

Davos
Baukultur
Alliance

WORLD
ECONOMIC
FORUM

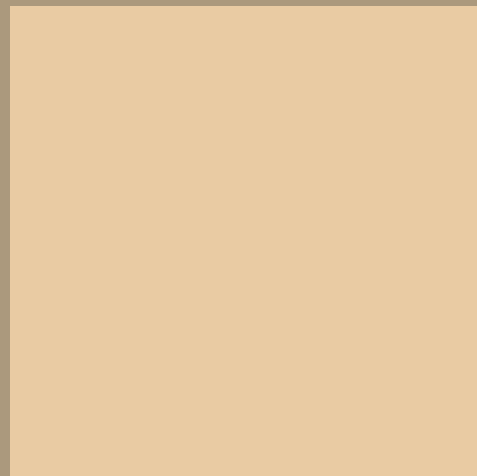
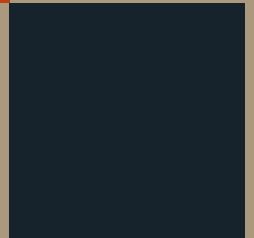


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Innovative Practice



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Preface



Oliver Martin
Chair, Davos Baukultur Alliance

High-quality Baukultur is key to the future of sustainable and vibrant living environments. Shaping living environments is always a cultural act and provides space for culture to thrive. While all building and planning practices directly affect Baukultur, not all contribute to what is known as high-quality Baukultur. It must be our aim to shape our environments more carefully for increasingly sustainable, inclusive, beautiful and liveable places – everywhere. High-quality Baukultur is a comprehensive concept that supports a more conscious, transdisciplinary and quality-oriented transformation of the places in which we want to live, both now and in the future.

Switzerland launched the Davos Baukultur Process, an international movement aiming to improve our living environments. In 2018, European Ministers of Culture gathered in Davos and adopted the Davos Declaration “Towards a high-quality Baukultur for Europe”. Only five years later, in 2023, the Davos Baukultur Alliance was launched at the second Conference of Ministers of Culture, Common Good – Shared Responsibility, in partnership with the World Economic Forum, to facilitate cross-sector knowledge and know-how from high-level Baukultur stakeholders and experts around the globe.

The Alliance deepens existing debates and creates new ones by bringing together the public and the private sector as well as civil society from around the globe. This enables the Alliance to engage in a broader debate and accelerate high-quality Baukultur across sectoral boundaries. Governments, leading businesses in the building and construction sectors, non-governmental organizations (NGOs) and governmental organizations (GOs) have joined forces in the Alliance. They are committed to improving the quality of our living environments through shared responsibility.

The Davos Baukultur Quality System (DBQS) forms the Alliance’s DNA. The internationally recognized DBQS is an instrument for assessing Baukultur qualities in places based on eight criteria: governance, functionality, environment, economy, diversity, context, sense of place and beauty. Yet it is far more than just a tool, as it offers a framework for grasping and exploring the multifaceted aspects of high-quality Baukultur. The DBQS innovatively combines technical and functional aspects with social, emotional and cultural values with the aim to design and shape thriving and vibrant places.

Creating vibrant places requires critical and deep discussion. The Davos Baukultur Alliance’s members work intensively in three thematic focus groups: affordability and social value creation, resilience and climate adaptation, and sustainability and circularity. The place-based focus group Special Issue: Rebuilding Ukraine complements the three thematic debates. The Baukultur Innovative Practices we invite you to discover originate from Alliance members and are derived from the thematic focus groups.

The Baukultur Innovative Practices reveal that high-quality Baukultur is the goal, but also a challenge. The Baukultur Innovative Practices are projects that have endeavoured to respond to changes and challenges with high quality in designed living environments. They do not show universal solutions or ready-to-use recipes for success, but rather what can be achieved under different conditions and contexts if there are high (self-) demands to be met. The diversity and individual characteristics of the case studies shed light on different approaches, strategies and solutions for dealing with these issues.

The specific case studies substantially contribute to the intersectoral discussion on high-quality Baukultur with its individual strengths and perhaps also challenges. That is valuable. The case studies form an important basis for deeper reflection and discussion to better understand theory and practice as well as their interdependencies and to determine the necessary adjustments for a common future. In doing so, they make an important contribution to the development of vibrant living environments for the future – to high-quality Baukultur.

Foreword



Jeff Merritt

Head, Centre for Urban Transformation;
Member of the Executive Committee,
World Economic Forum

Throughout history, societies have woven their values, beliefs and unique aesthetics into the fabric of buildings and the built environment. This manifests in architectural styles, urban planning and the use of space, reflecting each community's identity and heritage.

From the ornate temples of ancient Egypt to the harmonious layouts of Japanese gardens and the vibrant façades of Mediterranean villages, these cultural imprints create spaces that are functional and deeply cherished. They create a sense of belonging and continuity, anchoring communities by preserving shared memories and traditions, contributing to social cohesion and identity.

This concept of Baukultur, which translates to “building culture” in English, also informs how we interact with the natural environment and how communities adapt to an everchanging world where climate change, technological advancement, geopolitical instability and conflict are rapidly changing the ways that we live and work.

The 12 innovative practices featured in this publication offer a glimpse of what is possible when the public and private sectors align along a common set of principles to enable more vibrant communities. These projects and practices include the first building in the world to use 100% recycled concrete, the remediation and redevelopment of a decommissioned coal-fired power plant into a vibrant mixed-use community, and a place-based funding and delivery model to improve residential energy efficiency and promote community regeneration.

Effective place-making and the advancement of high-quality Baukultur require public-private collaboration. As the International Organization for Public-Private Coordination, this work is central to the mission of the World Economic Forum and is deeply connected to the day-to-day activities of our global network of partners from business, government and civil society.

This multistakeholder collaboration is reflected in the diversity of partners who have contributed to this inaugural collection of innovative practice. This includes international organizations and non-profits such as UNESCO and Habitat for Humanity International, government authorities such as the City of Vancouver and Diriyah Gate Development Authority, and global businesses like Avison Young and Holcim.

Each project showcased in this publication is unique, but they are all united by a common vision and call to action to build a more sustainable and vibrant future for all.

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 reuse. 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.

