kevin Scott (@k7scott)

LIBERTY BANK BUILDING IN SEATTLE

The Liberty Bank Building in Seattle exemplifies community-led development at Phase Zero, demonstrating how early community engagement can shape culturally responsive urban development. Built on the former site of the first Black-owned bank in the Pacific Northwest, the project was co-created with local residents to address displacement and preserve the neighbourhood's cultural identity. Through deep engagement led by Africatown Community Land Trust, Capitol Hill Housing (now Community Roots Housing) and other partners, the project integrated affordable housing, Black-owned businesses and public art celebrating the area's history. Designed by Mithun, The Liberty Bank Building demonstrates how Phase Zero can build trust, ensure planning reliability and meet local needs.

APPROACH 2

Cultivate cross-sector leadership to mainstream Phase Zero

To integrate Phase Zero into urban planning more widely, both public- and private-sector actors can cultivate leadership at multiple levels and cities can create an enabling environment for end-of-life re-use, regeneration and sustainable land management. Meanwhile, regulatory changes are not a prerequisite for implementing Phase Zero. Supportive policies and incentives can help scale its adoption, making it easier for stakeholders to prioritize sustainability from the outset.

The **public sector** plays an important role in providing guidance and creating conditions that encourage Phase Zero. Governments can explore ways to embed early-stage sustainability assessments into urban development processes and ensure projects start with comprehensive stakeholder collaboration. Integrating Phase Zero principles into zoning laws, land-use planning and infrastructure strategies can help align developments with long-term sustainability, resilience and equity goals. Additionally, economic incentives – such as tax benefits, expedited permitting or funding support for projects that prioritize circular materials and sustainable design – can encourage wider adoption. While Phase Zero does not require regulatory change, an enabling environment can provide clarity and consistency, making it easier for cities and developers to integrate sustainability objectives.

At the same time, the **private sector** can play a key role in advancing Phase Zero by aligning investment strategies with sustainability and resilience priorities. Investors and developers can integrate Phase Zero principles into funding criteria, prioritizing projects that maximize circular material use, adaptive re-use and low-carbon construction. ESG-driven financing models offer a pathway to direct capital towards developments that incorporate sustainability from the outset, while industry standards that promote early-stage collaboration, life cycle sustainability assessments and adaptive planning can further reinforce Phase Zero as a core business practice. By considering project costs, businesses can explore how to maximize the use of circular materials and resource-efficient design, extending the life cycle of materials and reducing waste.

Collaboration across sectors can further accelerate the adoption of Phase Zero. Public-private partnerships (PPPs) provide an avenue to align private-sector development priorities with public policy goals, promoting co-investment in urban sustainability initiatives. While Phase Zero can be implemented without regulatory change, a shared vision, supported by clear incentives and industry leadership, can help normalize it as a standard practice. With efforts to streamline regulatory pathways, support circular and sustainable business models and encourage innovative design approaches, Phase Zero can evolve from an emerging best practice into a widely adopted approach.

BILLHORNER BRÜCKENSTRASSE RAILWAY

The renewal of the Billhorner Brückenstraße railway overpass in Hamburg, Germany exemplifies the Phase Zero approach at a project scale, demonstrating early collaboration between public- and private-sector stakeholders. The project partners, Deutsche Bahn and the City of Hamburg, aligned project goals, planning principles and frameworks, ensuring both time and cost savings while enhancing sustainability.

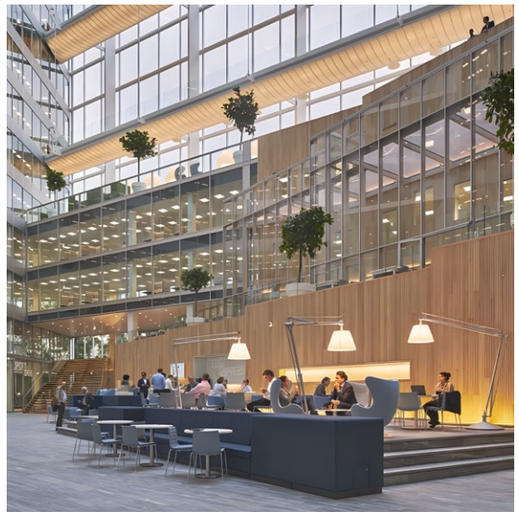
Early-phase coordination allowed for assessments on structural repairs and new construction, along with urban environment considerations, creating a shared vision for future development. This effort helped define spatial, ecological and aesthetic requirements, ensuring long-term value.

By establishing a common understanding and focusing on governance, functionality and context, the project sets a strong example for replicating Phase Zero in other urban development projects, streamlining processes and promoting long-term sustainability.

THE EDGE

The Edge is a highly innovative office building in Amsterdam developed by Edge Real Estate that represents a notable private-sector example. Before construction began, the project team engaged in extensive Phase Zero planning to align stakeholder goals, assess sustainability targets and develop a shared vision for the building's long-term performance. Early-stage collaboration between architects, engineers, urban planners and sustainability experts ensured that the design incorporated cutting-edge green technologies, energy efficiency strategies and circular economy principles.

Key decisions were made in Phase Zero regarding the use of sustainable materials, energy-efficient systems and adaptive re-use strategies. The team also worked with local authorities to align with urban development frameworks and zoning regulations, ensuring smooth permitting and approval processes. This early collaboration and focus on sustainability enabled the Edge to become one of the most energy-efficient office buildings in the world, demonstrating the potential of Phase Zero to drive innovation and sustainable development in the private sector.



Edge Real Estate

APPROACH 3

Establish a dedicated Phase Zero coordination team

Phase Zero requires close coordination and alignment across sectors and disciplines to ensure that sustainability, circularity, resilience and cultural identity are embedded. The Alliance promotes forming a dedicated coordination team composed of key public, private and civil-society stakeholders to shape sustainable development policies and practices while honouring local identity and culture.

For the **public sector**, the team could operate as a multi-agency task force that aligns zoning, land-use policies and infrastructure planning with long-term sustainability goals. It could also serve as a platform for regulatory innovation, ensuring that planning frameworks cultivate adaptive re-use, nature-based solutions, and sustainability and climate resilience measures from the outset.

For the **private sector**, the team could provide a structured mechanism for engagement, ensuring that developers, investors and businesses align their projects with sustainability targets and community priorities. It can also streamline permitting and approval processes for developments that meet sustainability benchmarks, promoting early-stage collaboration between businesses and policy-makers to drive responsible investment.

Phase Zero coordination teams could differ across geographies and might include planners, architects, engineers, strategic designers, environmental experts, legal advisers, business representatives and local knowledge holders. This would ensure that Phase Zero reflects broad sustainability goals while promoting resilience, inclusivity and long-term community vitality. By centralizing coordination and multistakeholder collaboration, Phase Zero processes become more efficient, transparent and actionable.

APPROACH 4

Strengthen broader buy-in and understanding of Phase Zero through targeted awareness, engagement and capacity-building initiatives

Localized, action-oriented awareness campaigns that demonstrate the tangible benefits of circularity, adaptive re-use and Baukultur principles are crucial for mainstreaming Phase Zero. However, awareness alone is not enough – capacity building and knowledge sharing are essential to ensuring that all actors (including planners, developers and local communities) have the skills and tools to implement Phase Zero effectively.