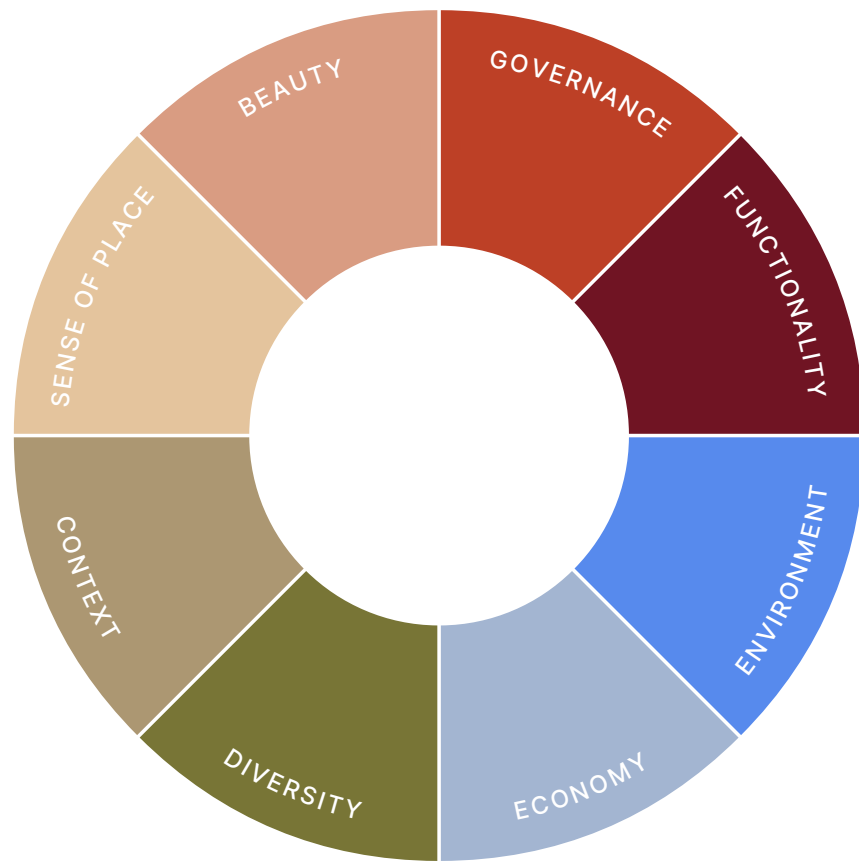
SENSE OF PLACE

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.

The Davos Baukultur Quality System is a practical guide and aid through its eight criteria for achieving high-quality Baukultur in all forms of living environments.



Affordability and social value creation



Safe and Sound Cities Programme



Ecoquartier Les Vergers



RENEW Districts



sθəqəlxenəm
ts'exwts'áxwi7
(Rainbow Park)

Resilience and climate adaptation



Lamu Old Town



The Ellen DeGeneres
Campus of the Dian
Fossey Gorilla Fund

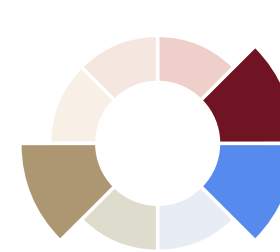


Residential Energy
Efficiency for Low-
Income Households



At-Turaif and Bujairi
Terrace Precinct

Sustainability and circularity



InGrid Schneider
Electric Hub



Avon Lake Power Plant



Recygénie



UrbanWave

Affordability and social value creation

Exploring ways to incentivize and accelerate the adoption of high-quality Baukultur within regeneration projects, structured to embed and drive social value for all communities.

Presented by Global Infrastructure Basel Foundation

Safe and Sound Cities Programme

S²Cities

Naga and Baguio, Philippines
Bandung, Indonesia
Cuenca and Ambato, Ecuador
Envigado, Colombia

2021 to present



DBQS HIGHLIGHTS

GOVERNANCE
DIVERSITY
BEAUTY

S²Cities programme

Safe and Sound Cities (S²Cities) is a global programme managed by Global Infrastructure Basel Foundation (GIB) to improve young people's urban safety and well-being. The programme empowers youth (ages 15-24) to analyse community safety issues, collaborate with local government to address challenges and work with diverse stakeholders to implement creative solutions.

“Young people should be meaningfully engaged in shaping the cities they live in to create safer, more inclusive and sustainable urban environments.”

S²Cities



S²Cities programme

The S²Cities programme empowers young people to develop and implement innovative solutions to improve accessibility of public and safe spaces for youth in collaboration with the government and private sector. Interventions are both physical and programmatic to engage and activate underused city spaces, including transforming landmark public spaces into welcoming spaces adaptable to various activities.

Each project's implementation is unique, responding to local needs and context. For example, in Naga, Baguio, Ambato, Cuenca and Envigado, long-vacant spaces, including commercial units, were converted into youth innovation hubs with tailored activities. In Bandung, the *Kami Ruang Ketiga* (the Third Space) team reactivated a space beneath the Pasopati Flyover, a city landmark, with a Film Park, football field and events programme. This led to its recognition as an official non-governmental organization (NGO).

Beyond the overarching governance and financing model, in some cases, local government and the private sector have contributed with in-kind or direct funding. Each project has also creatively sought mechanisms to ensure long-term sustainability and maintenance of their physical and programmatic elements through formal institutional channels.

Key outcomes

GOVERNANCE The collaborative governance model of each programme component and activity is designed to ensure long-term sustainability and maximize positive impacts. The programme's first phase concentrated on capacity strengthening for the public and private sector and young people, to promote civic and entrepreneurial engagement.

GIB and its partners worked closely with young people and youth-led organizations to identify key issues affecting the safety and well-being of young people. Programme participants mapped and engaged relevant stakeholders, and developed skills and strategies to co-design solutions. In particular, the programme facilitated alignment between young people's and local governments' safety priorities, facilitating collaboration and trust-building, and ultimately leading to more sustainable and impactful solutions.

DIVERSITY The S²Cities programme takes a participatory, inclusive design process that brings together diverse community, public, private and civil society stakeholders, especially young people. The programme also promotes equitable gender representation, socioeconomic diversity and minority inclusion, with some projects specifically working to include indigenous youth and members, particularly young people, of the LGBTQIA+ community. Furthermore, the programme's approach serves as a model for including youth and community voices in planning and implementing future municipal infrastructure projects. For example, the participatory process of creating the Naga Youth Hub is serving as an official municipal model backed by an Executive Order.

BEAUTY Each project of the programme is tailored and adapted to local needs. Their spatial design is co-designed by the young people with local design firms to transform the existing sites into vibrant places for the community that are inclusive and enhance the visual quality of the previously neglected space.

Stakeholders



Source: S²Cities programme

Replicability

The projects show how formalizing governance structures enable not only sustainability but pathways for replicability. The youth innovation hubs have been institutionalized in several geographies, laying out a roadmap for applying in diverse contexts and similarly formalizing their existence. For example, in the case of *Kami Ruang Ketiga*, government commitment was required to safeguard the space from returning to unsafe use. The recognition of the *Kami Ruang Ketiga* team as an NGO with a mandate to transform further underused public spaces throughout Bandung demonstrates how a strong coalition can become an organization. Attaining this formal recognition was crucial for long-term sustainability as it enabled the young people to sign contracts with the Housing and Settlement Agency of Bandung City, committing the agency to ongoing maintenance of the site, including through the provision of electricity and a waste management system. The establishment of the NGO also made it easier for regular programming of the site to occur, a vital part needed to ensure continuous activation of the spaces.

Lessons learned

Formalizing the projects of the programme has been key to their success. This requires persistence in navigating bureaucracy, annual budget reviews, elections and delays to successfully formalize legal instruments (e.g. Executive Orders) so that clear mechanisms for government support and funding are established. The involvement of several government agencies is key: while a particular agency may champion the project, alignment and cooperation between different offices ensure lasting impact. Local programme partners hold meetings with governmental entities at the sub-district and city levels, involving young people from the first stages of programme implementation, to forge alliances and partnerships with government actors. The foundation for this to commence is GIB agreeing on a Memorandum of Understanding with the municipal agency.

Next steps

The S²Cities programme continues to scale its work with recent launches, such as projects and placemaking initiatives in Ambato and Cuenca, Ecuador, which are addressing alcohol consumption in streets and a lack of safe pedestrian routes and access to public transport to and from a local university.

The youth innovation hubs' work will focus on both strengthening existing hubs while working to expand locations.

The *Kami Ruang Ketiga* NGO is conducting three projects: developing urban farms, establishing reading corners in public spaces, and creating community gathering spots at the Cihampelas Skywalk.

Phase II of the programme (2024-2029) will seek to expand to additional cities and countries both in the Global South (under the current primary donor) and within the Global North (in Switzerland, pending co-funding confirmation). The second phase aims to strengthen the feedback loop between the global and local programmes. Local implementation partners will use local indicators to identify lessons learned. These findings will be synthesized across projects so that insights can be shared back to project sites and communities to strengthen the impact and ensure project outcomes align with intent.

Source: Safe and Sound Cities programme. (2023). *Programme Impact (2021-23)*.

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Ecoquartier Les Vergers



Patrimoine Suisse / Photographer: Gaëtan Bally

Ecoquartier “Les Vergers” is an extension of Switzerland’s first Satellite town, “Cité Meyrin”, built in the 1960s. This sustainable development is predominantly targeted towards housing, with 3,000 inhabitants in 1,350 apartments across 30 buildings ranging from social housing to owner-occupied units.

DBQS HIGHLIGHTS
GOVERNANCE
ENVIRONMENT
ECONOMY

The Ecoquartier “Les Vergers” extends Switzerland’s first satellite city “Cité Meyrin”, developed in the 1960s, a suburban annexe to Geneva. Les Vergers is situated on a gentle slope of former agricultural land facing the Jura hills, northwest of Cité Meyrin. The project is structured around two major axes: a downhill sloping park offers a view of the mountains, while a “playground” terrace constitutes the spine on which the housing blocks are anchored.

Three towers align the route de Meyrin, a major axis in and out of Geneva. A primary school and sports fields complete the ensemble to the northwest. The area is restricted to active mobility, as motorized traffic is only possible with exceptional permits or for emergency access.

The project mitigates the housing shortage in the city of Geneva while also providing high-quality shared spaces and buildings. The loss of agricultural land is offset by the integration of urban growth of crops within the public space, which also provides a buffer between the buildings. The production of this urban agriculture, managed by a cooperative founded for this purpose, is sold back to the residents.

Key outcomes

GOVERNANCE First, participatory processes engaged the future inhabitants at an early stage. They were involved in decision-making for the planning of the public spaces and in the attribution of non-commercial or non-profit activities on the ground floors. The input from working groups was critical to achieving an entirely pedestrianized neighbourhood, as well as the urban agriculture project.

In addition, sustained cooperation between the local municipality and private landowners was achieved by agreeing on a shared vision for the site and an agreed strategy for achieving this. This facilitated a coherent landscape that stitched together the heterogeneous architecture of the developments, which were selected via architectural competitions.

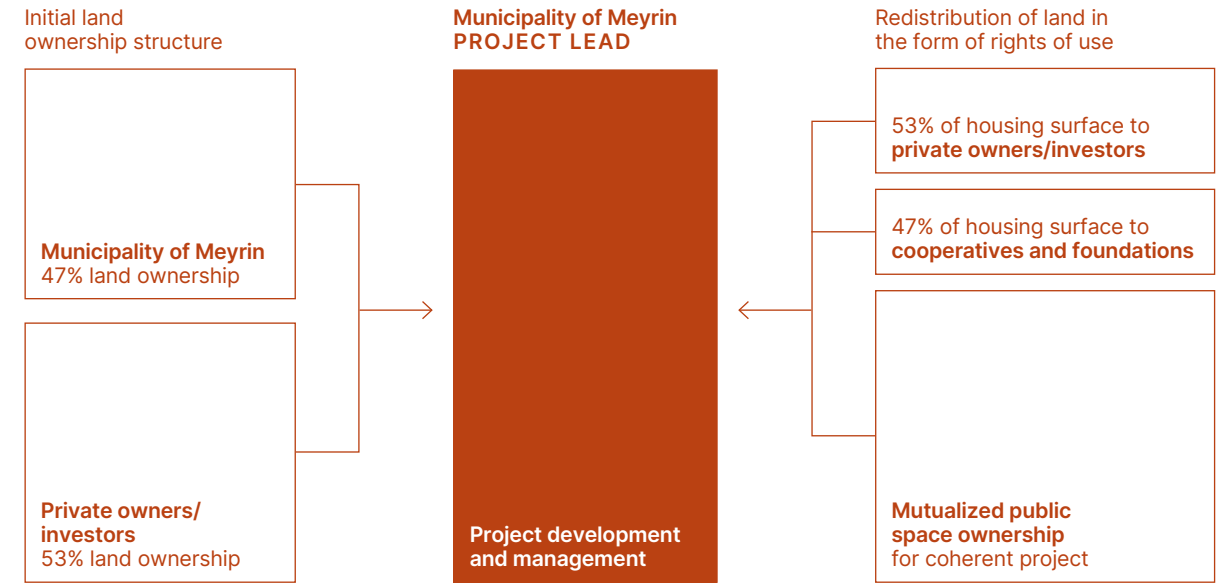
ENVIRONMENT This project serves as an exemplar of sustainable construction; all buildings having been awarded a Minergie A¹ label. The project contributed to the municipality being awarded the Wakker Preis² in 2022 for its involvement in promoting quality urban developments.

ECONOMY The Ecoquartier uses creative funding models to provide a range of socioeconomic opportunities. This includes a state-sponsored fund to create a long term “surface lease” to support ground floor non-profit organizations and public programmes. In addition, all the buildings situated on public land, 13 out of a total of 30 buildings, were awarded to housing cooperatives via a competition for non-profit investors. The integration of housing cooperatives provided more affordable housing options to a broad diversity of inhabitants, which now includes residents from 55 different nationalities.