Interactive and experiential learning opportunities can bring Phase Zero to life for diverse audiences. This could include temporary urban spaces where communities would experience circular urban development in action, as well as before-and-after case studies that illustrate the transformative potential of early-phase planning. Engaging policy-makers through strategic briefings, immersive site visits and dialogues on global best-practice examples can help bridge knowledge gaps and build political momentum. Meanwhile, mobilizing private-sector champions to highlight the financial case for Phase Zero can encourage wider industry buy-in.

To further embed Phase Zero principles across sectors, training programmes can equip urban planners, architects, policy-makers, developers and investors with methodologies and best practices. Establishing Phase Zero knowledge hubs – where cities, businesses and communities can exchange case studies, resources and lessons learned – could scale adoption. Additionally, supporting research and data collection to demonstrate the long-term cost savings and benefits of early-stage planning and community co-creation would help make the case for all sectors.

By linking awareness-building efforts to tangible, real-world examples and ensuring that stakeholders have the capacity and knowledge to act, cities can shift Phase Zero from an abstract concept to a practical reality.

Getty Images

CIRCULAR ECONOMY PROGRAMME IN AMSTERDAM

Amsterdam has been a leader in integrating Phase Zero principles into urban planning through its circular economy programme, which aims to make the city fully circular by 2050. A key initiative within this programme is the Buiksloterham neighbourhood, a former industrial area redeveloped through early-stage collaboration between policy-makers, developers and local communities.

The city engaged stakeholders from the outset, using interactive workshops, knowledge-sharing hubs and pilot projects to demonstrate circular construction methods and adaptive re-use. Developers were incentivized to integrate sustainability through flexible zoning policies, expedited permitting and financial incentives for circular materials. Meanwhile, training programmes equipped professionals with tools for life cycle assessments and circular building techniques. By embedding education, engagement and policy alignment into Phase Zero, Amsterdam has set a model for sustainable urban transformation.

End-of-life re-use

The Davos Baukultur Alliance defines **end-of-life re-use** as a foundational strategy for embedding circular economy principles into the built environment and achieving sustainable and circular Baukultur. The built environment produces a third of the world's waste.[6] Rather than viewing the end-of-life stage of buildings and infrastructure as a point of waste generation, this approach reframes it as an opportunity for regeneration and circularity – maximizing the utility of existing assets, preserving cultural and spatial continuity and drastically reducing embodied carbon emissions.

Whole-asset re-use, relating to buildings, infrastructure and land, is among the most effective pathways to reducing the environmental impact of urban development. Adapting existing structures prevents emissions-intensive processes of demolition and construction, while materials re-use further minimizes resource extraction and construction waste, preserving the cultural and spatial fabric of cities. Additionally, the strategic re-use of land supports sustainable urban growth by curbing urban sprawl, revitalizing underused spaces and reinforcing more sustainable, low-carbon development patterns.

The built environment, including the operations and construction of buildings and infrastructure, is the single largest contributor to global CO_2 emissions, generating about 40% of total emissions.[7] Of a building's whole-life carbon footprint, as much as half comes from embodied carbon, which encompasses all of the greenhouse gas emissions associated with production and movement of the materials used in construction and demolition (as opposed to the amount of energy used for daily operations).[8]

The Alliance calls on decision-makers, including policy-makers, urban planners, architects, developers and asset managers, to prioritize re-use as a central strategy in decarbonizing the built environment and strengthening circular local economies.

Through this call to action, the Alliance seeks to align architectural and urban development practices with climate goals, circular economy principles and long-term economic and social value creation. Re-use strategies should strengthen sense of place, support local workforces and mitigate environmental impacts by reducing demand for virgin materials and land. This would shorten supply chains and reduce construction waste as well as embodied emissions associated with extraction, processing and transport of materials. The vast majority of a building's carbon footprint is locked in at the time of construction – therefore, preserving and repurposing existing assets is critical to remaining within planetary boundaries.

The Alliance recognizes the efforts of counterparts who have offered clear policy strategies for measuring and capping whole-life carbon of buildings and infrastructure. For instance, such strategies are proposed in Whole Life Carbon Assessment Mandates and Implementing a Lifecycle Approach to Infrastructure, and cross-sector solutions are offered in Reducing Embodied Carbon in Cities. By embedding re-use in urban development, it's possible to drastically reduce whole-life carbon and waste, mitigate resource scarcity and create vibrant, adaptable places that honour cultural heritage while supporting future generations.

FIGURE 1

Hierarchy of interventions for circular high-quality Baukultur and re-use in urban development

Source: Adapted from Carpentier, H. (n.d.). *Circular Economy in the built environment waste hierarchy: Why recycling is the last resort.* World Green Building Council; Lincoln Mayor Leirion Gaylor Baird. (n.d.) *Reduce and Re-use.*

Prioritizing local economic outcomes and workforce development

A thriving re-use economy – that not only reduces emissions and diverts waste but also drives local economic growth and workforce development – is essential to advancing sustainability and circularity in the built environment. Prioritizing re-use creates new job opportunities in deconstruction, material recovery, remanufacturing and resale while supporting small businesses and local supply chains. It also enhances neighbourhood vibrancy by reinvesting in existing infrastructure, preserving cultural identity and driving community resilience. To fully capture these benefits, it's essential to take a holistic approach to measuring and assigning value to circular materials and assets, while accounting for environmental, economic and social impacts. This includes improving quality of life through job creation and equity, and recognizing the re-use market's potential to support high-quality, inclusive built environments. By aligning re-use strategies with local economic priorities, industry leaders can ensure that circular practices deliver tangible benefits to workers, businesses and communities.

The Alliance supports a set of approaches (applicable within and beyond its membership and for both public and private practitioners) to advance re-use at scale and shift the built environment from a linear, extractive delivery model to a regenerative one.

End-of-life re-use approaches

The Alliance advocates for a holistic framework to mainstream end-of-life re-use in the built environment, ensuring that buildings, infrastructure, materials and land are seen as assets to be retained, adapted and reintegrated rather than discarded. By cultivating circular practices at scale, it's possible to significantly reduce embodied carbon, mitigate resource depletion and promote long-term economic and social value.

The following approaches outline strategies to create regional and local markets for end-of-life re-use by advancing policy innovation, economic incentives, material recovery systems and cross-sector collaboration. These approaches aim to embed re-use as a fundamental pillar of sustainable urban development, shifting the industry away from a linear, extractive model towards a circular, regenerative one. By cultivating cross-sector collaboration, policy innovation and investment in circular building practices, this approach aims to mainstream re-use as a cornerstone of urban development.

APPROACH 1

Drive greater demand for re-use through market transformation and policy innovation

Scaling re-use practices requires market-driven strategies and policies that demonstrate the affordability and profitability of re-use. Such strategies should also support the infrastructure needed to scale urban mining,[9] restoration, adaptive re-use and remanufacturing while embedding re-use as a core principle of urban development. Communities have long relied on the re-use of buildings and materials to preserve historical architecture, and they are increasingly recognizing the potential of re-use to reduce costs, conserve resources and protect biodiversity. Realizing these benefits requires a systemic approach that harnesses policy and regulation, financial incentives and new business models to catalyse widespread market adoption.

The Alliance calls for a cohesive policy and market framework to drive greater demand for re-use and end-of-life practices. This means embedding re-use within regulatory structures, aligning procurement standards to favour reclaimed materials, ensuring financial models incentivize circular practices and removing barriers within existing regulatory frameworks. These actions have the potential to drive industry-wide adoption and market transformation.