¹ Minergie. (n.d.). *Minergie-A: le bâtiment climato-responsible.*

² Swiss Heritage Society. (2022). *Wakker Prize 2022 goes to the Geneva municipality of Meyrin* [Press release].

Stakeholders



Open-air concert in Les Vergers. Photographer: David Wagnières



Urban Agriculture in Les Vergers. Photographer: Pierre Marry

Replicability

The coordination and management of the shared public realm and landscaping is a replicable model for new developments in areas with a high degree of public-private collaboration. The private landowners can collaboratively co-finance a high-quality public space project spearheaded by the municipality. The private owners can also delegate the management of their share of the site to the municipality. In the case of Les Vergers, this maintenance is divided between the municipality's dedicated park-management office and the farmers' cooperative.

The choice of awarding the building rights to cooperatives opened the possibility to involve the representatives of the future inhabitants – the boards and the working groups of the cooperative – long before they moved in. Participatory workshops with representatives (who are often future residents of the cooperatives, sometimes years before they move in) have led to the creation of a ground-floor master plan. This plan is shaped by the needs and aspirations of these future inhabitants.

Lessons learned

A key foundation that was required for the success of the project was the municipality's proactive land policy and the inclusion of the community in the planning of the ground floors and public spaces. This mitigated an otherwise very top-down urban master plan.

The participatory workshops led to the development of a ground-floor master plan favouring non-profit activities and the idea of producing close-proximity agriculture. Functionally, this contributes to creating greater activation within Meyrin, thereby diminishing the new town's dependence on the centre of Geneva. The future inhabitants' striving for close proximity services creates jobs in this peripheral space and reduces the "dormitory city" aspect of the existing development of Meyrin.

Socially, this also contributes to creating a strong sense of place and enhances the inhabitants' attachment to Les Vergers.

These successes show that the canton's urban development governance schemes would gain from integrating public participation at even earlier stages. These interventions would not be limited to mitigating sometimes questionable master plans but would lead to truly co-creative urban transformations.

Next steps

Post-occupancy studies are under way, including data collection about energy consumption and production throughout the "Ecoquartier". Intermediary reports attest to the success of the environmental ambition of the project. Yet beyond the technical aspects of the sustainability criteria pursued, the social success of the operation will only be revealed over time.

“Beloved playgrounds, locally grown food and artisanal proximity services were only possible thanks to the participatory processes guiding the inclusive development of 'Les Vergers' – a core principle of good governance.”

Federal Office of Culture,
Section Baukultur, Switzerland

Urban Agriculture in Les Vergers. Photographer: David Wagnières



Timeline

- | | |
|-----------|--|
| 2001 | Les Vergers is identified in the Cantonal masterplan for future housing developments. |
| 2003 | Start of the neighbourhood masterplan study. |
| 2007 | The neighbourhood masterplan is accepted by the executive of the canton of Geneva. |
| 2012 | 47% of the building lots (i.e. all the publicly owned land) is allocated to cooperatives, following a non-profit investment competition. |
| 2013-2023 | Construction of Les Vergers. |
| 2014 | Initiation of the participatory process for the public-space planning. |
| 2016-2021 | The residents move in. |

RENEW Districts

RENEW Districts embody the key principles of resilience, equity, neutrality, environment and well-being, an overarching framework for future-proofing the districts, including its buildings, infrastructure and – importantly – its communities. One of the models being piloted under this framework is the Net Zero Neighbourhood (NZN) model, which uses a place-based funding and delivery approach at the neighbourhood scale to improve residential energy efficiency and promote community regeneration. Supported by blended finance, it facilitates extensive home renovations and broader community interventions – such as enhancing mobility, greening spaces and upgrading public buildings – to achieve local and national decarbonization goals.

DBQS HIGHLIGHTS

FUNCTIONALITY
ENVIRONMENT
ECONOMY
SENSE OF PLACE

Presented by Bankers Without Boundaries



The building sector accounts for 20-40% of global carbon emissions. The scattered ownership of residential properties makes it particularly challenging to reduce carbon emissions from homes across different regions.

The RENEW District framework tackles this emissions challenge (through the neutrality principle) while considering broader climate resilience and ensuring key social considerations remain front and centre (equity, environment and well-being). The Net Zero Neighbourhood (NZN)¹ model is one such solution being piloted under this framework (Figure 1).

Key outcomes

FUNCTIONALITY Improving functionality is core to the NZN model. By renovating homes to improve energy performance, it increases the functionality of residential buildings, produces co-benefits for human and environmental health, and upgrades housing built decades ago. Community interventions increase the functionality of the wider neighbourhood, for example, through the incorporation of additional green space or transport infrastructure.

ENVIRONMENT Increased energy efficiency of homes and adjacent sustainability interventions (e.g. local renewables generation, green mobility measures) reduced greenhouse gas (GHG) emissions, saving, on average, an estimated at £25.6 million in energy costs.

ECONOMY The economic benefits of building retrofits are clear. According to the International Energy Agency (IEA), energy efficiency measures could create up to 9 million jobs per year globally through 2030. Pilot projects such as one led by the West Midlands Combined Authority² are demonstrating the economies of scale achieved by taking a street-by-street approach.

Economic benefits are at the individual, project/neighbourhood and societal level. Individual residents and households should see a reduction in energy costs as improved energy efficiency decrease energy use, all other things being equal.

At the neighbourhood scale, the capital cost of interventions benefits both from economies of scale and economies of proximity.

SENSE OF PLACE NZN creates a strong sense of place by working at the neighbourhood scale in close collaboration with the communities, which strengthens the communities' attachment to the place.

Replicability

While place-based models are always influenced by the local context, the blended funding model (Figure 2) that backs the delivery model is scalable to attract institutional private capital. This scale could be achieved by aggregating multiple projects in different places. A blended funding model is required to support NZN development as the financial returns from retrofit (primarily via energy savings) would be insufficient to repay the upfront cost of retrofit within a reasonable timeframe.

¹ NZN was conceptualized by Bankers Without Boundaries (BwB) in 2021 and supported at different stages by 3ci, Eunomia, Arup and BEIS.

² West Midlands Combined Authority. (n.d.). *Net Zero Neighbourhoods*.

Therefore, to attract return-seeking private finance, some level of non-return finance must be incorporated to increase the attractiveness of the returns for the remaining portion. In Figure 2, the suggested forms of non-return funding would be public grants and/or outcome buyers. These groups are motivated by non-financial outcomes, such as environmental and social benefits of the NZN. By incorporating these funding sources, a leverage effect is created through attracting additional return-seeking financial investors for whom the investment would not have been possible on a standalone basis.

Lessons learned

Stakeholder engagement, notably with local communities, is a key component for the success of NZNs. It requires dedicated resources and time from delivery organizations and residents. A tailored community engagement approach is the most effective so that all stakeholders understand opportunities and challenges. This approach requires dedicated resources to deliver effective projects. For engagement to be effective, early lessons learnt suggest that:

- It must be conducted around the times when residents/home-owners are most likely to be present, preferably in a neutral venue that convenes community members.
- Enlisting key community representatives who are brought into the project from an early stage also facilitates engagement. These community “champions” must represent the local community (e.g. be representative of the ethnic groups/ages in the neighbourhood) and ideally be well connected within the community.
- Communication materials must be tailored to the audience. For example, concepts such as the blended finance model and payment mechanism must be communicated in a user-friendly manner.
- Enabling community agency through a co-design approach while removing the burden from individuals is critical to building individual support. However, it's important to recognize that the coordinated approach of the NZN model can significantly alleviate financial and technical burdens for residents. Overcomplicating the co-design element could mitigate some of these benefits.

Next steps

The NZN model is on the cusp of moving from concept to pilot phase, with the first pilot sites undergoing project development this year. The key milestone will be the full development of the initial pilot sites, from which datapoints can be measured and monitored to build the full business case to scale this model.

In addition, NZN projects can be enhanced by the incorporation of lower-embodied carbon building materials. However, many of these are currently under development or restricted by regulations and so cannot be deployed at scale due to technical bottlenecks. Enabling their wider use at scale would greatly enhance the impact of retrofit projects.

“The RENEW framework is a holistic approach that embodies many of the same values captured through Baukultur’s eight core principles. Innovative financing models developed under this framework, such as the Net Zero Neighbourhood, ensure that finance is not only channelled from where it is to where it needs to be, but is harnessed in an impactful and responsible manner.”

Bankers Without Boundaries

Timeline

The Net Zero Neighbourhood model has received funding for development from a number of different avenues over the past 2-3 years.

- 2022-2023 Funding from UK Central Government (Department of Business Energy & Industrial Strategy) to develop a green book business case for a nationwide Net Zero Neighbourhood demonstrator programme. Partners were 3ci, Arup, BwB and Eunomia.
- 2022-2024 Various funding from individual local governments to develop pilot programmes in their areas (e.g. London Borough of Hounslow, West Midlands Combined Authority).
- 2024+ Funding from UK Research & Innovation (UKRI) and Department for Energy Security and Net Zero (DESNZ) into local net zero programmes, including NZN pilot projects.

FIGURE 1
Multi-intervention, place-based funding and delivery

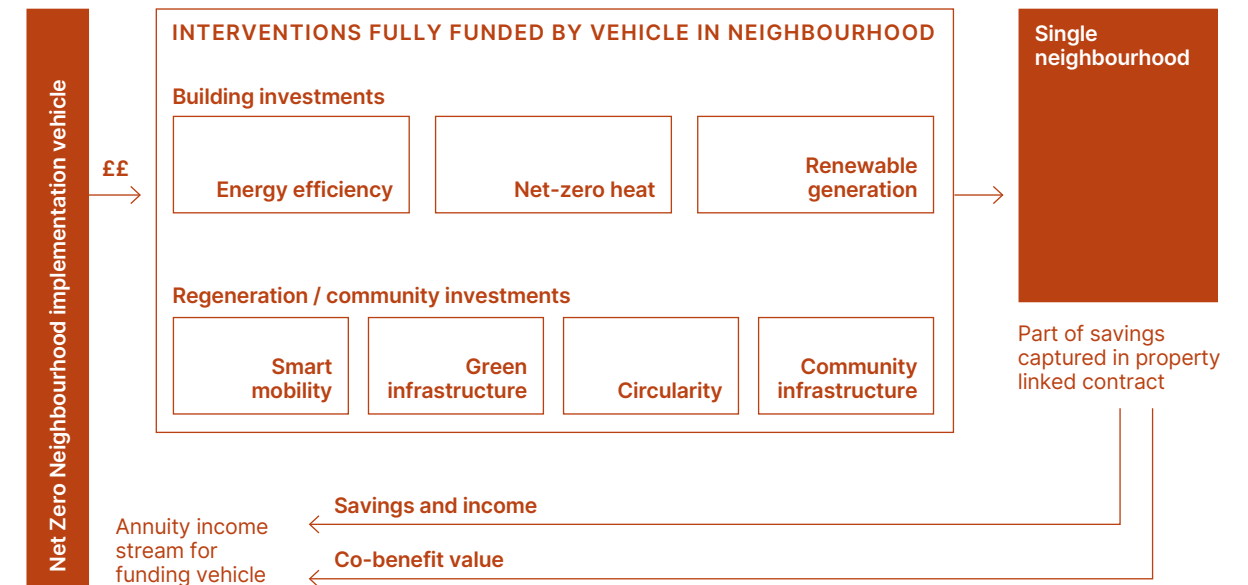
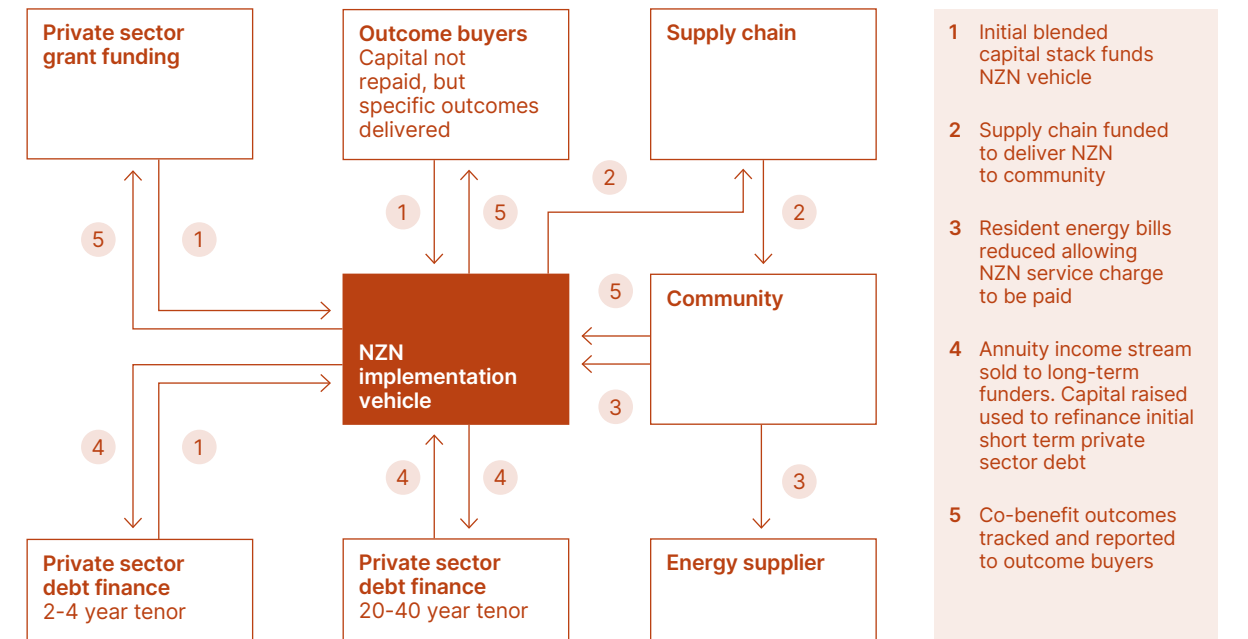