Policy innovations could include:

- Pro-re-use procurement policies that set standards for public-sector projects
- Mechanisms to measure and cap the embodied emissions of new construction
- Adaptive building codes[10] and zoning regulations prioritizing retention and deconstruction over demolition[11]
- Policies that incentivize material recovery and remanufacturing
- Government investment in circular infrastructure such as material recovery facilities and re-use marketplaces

To make re-use-based projects feasible and more practical on a large scale, new regulations should be combined with financial incentives. These incentives could include tax credits, subsidies, fee waivers and regulatory adjustments. Simultaneously, adding costs to newly manufactured materials – based on their environmental impact and disposal expenses – could encourage more sustainable choices. Over time, as the benefits of large-scale re-use become clearer, businesses and policy-makers should adopt sustainable models that prioritize re-use. This approach ensures that re-use is not just good for the environment but also a smart financial strategy for developers, local governments and businesses.

RECYGÉNIE

Recygénie, a 220-unit inclusive housing complex, is the world's first building made entirely from recycled concrete, conserving over 6,000 tonnes of natural resources. While 100% recycled concrete isn't yet scalable under current regulations, the project seeks to establish a minimum industry baseline in France's highly regulated market. Key innovations, including 100% recycled clinker, were validated through rigorous testing. To drive policy change and wider adoption, project data has been submitted to the French Centre Scientifique et Technique du Bâtiment (CSTB), advancing research and national standards for recycled concrete. Read more in the Alliance's Recygénie Innovative Practice case study.

Holcim

GUIDANCE ON DEVELOPING INCENTIVE-BASED POLICIES

For further guidance on developing incentive-based policies for the adaptive re-use of buildings and infrastructure, view the Forum's Model Policy for Adaptive Re-use of Assets. The model policy is informed by various existing policies including:

1. Vancouver, Canada's Vancouver Vacancy Tax No. 115674 and the Embodied Carbon Guidelines
2. Canada's Standard on Embodied Carbon in Construction
3. London, England's The London Plan
4. Finland's Procurement Requirements for Low-Carbon Building
5. Milan, Italy's Milan Art. 40
6. Los Angeles, California, US' Citywide Adaptive Re-use Ordinance
7. New South Wales, Australia's Decarbonising Infrastructure Delivery Policy

APPROACH 2

Integrate land into re-use practices

Land circularity is a critical yet often-overlooked dimension of end-of-life and re-use strategies. While much of the conversation around circularity focuses on materials and buildings, land itself must be considered a finite resource that requires thoughtful regeneration and re-use. A circular approach to land management prioritizes adaptive re-use, infill development and the revitalization of underused spaces, reducing the environmental and social costs associated with unchecked urban expansion. By prioritizing the re-use of existing sites – e.g. through brownfield redevelopment, activating vacant lots and reusing abandoned assets – cities can curb urban sprawl,[12] minimize habitat destruction and optimize existing infrastructure. This mitigates the need for new land development and strengthens communities by reinvigorating neglected spaces, providing new amenities, meeting local needs (e.g. housing) and cultivating economic opportunities. Impact and economic viability can be significantly enhanced when sites are pooled into coordinated development programmes, though coordinated approaches are still undeveloped globally.[13] Denser, more compact mixed-use development also reduces GHG emissions when development is steered to well-connected urban sites near transit hubs promoting low-carbon travel.

The Alliance seeks to drive a systemic shift in land use to embed land circularity as a foundational principle of sustainable and circular built environments. By integrating land into re-use strategies, policy-makers and developers can advance a low-carbon, resource-efficient, regenerative and socially inclusive built environment that prioritizes resilient, high-quality places over urban sprawl and new land development.

ELLINIKON PARK IN ATHENS

The Ellinikon Park project located in Athens, Greece, repurposes a former international airport and brownfield site, transforming obsolete infrastructure into a vibrant urban space. Through adaptive re-use, the project preserves existing buildings, remediates contaminated land and incorporates reclaimed materials and energy-efficient design. By prioritizing re-use of infrastructure and brownfield regeneration, Ellinikon Park reduces the environmental impact of new development and creates a sustainable public space that highlights the potential of land circularity in urban redevelopment.

Miloš Martinović

INGRID SCHNEIDER ELECTRIC HUB

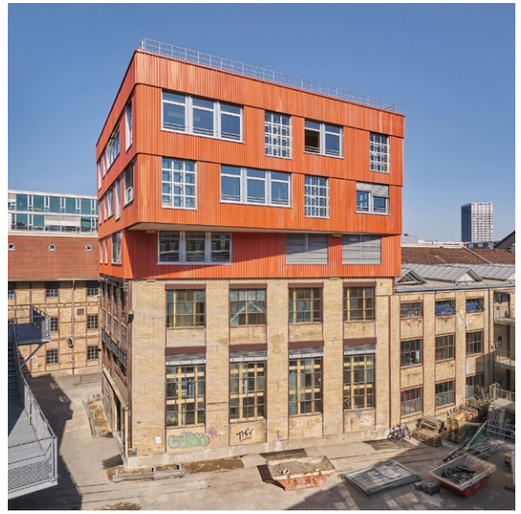
The InGrid Schneider Electric Hub transformed part of the vacant Novkabel factory site in Novi Sad, Serbia into a carbon-neutral, Leadership in Energy and Environmental Design (LEED) Platinum-certified office for Schneider Electric, setting the stage for wider regeneration. Rather than building on new land, the project repurposed an 11,000 m^2 industrial hall, preserving its structure and cultural value while adapting it for modern use. All dismantled materials were re-used, including crushed concrete for sub-base layers. The project also introduced green courtyards and improved transport links, demonstrating how abandoned industrial sites can be revived sustainably. As the first step in revitalizing the entire Novkabel campus, it serves as a model for transforming disused industrial zones into thriving mixed-use districts. Pro-re-use amendments to the Serbian Planning and Construction Act in 2023 facilitated its delivery and further encourage replication across Serbia, reinforcing the site's role as a catalyst for broader redevelopment. Read more in the Alliance's InGrid Schneider Electric Hub Innovative Practice case study.

APPROACH 3

Rethink the building value chain to prioritize restoration, remanufacturing and resource optimization

The Alliance asserts that incremental adaptations of existing supply chains are insufficient. A systemic overhaul is needed to accelerate the transition to a truly circular built environment. The current linear model of material extraction, production, use and disposal remains deeply entrenched, even with emerging re-use initiatives. While efforts to integrate recycled materials and improve waste diversion are steps in the right direction, they do not fundamentally disrupt the underlying system that prioritizes new production over re-use and repurposing. Without a comprehensive transformation, the built environment will continue to generate excessive waste, deplete finite resources and contribute to embodied carbon emissions at unsustainable levels.[14]

A truly circular built environment requires a paradigm shift that reimagines every stage of the value chain, from material sourcing to end-of-life strategies. This includes mapping and recovering materials already in circulation, creating marketplaces for salvaged components and redesigning buildings and infrastructure for adaptability, deconstruction and re-use rather than obsolescence. Policy incentives, financial models and procurement standards must be aligned to drive demand for re-used assets and materials, and support the infrastructure needed to scale urban materials mining, restoration, adaptive re-use and remanufacturing. Additionally, design and construction practices must use fewer materials and resources overall. This would extend the lifespan of existing assets and reduce reliance on virgin resources. To accelerate these changes, resources must be directed towards increasing knowledge capacity across both public and private sectors at local and national levels, for all actors in the process (from policy-makers through to on-site delivery workers). By shifting from a piecemeal approach to a systemic transformation, leaders can embed circularity as the foundation of urban development, ensuring long-term environmental, economic and social resilience.