FIGURE 2
Stakeholder funding flows



Source: BwB

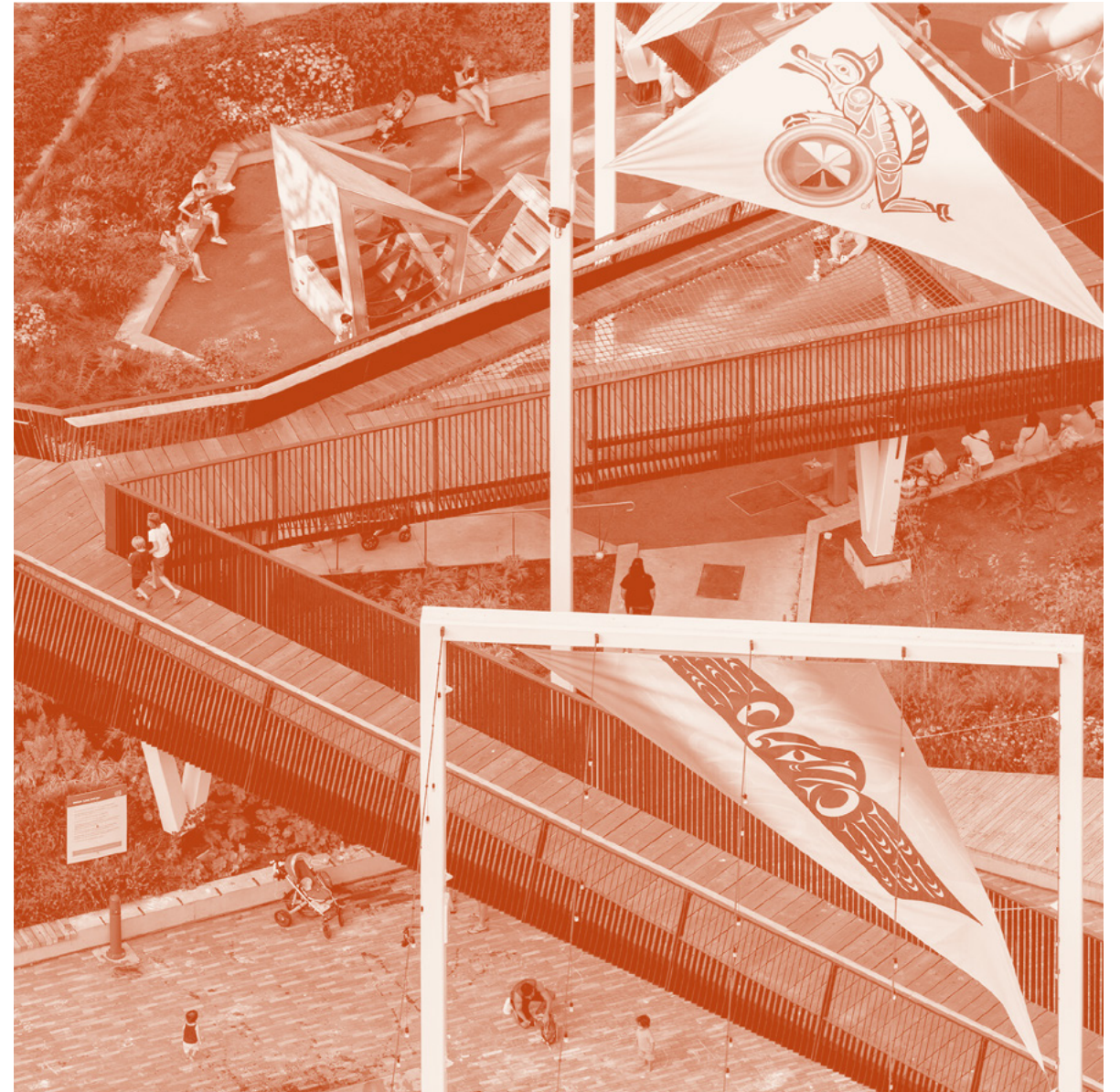
Vancouver, British Columbia

Completed in 2022

sθəqəlxenəm ts'exwts'áxwi7 Rainbow Park

Vancouver's sθəqəlxenəm ts'exwts'áxwi7, or Rainbow Park, named by the Musqueam, Squamish and Tsleil-Waututh Nations, reflects its history as a marsh where sun and mist created rainbows. This area, significant to the LGBTQIA+ community, has been transformed from a parking lot into the city's first new park in a decade. Featuring diverse design inputs, extensive greenery and inclusive spaces, it serves as a "community porch" and sets a global standard for urban revitalization.

Photographer: Brett Hitchens



DBQS HIGHLIGHTS

GOVERNANCE
ENVIRONMENT
DIVERSITY
BEAUTY

Presented by DIALOG



Photographer: Brett Hitchens

sθəqəlxenəm ts'exwts'áxwi7 (Rainbow Park) was developed in collaboration with the Vancouver Board of Parks and Recreation and has quickly become a vibrant cultural landmark and inclusive urban space designed to harmonize with the city's dynamic environment. Engaging over 30,000 residents and workers within a five-minute radius, the park blends community needs with innovative design. The park features three unique spaces: a terrace, a play area and a civic plaza. These areas are surrounded by generous planting, which provides an oasis amid the cityscape. The park also features a café pavilion, an elevated pedestrian bridge and structural metal frames facilitating art installations. Locally recognized for its societal impact and sustainability, Rainbow Park has set a new standard for urban parks in Vancouver, becoming the model for the Board of Parks and Recreation going forward.

Within its compact footprint, the park maximizes activity, offering both quiet spaces for individual contemplation and programmed spaces for playful enjoyment – a spectrum of experiences required for a dense urban setting. Echoing the surrounding high-rise urban context, the multi-level bridge crosses the park, softening the impact of a significant grade change and emphasizing the human scale.

Through its native planting and eco-friendly features like storm-water capture, Rainbow Park exemplifies contemporary urban development focused on well-being and health. This approach resonates with initiatives promoting well-designed cities and infrastructure by contributing to the evolution of urban spaces that enhance residents' quality of life.

Key outcomes

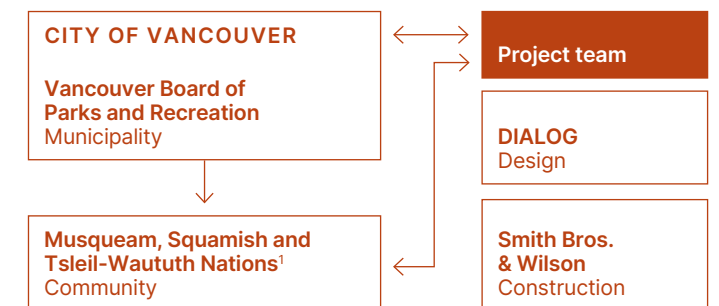
GOVERNANCE Traditional community engagement often excludes all but the loudest voices, missing the opportunity to weave together diverse ideas, histories, perspectives and expectations. An intensive and open dialogue with the community helped the project team build capacity and consensus for both the process and the design of the site.

ENVIRONMENT Rainbow Park promotes well-being and ecological stewardship through its integrated green infrastructure. This includes a system that captures stormwater and redirects it to irrigate the landscape, reducing runoff and the need for additional watering. The park also mitigates urban heat island effects through thoughtful paving and green roofs on structures like the café. In a Rain City such as Vancouver, these small interventions not only raise public awareness about sustainable design but also provide measurable improvement to the city's urban ecology. The few existing, mature trees on site were preserved during design and construction, an often-overlooked step that ensures an enduring contribution to Vancouver's wider urban forest. Materials choices considered factors such as resiliency, life cycle, local fabrication, and human comfort and performance, all with the intent of enhancing user experience and improving the site's ecological function.

DIVERSITY The result is a vibrant, mixed-use public space that encourages spontaneous gatherings and connections among diverse groups. With its playful and whimsical design elements, the park actively promotes community interactions and is specifically designed to bring neighbours together through various programmes. For example, the inclusion of the café space attracts a broad demographic of visitors. It encourages people to linger and enjoy the spectacle of the park and supports use in all seasons.

BEAUTY Colours, materials and elements were chosen for their visually appealing qualities, creating a welcoming and distinct identity for the space. The inclusion of significant public and Indigenous art serves as a clear invitation, creating a sense of belonging for all.

Stakeholders



¹ Vancouver is located on the unceded and ancestral territory of the həłdəmíñəm and Skwxwú7mesh speaking peoples, the xʷməθkʷəy̓əm (Musqueam), Skwxwú7mesh (Squamish) and səllwətaʔ (Tsleil-Waututh) nations.

Replicability

The foundation of Rainbow Park's success was established in its engagement process, which explored innovative ideas for public space using creative and tactical tools like chalkboards and sand-boxes. This inclusive approach comprised extensive consultations and public feedback sessions, setting a framework for collaboration that can be adapted for diverse urban contexts elsewhere. The Rainbow Park engagement process promoted community participation and ownership that continues to this day.

Moreover, the park's dense integration of sustainable elements like stormwater management and indigenous landscaping offers scalable solutions for creating eco-friendly urban spaces, especially within compact brownfield sites with limited ecological value.

Lessons learned

Rainbow Park demonstrates how to achieve a significant return on investment in the public realm. The transformation of Rainbow Park from an underused parking lot to a key community connector took more time, energy and capital than originally envisioned. It also required a certain level of bravery from both the municipal client and the community to forge ahead with an untested and unconventional vision. The long-term rewards have outweighed the initial risk, with the emergence of a dynamic community space for social gathering, recreation and environmental stewardship in Vancouver's downtown core. Time magazine included Vancouver on its list of the World's Greatest Places, citing Rainbow Park as one of the key attractions.

Rainbow Park's development highlighted key challenges in context-sensitive urban design, including addressing divergent perceptions and navigating specific site constraints on this brownfield site. The mitigation of the site's dramatic topography and exposure on two, high-traffic urban streets required innovative design solutions and collaborative decision-making processes with all stakeholders.

Post-completion reviews of Rainbow Park so far have affirmed its impact on enhancing urban liveability and promoting social interaction. Ongoing monitoring and evaluation mechanisms ensure the park continues to meet the evolving needs of its users while maintaining its ecological integrity. One often-mentioned criticism of the park is that it is, in fact, too vibrant, with activities and interactions extending into evening hours. Unimagined uses of the space such as raves, illustrates the multi-faceted range of uses the space has elicited by Vancouverites. This is however also a note of caution for the subsequent unforeseen impacts on neighbours.



Next steps

Rainbow Park aims to further enrich its offerings and engagement opportunities to better serve the community. This includes expanding cultural programming, recreational amenities and educational initiatives to encourage greater inclusivity and participation. Continued collaboration with partners and ongoing maintenance efforts by the municipality and community are vital to sustaining the park's vibrancy and ecological balance.



Photographer: Brett Hitchens

“This park stands as a testament to the power of collaboration, weaving together the aspirations of diverse stakeholders and Indigenous communities. Our work on this project exemplifies our commitment to Baukultur by integrating design excellence with environmental and social responsibility.”

DIALOG

Resilience and climate adaptation

Identifying ways to help mitigate the risks of extreme weather and natural disasters, advance more resilient communities and support them in adapting to climate change as part of the advancement of high-quality Baukultur.



Photographer: Erik (HASH) Heraman, via Wikimedia Commons CC BY 2.0 DEED

Lamu Old Town

Lamu District, Coast Province, Kenya

2013 to present

Lamu Old Town faces multiple threats from climate change, energy needs and rapid social and economic transformation. The Lamu Old Town Management Plan and the Lamu Municipality Waste Management Policy focused on integrating physical, social and environmental solutions with traditional practices that could help in building resilience to climate change.

DBQS HIGHLIGHTS

GOVERNANCE
ENVIRONMENT
DIVERSITY

Presented by UNESCO

The Old Town of Lamu – inscribed on the World Heritage List in 2001 – is situated on an island of the same name in the Lamu Archipelago on Kenya's northern coast. Due to its location on a sandy island, Lamu Old Town is especially vulnerable to the effects of climate change, particularly rising sea levels. The spring tide overflows at various points along the waterfront, adversely affecting the buildings through capillary action and erosion. In addition, the destruction of mangroves in some areas, which used to serve as a natural defence against strong winds, tsunamis and advancing waves, has exacerbated these risks.

Other threats affecting Lamu Old Town include rapid social and economic transformation and pressure from urban development, transport infrastructure, encroachment of the archaeological sites, non-renewable energy facilities (coal power plant), and intensified water shortages, as a result of the Lamu Port-South Sudan-Ethiopia Transport (LAPSSET) project.¹

The traditional knowledge and practices local to Lamu offer insights into sustainable solutions for mitigating and adapting to the impacts of climate change. Lamu Old Town was founded on a rising dune, ensuring natural stormwater drainage towards the sea. The mangrove forest on Manda island and nearby islets acts as a natural defence against strong winds, tsunamis and waves. The town's thoroughfares are aligned with prevailing seasonal winds and daily sea breezes, allowing natural cooling. The narrow streets formed by nearby buildings provide shading, keeping street-level temperatures cool. The thick walls and floors of the stone structures enhance the hygrothermal comfort of the buildings. Local knowledge of weather patterns, sea movement and safe areas during adverse conditions, accumulated by fishers, farmers and sailors over centuries, further enhances the community's resilience.