Kevin Scott (@k7scott)

BAUBÜRO, SITU'S K.118 PROJECT, IN WINTERTHUR

Baubüro in Situ's K.118 project in Winterthur, Switzerland exemplifies innovative adaptive re-use and circular construction practices. This endeavour transformed an industrial building into a mixed-use space, incorporating offices, studios and residential units. Notably, over 60% of the building materials were sourced from deconstructed structures, including reclaimed steel beams, windows and facade elements. This approach not only preserved the building's historical character but also minimized environmental impact by reducing the need for new resources. The project challenged the traditional linear construction model by prioritizing flexibility and decentralized material sourcing, setting a new standard for sustainable urban transformation.

For further insight on the potential for realizing the dual benefits of carbon dioxide reduction as well as substantial economic gains across nine circularity loops for six key building materials, see the Forum's Circularity in the Built Environment: Maximizing CO_2 Abatement and Business Opportunities.

APPROACH 4

Embed accountability and legitimacy within the re-use market to cultivate broader buy-in and cross-sector participation

Ensuring accountability, liability and legitimacy within the re-use market is essential for driving broader cross-sector participation and investment. Establishing integrated frameworks and supporting tools will be critical to scaling material re-use while maintaining quality, safety and compliance. This could include creating a dedicated oversight entity responsible for certifying reclaimed materials, ensuring traceability and enforcing industry standards. Material tracking systems, internationally recognized certifications and liability-sharing mechanisms can further help guarantee the reliability of re-used materials, giving developers, contractors and policy-makers the confidence to invest in circular construction.

Additionally, policies that assign greater responsibility to manufacturers – such as extended producer responsibility (EPR) policies that shift accountability to manufacturers, requiring them to take ownership of a material's entire life cycle from recovery to re-use – can incentivize design for disassembly, durability and recyclability, ensuring materials remain in circulation longer. Embedding these principles within re-use frameworks, certification systems and material tracking tools can help create a more transparent, efficient and trustworthy re-use market where environmental responsibility is shared across the value chain.

EDGE OLYMPIC

Developed by EDGE Real Estate, EDGE Olympic in Amsterdam is a leading example of circular construction, using materials passports to track and catalogue building materials for future re-use. Developed in partnership with Madaster, this system ensures that materials within the building are treated as valuable assets rather than waste. By integrating digital tracking, EDGE Olympic enables easy reclamation and repurposing of components at the end of their life cycle, reducing embodied carbon and construction waste. This approach demonstrates how material passports can drive sustainable urban development, supporting a circular built environment that prioritizes resource efficiency and long-term resilience.

ARUP and Velux/Simon Kennedy

THE CIRCULAR BUILDING

The Circular Building in London exemplifies circular construction by prioritizing material re-use, traceability and disassembly. Developed in collaboration with Arup, BAM Construction and other partners, the project was designed so that all components can be easily dismantled and repurposed, reducing waste and extending material life cycles. By incorporating VELUX Modular Skylights – designed without adhesives for easy reclamation – alongside traceable and certified materials, the building ensures that components remain valuable assets rather than waste. Through the use of certified, trackable materials and a commitment to transparency in the re-use market, the project builds confidence among developers and policy-makers, serving as a blueprint for integrating accountability and resource efficiency into future urban development.

APPROACH 5

Engage stakeholders across the value chain to cultivate a culture of re-use and advance innovation and collaboration

Scaling end-of-life re-use in the built environment requires engagement with a broad spectrum of stakeholders across the value chain and a culture of practice that embeds re-use as a standard approach. Achieving this shift involves convening diverse actors – including demolition workers, deconstruction specialists, small-scale resellers, manufacturers, policy-makers and local communities – to overcome regulatory and logistical barriers and drive adoption.

The Alliance highlights three key strategies to building this culture of practice: 1) increasing awareness of the benefits of re-use and showcasing successful models, 2) investing in workforce development through upskilling and reskilling initiatives that prepare current and future workers for emerging roles in material recovery and circular construction, and 3) promoting cross-sector collaboration and innovation to address economic and structural challenges, e.g. by overcoming the green premium and developing new business models. Enhancing collaboration and alignment of diverse stakeholders can drive systemic change that transforms material and asset life cycles and strengthens local economies.

Daniel Hopkinson

SHREWSBURY FLAXMILL MALTINGS PROJECT

The Shrewsbury Flaxmill Maltings project shows the transformative power of heritage conservation through adaptive re-use of the world's first iron-framed building, often referred to as the "grandparent of skyscrapers". This ambitious restoration transformed a dilapidated 1797 structure into a vibrant hub for work, leisure and social enterprise. The project was a collaborative effort, uniting Historic England, the Friends of the Flaxmill Maltings, Shropshire Council, funding bodies such as the National Lottery Heritage Fund and the Local Enterprise Partnership, and individual philanthropists. The local community played a pivotal role, contributing over 17,000 volunteer hours to the initiative. By meticulously preserving original features and repurposing materials, the project not only honoured the building's historical integrity but also drove community engagement, skill development and employment opportunities. The project was recognized through the Europa Nostra awards, and as noted by the awards' jury, it "sets a pioneering example for future projects of its kind".

Conclusion

Advancing sustainability and circularity in the built environment requires a coordinated, inclusive approach that spans both the early planning stages and the end-of-life re-use of buildings and materials. Embedding circular principles into Phase Zero – the early-stage planning process – ensures that urban development is not only resource-efficient but also culturally resonant and economically viable. By integrating sustainability, adaptive policies and inclusive stakeholder engagement, Phase Zero creates the conditions for high-quality Baukultur and sustainable, resilient cities. At the same time, prioritizing end-of-life re-use practices allows for the strategic repurposing of materials and structures, contributing to a circular economy and reducing environmental impact.

The Davos Baukultur Alliance calls for collective action to embed these practices into global urban frameworks to drive transformative change and ensure that cities of the future are resource-efficient and culturally resonant.

Unsplash

Innovative practice

The innovative practice studies present a series of examples of key approaches for advancing both Phase Zero planning and end-of-life re-use practices. These showcase innovative strategies that promote sustainable and circular Baukultur within the built environment. These projects demonstrate how high-quality outcomes can be achieved when urban development embraces sustainability, cultural preservation and collaboration from the outset and extends these principles through adaptive re-use at the end of a building's life cycle.

By addressing challenges such as stakeholder alignment, adaptive policy frameworks and circular economy integration, these studies highlight diverse approaches – including participatory decision-making, land and building re-use and forward-thinking policy adoption. Rather than prescribing one-size-fits-all solutions, they offer adaptable models that respond to specific local contexts, ensuring that both early-stage planning and end-of-life re-use strategies are scalable, inclusive and impactful. Together, these case studies provide actionable insights and inspiration for cultivating resilient and resource-efficient urban development.

Copenhagen, Denmark

2016-2021

Rasmus Hjortshøj

Resource Rows, Copenhagen

HIGHLIGHTS FROM THE DBQS

GOVERNANCE
ENVIRONMENT
ECONOMY
BEAUTY

SIZE

92 dwellings – apartments and terraced houses

Resource Rows, developed by Lendager Group, is a pioneering residential project in Copenhagen that demonstrates sustainable circular construction practices.

The project integrated 92 dwellings, consisting of both terraced houses and apartments, into an urban regeneration scheme aimed at promoting a circular economy through upcycling. Located in a former industrial district, the development repurposed materials from demolished structures (including bricks from historic buildings such as the Carlsberg brewery and old Copenhagen schools), repurposing them to give them a new life in the community.

The project addressed two major environmental challenges: reducing construction waste and minimizing carbon emissions in urban development. By using reclaimed materials, particularly bricks that were repurposed in modular panels, Resource Rows reduced the environmental impact of the construction process. It exemplified a regenerative approach in which materials were carefully selected for re-use, enhancing the sustainability of the entire development. The project achieved a remarkable 29% reduction in carbon dioxide (CO_2) emissions per square metre compared to traditional construction methods.

Resource Rows also integrated significant elements of urban ecology, and its design contributed to both environmental and community regeneration. The project encouraged circularity by reducing dependency on new materials and construction processes while promoting environmental stewardship through the innovative use of reclaimed resources.

The architectural approach ensured that all new construction elements functioned harmoniously with the recycled materials, in doing so proposing a new aesthetic norm and reconnecting urban spaces with the people surrounding them. Resource Rows is not only a practical housing development, but also a forward-thinking initiative aimed at reducing the environmental burden of urban growth.

Key outcomes

GOVERNANCE The project was anchored in collaboration, transparency and regulatory innovation. Resource Rows demonstrated how a multistakeholder approach – involving local authorities, architects, urban planners, material suppliers, demolition contractors and the community – can drive meaningful, place-specific development. The project required innovative regulatory frameworks to enable material re-use at scale. Lendager Group worked closely with municipalities to develop guidelines for upcycled construction, setting a precedent for future projects. Through transparent engagement processes, Resource Rows cultivated community ownership while catalysing both social and environmental benefits. Resource Rows proved that governance in sustainable urban development is not just about regulation, but also about cultivating collaboration and shared responsibility.

ENVIRONMENT Resource Rows exemplified sustainable Baukultur by prioritizing material circularity and energy efficiency. Over 70% of the bricks, wood and concrete were upcycled, significantly reducing embodied carbon and reliance on new resources. Green roofs and courtyards mitigate the urban heat island effect, enhance stormwater retention and support local biodiversity, contributing to urban resilience. The project also integrated passive design and high-performance insulation to minimize energy consumption while maintaining indoor comfort. Its approach aligned with broader ecological restoration efforts, demonstrating how regenerative land practices and responsible resource use can enhance environmental resilience in urban development.

ECONOMY Resource Rows demonstrated how circular construction can create new economic opportunities by transforming waste into valuable building materials. The project not only reduced costs associated with raw material extraction but also cultivated a market for upcycled construction components. Additionally, the project prioritized local workforce development by launching training initiatives that equipped builders with the expertise needed to handle and install re-used materials, contributing to long-term knowledge transfer in the construction sector. By developing scalable re-use logistics and training a local workforce in material upcycling, Resource Rows strengthened industry resilience, supported green job creation and set a precedent for economically viable, resource-efficient development.

BEAUTY The project transformed discarded materials into a visually striking built environment. The integration of upcycled bricks, wood and concrete facilitated a unique aesthetic that reflected both sustainability and craftmanship, strengthening its sense of place. The design carefully balanced form and function, ensuring that spaces were not only resource-efficient but also inviting. Green roofs, courtyards and natural materials enhanced sensory experiences, facilitating a deeper connection between residents and their surroundings while improving overall quality of life.

Stakeholders

Lead design
Lendager Group

Consultants
- Moe Engineering
- Environmental organizations for guidance on circular construction practices
- Danish architectural and sustainability research institutions (which conducted studies on the project's life cycle impacts)
- Local specialists in upcycling and materials research

Key stakeholders
Municipal authority for planning and regulatory compliance

Client
- Nrep
- AG Group

Ongoing management
- Lendager Group
- Local residential management group

CONSTRUCTION

Lead contractor
Lendager Group's in-house construction team

Local demolition companies (partnered to salvage and supply reclaimed materials)

Material upcycling specialists

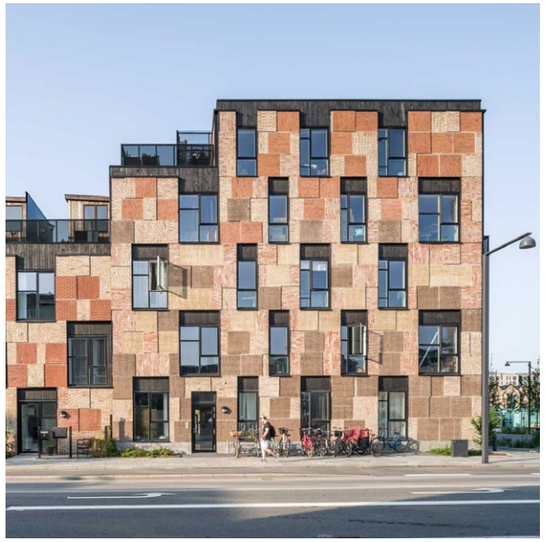
MATERIAL SOURCES

Bricks
Reclaimed from historic buildings slated for demolition, including Carlsberg Brewery and old Copenhagen schools

Timber
Recycled from the Copenhagen Metro and other local sources, reprocessed for structural and aesthetic applications

Concrete
Crushed and repurposed as aggregate for new constructions

Other materials
Sourced from circular economy initiatives within Denmark



Rasmus Hjortshøj

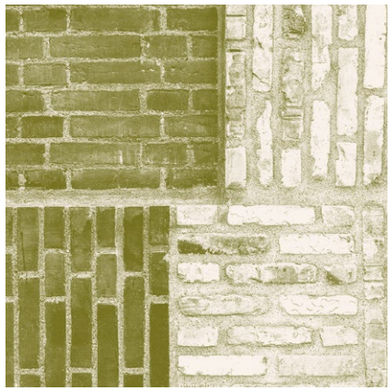
Replicability and lessons learned

Replicable or scalable aspects

- **Combining material re-use with pre-fabrication**: Resource Rows developed scalable methods for processing salvaged materials into prefabricated elements. This system can be adapted to other urban contexts.
- **Circular construction and material re-use to preserve architectural heritage**: The integration of reclaimed materials into large-scale residential developments can be replicated in other cities facing environmental challenges or that have a desire to preserve architectural heritage while driving sustainable growth.
- **Regulatory adaptation**: The project illustrated how cities can revise building codes to enable large-scale material re-use, providing a framework for policy replication elsewhere.
- **Community-centred design**: The design process involved active participation from local residents and urban planners, enabling the development to meet community needs. This approach can be scaled and adapted to various urban contexts globally.
- **Aesthetic and functional integration**: Circular construction does not have to compromise design quality. Resource Rows demonstrated how upcycled materials can be applied in ways that enhance both form and function.
- **Multistakeholder approach**: The collaboration between developers, local authorities and environmental experts offered a model for other urban regeneration projects, particularly those seeking to integrate sustainability into their design processes.

Lessons learned

- **Engage the community early**: By involving the community from the planning stage, the project ensured that the development not only addressed environmental needs but also resonated with the people who would call it home.
- **Maintain focus on sustainability from the start**: The project's commitment to upcycling and reducing waste was a foundational principle. This made it easier to implement circular construction methods.
- **Material sourcing requires early planning**: Ensuring a steady supply of reclaimed materials involved close coordination with demolition schedules and building contractors from the project's outset.
- **Regulatory barriers need proactive engagement**: Building codes traditionally favour new materials, meaning policy advocacy was necessary to unlock circular construction potential.



Rasmus Hjortshøj

- **Public perception is key**: Recycled materials were initially met with scepticism, but showcasing their quality and durability helped to shift public attitudes.
- **Emphasize adaptive re-use in urban development**: Encouraging adaptive re-use of materials in cities can reduce the environmental footprint and preserve cultural heritage while promoting sustainability.

Challenges

- **Quality control of upcycled materials**: Ensuring consistency and compliance with modern standards required extensive testing and refinement.
- **Material sourcing consistency**: Sourcing sufficient volumes of high-quality, reclaimed materials in a consistent way represented a notable challenge for the project. This issue could be addressed more effectively by establishing stronger partnerships with demolition companies and material suppliers.
- **Supply chain coordination**: Aligning demolition timelines with construction needs was a logistical challenge. This issue necessitated new workflows for material recovery and storage.
- **Public perception and awareness**: Educating the public on the benefits of circular construction was a crucial part of the process and may be challenging in regions unfamiliar with these practices.
- **Scaling circular principles beyond pilot projects**: While Resource Rows was a success, mainstreaming this approach in large-scale developments requires broader industry buy-in and incentives.

Next steps

- The success of Resource Rows highlighted the feasibility of large-scale circular construction in urban environments, paving the way for broader adoption in both residential and commercial developments. Future projects inspired by this model can further expand the use of reclaimed materials, supported by evolving policies and industry practices.
- Copenhagen's urban planning strategies now incorporate stronger mandates for circular construction, while more Danish developers are scaling Resource Rows' principles across the country. Internationally, cities such as Amsterdam and Berlin are studying the project as a model for integrating circularity into urban housing.
- Moving forward, ongoing efforts will focus on monitoring the long-term performance of the building materials, refining upcycling methods, reducing waste and enhancing energy efficiency to drive continued innovation in sustainable construction.

Presented by the World Economic Forum

Completed May 2018

The Hikma Community Complex

Mariam Issoufou Architects

Dandaji, Niger

HIGHLIGHTS FROM THE DBQS

GOVERNANCE
ENVIRONMENT
ECONOMY
CONTEXT
SENSE OF PLACE

COST

$544,300

The Hikma Community Complex is a cultural and educational hub in Dandaji, Niger, that combines the adaptive re-use of a historic mosque with new built additions to support community development, education, and environmental and social sustainability.

Located in Dandaji, a village in western Niger, the complex serves as a space where secular and religious activities coexist to facilitate education and social cohesion. The village, with a population of 3,000, faces challenges such as low literacy rates and economic vulnerability. To address these needs, the project renovated and adapted the existing mosque, designed by internationally recognized local architect El Hadji Falké Barmouan,[15] into a library with study spaces, classrooms and workshops. A new, larger mosque was built to accommodate the growing needs of the village, and a children's play area and landscaped gardens unite the two buildings.

Designed by Mariam Issoufou Architects and Studio Chahar, the complex uses locally sourced materials and building practices, integrating cultural heritage with modern needs to create a sustainable structure suited to the region's arid climate and the growing community's needs. This was in direct response to the local community initially considering demolishing the old mosque in favour of a concrete replacement. This combination of adaptive re-use and contemporary design offers a model for community-driven, sustainable and culturally rooted architecture in rural settings.

Key outcomes

GOVERNANCE The Hikma Community Complex showcases strong governance by involving local stakeholders. The project was commissioned by the village of Dandaji, led by village leaders and involved extensive consultation with the community to ensure the design met their needs. This collaborative approach has cultivated a sense of ownership and pride within the community, contributing to the project's long-term success.

ENVIRONMENT The complex prioritizes environmental sustainability through the careful selection of materials and design strategies. Most of the construction materials were sourced from within a 5 km radius of the site, reducing transport costs and minimizing environmental impact. Concrete was used sparingly, limited to essential structural elements such as columns and lintels.

A key feature of the project is the use of compressed earth bricks (CEBs) made from laterite soil found on-site. These bricks offer thermal benefits similar to adobe, with lower maintenance requirements. By harnessing the thermal mass of the earth and incorporating natural ventilation through strategically designed taller spaces that draw hot air away from occupied areas, the building minimizes the need for mechanical cooling, enhancing energy efficiency in the region's harsh climate. Local artisans produced the CEBs, supporting local craftsmanship. Additionally, the project employed local knowledge of techniques and properties of natural materials. For example, salt and Arabic gum were added to the interior finish to repel termites, and shea butter was used on the external earth to enhance waterproofing properties.

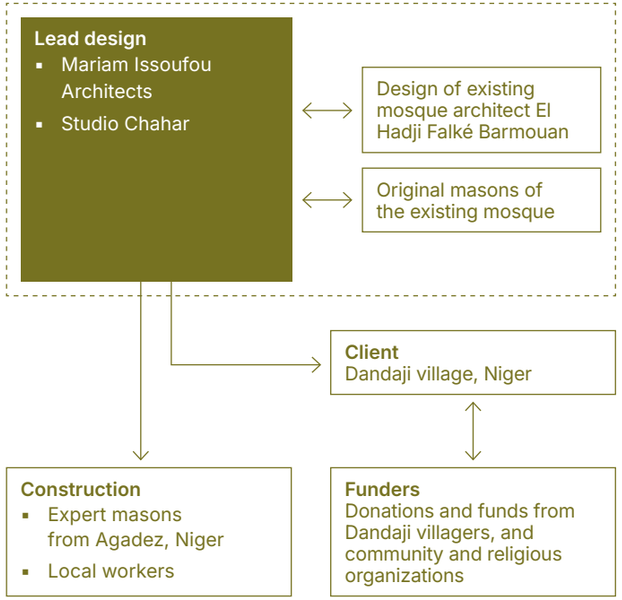
ECONOMY The Hikma Community Complex has generated economic benefits for the local community by creating employment opportunities during the construction phase, particularly for masons and other skilled labourers. In addition to construction jobs, the project has facilitated long-term economic growth by providing educational programmes such as literacy classes, sewing courses and computer skills training. These initiatives empower community members, especially women and youth, by enhancing their skills and economic opportunities. Furthermore, the use of locally sourced materials and labour has contributed to a more resilient local economy, ensuring that financial benefits remain within the community.

Mariam Issoufou Architects

CONTEXT The design of the Hikma Community Complex responds thoughtfully to the existing context of Dandaji. The adaptive re-use of the mosque not only preserves a key cultural and historical landmark but also integrates it into the new functions of the building. The expansion of the mosque into a larger structure meets the growing needs of the village while maintaining a strong connection to the site's historical and cultural context. The overall architectural language respects the vernacular style of the region while introducing contemporary elements that enhance the functionality of the space, ensuring the design complements both the built and natural environment. This was facilitated by the involvement of local traditional masons in the construction process. The project team intentionally invited these masons to contribute their skills, ensuring that traditional construction methods were integrated into the design, and promoting local knowledge and craftsmanship. Notably, the original masons who had worked on the existing mosque were invited to join the project team, ensuring continuity of knowledge and skills in the adaptive re-use of the mosque.

SENSE OF PLACE The mosque historically served as a central gathering place for the village and surrounding communities, located near the only middle school in the area, which draws students from nearby villages. However, due to its small size, the mosque had become a male-dominated space, limiting access for women and children. The Hikma Community Complex expands and adapts the mosque to create a more inclusive community hub, integrating both religious and secular functions. This transformation strengthens social ties and ensures that all members of the community – regardless of age or gender – have a space for gathering, learning and participation in civic life.

Stakeholders



Replicability and lessons learned

Replicable aspects

- **Local knowledge**: Lead designers involved local craftsmen, including acutely local and historical knowledge through the original mason's involvement. This directly contributed to ensuring the structure's longevity through the integration of enhancing additives and waterproof erosion protection techniques.

- **Locally rooted traditional and contemporary construction**: The blending of traditional local material knowledge with new construction techniques (such as CEBs), both of which used local materials, allowed for a strong, technically and socially sustainable building.

- **Integration of religious and secular spaces**: The Hikma Community Complex successfully combines religious and secular functions within a single site, promoting social cohesion and inclusivity. This approach demonstrates how carefully planned designs based on strong community dialogue can facilitate the coexistence of diverse community activities.

Lessons learned

- **Key role of client dialogue to promote sustainable approaches**: Dialogue with the community and its leaders played a key role in facilitating the path to adaptive re-use, moving away from the community's original preference of a new concrete structure. This engagement continued throughout the process to shape the design and deliver the construction through the local workforce, building ownership and the project's long-term success.

- **Passive cooling for hot and dry climates**: By employing locally sourced materials and traditional construction techniques, the complex serves as a model for sustainable architecture in arid climates. Learning from the historic design, the new spaces minimize environmental impact while providing comfortable, passive cooling without relying on mechanical systems.

- **Preservation of cultural heritage**: Engaging the community to preserve and adapt existing structures, like the historic mosque, can honour cultural heritage while meeting contemporary needs. This approach creates a sense of identity and continuity. The project's considered and striking blend of traditional and modern design has garnered international acclaim, earning the Gold Lafarge Holcim Award for Middle East Africa in 2017 and the Global Silver Lafarge Holcim Award in 2018.

Challenges

- **Structural deterioration**: The original adobe mosque had suffered significant erosion due to water damage from seasonal downpours and neglect. This deterioration posed a substantial challenge in preserving and repurposing the structure into a library. The project team addressed this by inviting the original masons to join the restoration efforts, using their expertise to repair and enhance the building's integrity.

- **Material limitations**: The scarcity of traditional materials, such as wood, led to the use of alternatives like metal for interior elements. These were carefully designed to complement and respect the historic structure while integrating contemporary additions in a cohesive manner.

Next steps

The Hikma Community Complex has significantly influenced the Dandaji community, leading to several tangible outcomes:

- **Educational and vocational programmes**: The library has become a hub for various educational initiatives, including literacy classes, sewing courses and computer skills training. These programmes empower community members, particularly women and youth, enhancing their personal development and economic opportunities.

- **Community engagement**: Beyond its educational role, the complex serves as a venue for social and cultural activities. Local non-governmental organizations (NGOs) use the facilities for training sessions, promoting a sense of community and collective growth.

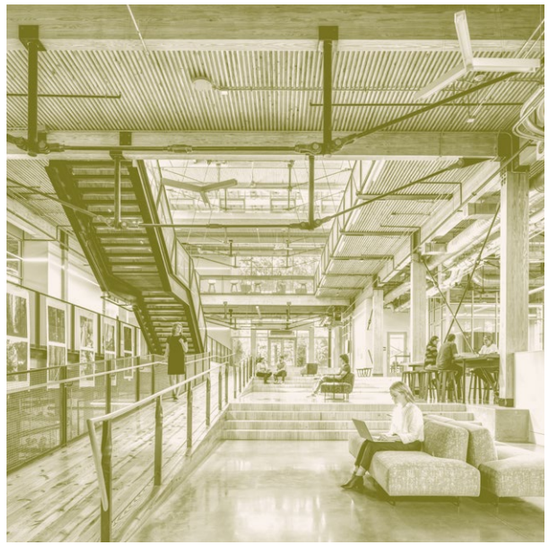
Miriam Issoufour Architects

Presented by Architecture 2030

Completed in 2019

The Kendeda Building for Innovative Sustainable Design

Atlanta, Georgia, US



Jonathan Hillyer

HIGHLIGHTS FROM THE DBQS

ENVIRONMENT
FUNCTIONALITY
ECONOMY
SENSE OF PLACE

COST

$30 million

The Kendeda Building for Innovative Sustainable Design seeks to challenge conventional construction methods by applying the principles of circularity and regenerative design. Located on the Georgia Institute of Technology campus, it is the first Living Building Challenge-certified project[16] in the southeastern US, a region known for its hot and humid climate.

The building was conceived in response to the construction industry's significant environmental impact, aiming to demonstrate that high-performance, net-positive buildings can be achieved at scale. A key objective was to create an educational environment that encourages innovation in sustainable design, construction and operation.

The project integrates a range of sustainability strategies, including a significant solar array, rainwater harvesting and treatment systems, and the extensive use of reclaimed materials such as salvaged wood from dismantled buildings and film sets. The structure is designed to last at least 100 years, with adaptability in mind to extend its usefulness and minimize future demolition waste.

Key outcomes

ENVIRONMENT The Kendeda Building demonstrates sustainable resource use and climate responsiveness by producing more energy than it consumes and managing all its water needs on-site. The building achieves net-positive energy status with its 917 rooftop solar panels generating over 455,000 kilowatt hours (kWh) annually (fulfilling the Energy Petal requirement of the Living Building Challenge). The project prioritizes circular materials, including nail-laminated timber panels crafted from 25,000 linear feet of reclaimed 2x4s from dismantled movie sets, resulting in significant carbon footprint reduction. Additionally, the Kendeda Building manages water efficiently through rainwater capture from its roof, foam-flush toilets and waterless urinals, significantly reducing water consumption compared to traditional systems, contributing to the building's net-positive water status.

FUNCTIONALITY Designed as a multi-use academic building, the Kendeda Building is a research and educational hub, supporting Georgia Institute of Technology's (Georgia Tech) mission to advance sustainability knowledge. The adaptable design ensures long-term usability, allowing the building to evolve alongside advancements in technology and pedagogy. The facility includes classrooms, laboratories and gathering spaces that encourage collaboration between students, faculty and industry professionals.

ECONOMY Circular construction principles were employed to optimize material efficiency and reduce long-term operational costs. The use of salvaged materials, resulting in $80,000 in cost savings, not only minimized the environmental impact but also demonstrated a cost-effective approach to sustainable building. The net-positive energy and water strategies further reduce operational expenses, making the project an economically viable model for similar developments.

The Kendeda Fund, a philanthropic organization, fully funded the project as a gift to Georgia Tech. This approach allowed for greater flexibility in design and material selection, ensuring that the most sustainable solutions could be prioritized without the typical constraints of a for-profit development.

SENSE OF PLACE The building enhances Georgia Tech's campus identity by serving as a landmark for sustainability education and research. The integration of public gathering spaces and a rooftop garden encourages community engagement and provides a welcoming environment for students, faculty and visitors, deepening their attachment to the place. The project's design also reflects regional climate conditions and cultural heritage through material choices and passive design strategies, reinforcing a strong sense of place.

Stakeholders

Challenges and gaps

- The absence of conventional financing created a unique opportunity but also meant the project lacked traditional market-driven feasibility testing.
- Navigating regulatory approval for net-positive water strategies required extensive coordination with municipal authorities.
- The integration of reclaimed materials introduced logistical challenges, requiring flexibility in procurement and design adaptation.

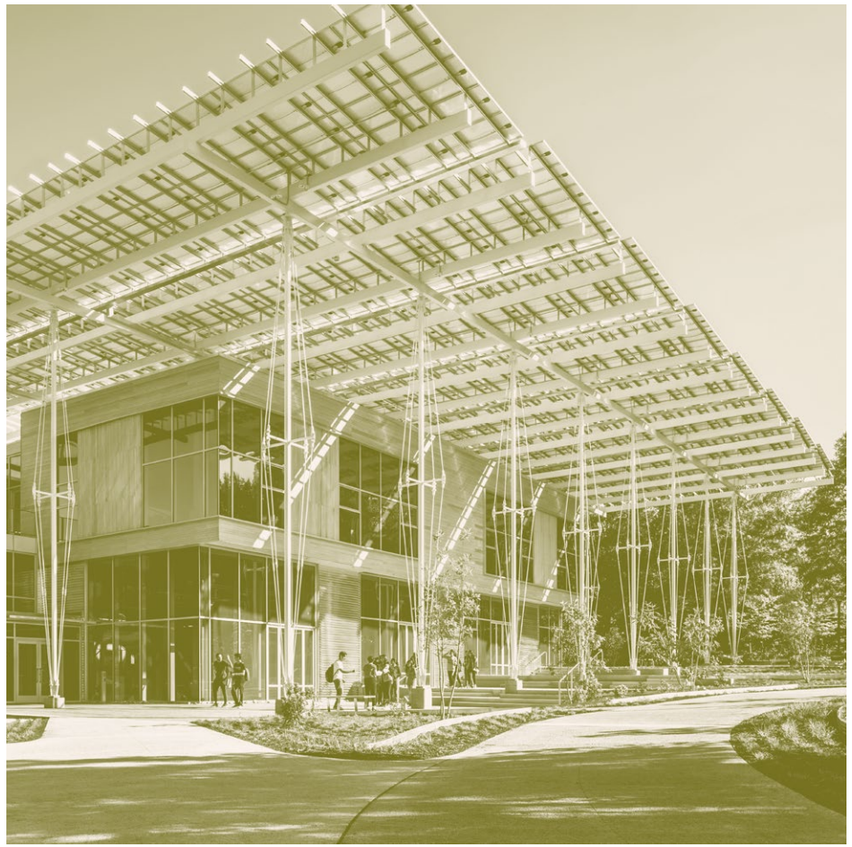
Gregg Willett

Replicability and lessons learned

Replicable aspects

- **Net-positive performance**: The Kendeda Building proves that it is possible for buildings to generate more energy than they consume and manage their own water needs on-site through the integration of solar energy, rainwater harvesting and efficient systems. This net-positive performance highlights a scalable model for other buildings, demonstrating that regenerative design principles can be applied successfully even in climates with high humidity, such as Atlanta's.

- **Community engagement**: Ensuring long-term engagement and educational programming was a key part of the Kendeda Building's design. The building serves as a "living laboratory", providing ongoing opportunities for Georgia Tech students, faculty and the wider community to engage with sustainable design practices. This commitment to education and community involvement helps the building maintain its relevance as a resource for sustainability knowledge, building a stronger connection between the project and its users over time.



Jonathan Hillyer

Lessons learned

- **Supply chain considerations**: Incorporating reclaimed materials required flexibility in sourcing and design adaptation, as the availability of salvaged materials (such as wood from dismantled buildings and film sets) was not always predictable. This necessitated close coordination with suppliers and designers to ensure that the materials aligned with the building's sustainability goals without compromising design integrity or functionality.

- **Policy and regulatory hurdles**: Adapting building codes to support net-positive water and energy strategies required extensive coordination with municipal authorities. Early engagement with regulators was crucial to navigating the regulatory framework and securing approval for innovative systems such as rainwater harvesting and advanced energy solutions. This process highlighted the need for flexibility in existing codes to accommodate sustainable, regenerative design practices.

Challenges

- **Climate adaptation**: The Kendeda Building serves as a model for climate-resilient design in the southeastern US, where extreme weather events, including hurricanes and flooding, are becoming more frequent. For this project, integrating features such as rainwater harvesting and efficient energy systems was essential to mitigating the effects of the region's unpredictable weather patterns, ensuring that the building remains adaptable to future challenges.

- **Funding model**: The Kendeda Building's philanthropic funding model enabled the flexibility necessary to prioritize sustainability over traditional profit-driven goals. While this model facilitated the integration of cutting-edge sustainable technologies and design, alternative financial strategies would need to be used for commercial or market-driven projects such as public-private partnerships (PPPs) or other forms of investment.

- **Scaling circular construction**: The use of reclaimed materials is central to the Kendeda Building's design. Coordinating the procurement and transport of salvaged materials often requires extra effort and planning, as these materials can be harder to source consistently. Furthermore, designs may need to be adapted to account for variations in material availability, which can impact cost and timelines, making this process more complex for larger-scale projects.

Next steps

- The Kendeda Building continues to serve as an evolving research facility, tracking long-term performance data to refine best practices for sustainable design. Georgia Tech aims to expand its sustainability curriculum using the building as a core teaching tool.

- Ongoing industry partnerships seek to replicate its principles in commercial developments. The lessons from this project are informing broader discussions on sustainable building policies and market-driven approaches to net-positive design.

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- CAF - Latin America and The Caribbean Development Bank
- Climate Heritage Advisors
- Creative City of Potsdam (Creative Cities Network)
- Culture for Development, Pacific Community
- Green Climate Fund (GCF)
- ICCROM
- Intergovernmental Panel on Climate Change (IPCC)
- International Council of Museums (ICOM)
- International Council on Monuments and Sites (ICOMOS)
- International Indigenous Peoples Forum on Climate Change
- International Union for Conservation of Nature (IUCN)

- Ministry of Culture, Brazil
- Ministry of Culture, United Arab Emirates
- Petra National Trust
- Seychelles National Museums
- Snowchange Cooperative
- The Australian National University
- Ulster University, Northern Ireland
- United Nations Educational, Scientific and Cultural Organization (UNESCO)
- United Nations Framework Convention on Climate Change (UNFCCC)
- United Nations Permanent Forum on Indigenous Issues
- University College London Institute for Sustainable Heritage
- World Bank

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List of Alliance members

Steering committee member ■

Alliance members as of May 2025

States

Albania
Austria
Belgium
Bulgaria
Croatia
Cyprus
Czechia
Estonia
Finland
Germany
Greece
Italy
Latvia
Liechtenstein
Lithuania ■
Luxembourg
Malta
Moldova
Netherlands
North Macedonia
Portugal
Romania
Serbia
Slovenia
Spain
Switzerland ■
Ukraine

International organizations

International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM)

UN-Habitat ■

UNESCO

World Bank

International non-governmental organizations

Architects Council of Europe (ACE) ■

Architecture 2030

Build Change

City Space Architecture

Conference of INGOs of the Council of Europe ■

Europa Nostra ■

European Council of Spatial Planners (ECTP)

European Public Real Estate Organization (EPRA)

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Neri&Hu

Ramboll Group

Saint-Gobain

Strabag

Stone Estate Swiss

Technogym

Therme Group

Urbanmetry

Urban Splash

Velux

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Governance

Functionality

Environment

Economy

Diversity

Context

Sense of Place

Beauty