The project helps to safeguard Lamu's local built and natural context by prioritizing local cultural values as well as long-term investment by knowledge-sharing and training the community through using low-cost, nature-positive solutions as part of climate change mitigation action. Primarily, this was facilitated through the production of both the Lamu Old Town Management Plan² and the Lamu Municipality Waste Management Policy³ and supported by engaging local communities in the documentation and mapping of Indigenous knowledge in a series of community empowerment and capacity building workshops.

Key outcomes

Using both traditional knowledge and practices and the local regulations, Lamu Old Town is considering and implementing a number of opportunities to resolve the threats posed by climate change, energy needs and modern lifestyle changes.

GOVERNANCE The project promotes place-specific processes, with the participation of the local community in documenting, assessing and adapting to climate change while strengthening partnerships between the public, private and civil society sectors. This includes the documentation and mapping of indigenous knowledge.

- In January 2022, the Kenyan National Commission for UNESCO conducted a community empowerment workshop with the support of the UNESCO Participation Programme. Enabling youth to identify and document this body of knowledge ensures its continuity and widespread use by current and future generations.
- In addition, various workshops were organized under the “Emergency Preparedness Project for the Lamu Museum in Lamu Old Town” including “Capacity Building Workshop for National Museums of Kenya Staff and Community Emergency Responders” (June 2021), the “Emergency Preparedness Project for the Lamu Museum in Lamu Old Town” (February 2021),⁴ and “Climate Action and Disaster Risk Management for Cultural Heritage Sites along the Coast of Kenya (CADRM-K)”.⁵

ENVIRONMENT The project aims to integrate climate change measures into local policies, strategies and planning while increasing local community capacity for climate change mitigation action through awareness-raising and participation in mitigation actions. This includes:

- **Plastic waste:** Local communities, with the help of state and non-state institutions, are implementing recycling programmes to reduce the volume of waste that cannot be adequately incinerated locally, thereby lowering harmful emissions like carbon monoxide from partial combustion.
- **Flood monitoring:** The site manager continues to monitor the periodic flooding of the seafront street annually.
- **Protection and regeneration of native mangrove forests:** The mangrove forests surrounding the town serve as a natural barrier, protecting the area against advancing waves and potential tsunamis. To help protect the forests, UNESCO formally extended the buffer zone of the old town in 2008 to include the mangrove area as part of the town's protected natural landscape and the Manda-Kitau skyline. Ongoing restoration works on mangrove forests are being conducted by Wetlands International, the Mangrove Action Project and the Kenya Forest Services.
- **Safeguarding Lamu's source of drinking water:** Recent construction activities threatened this vital water source. Local communities, in collaboration with state agencies and the UNESCO World Heritage Centre, strongly objected to these activities. The community-led protests against the Water Management Authority's development plans have gained national prominence as one of the best examples of community-led aquifers protection in the country.

DIVERSITY The site management authority works closely with stakeholders to address the site's challenges, including hosting regular meetings with local communities, maintaining formal working relationships with the Lamu Water Users Association to assist in monitoring the dunes, establishing the Lamu Cultural Heritage Committee to develop action plans, and training local stakeholders on community-based adaptation and alternative livelihoods.

¹ According to the recent joint UNESCO World Heritage Centre/ICOMOS/ICCROM reactive monitoring mission report: World Heritage Centre/ICOMOS/ICCROM. (2019). *Report on the Joint World Heritage Centre/ICOMOS/ICCROM: Reactive Monitoring Mission to Lamu Old Town (Kenya) (c 1055)*.

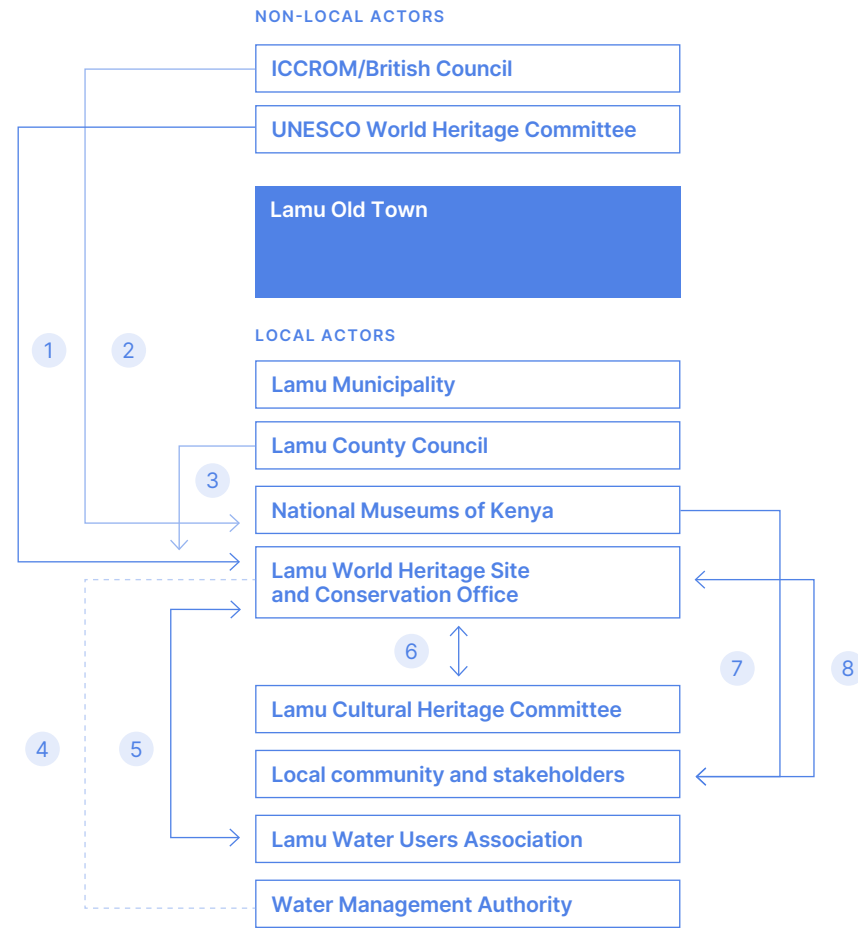
² The draft management plan was developed by UNESCO in collaboration with the National Museums of Kenya in 2013 to “conserve the outstanding universal value of the cultural heritage assets of the Lamu Old Town and its complimentary buffer zone areas”: UNESCO. (2013). *Lamu Old Town World Heritage Site*.

³ Municipality of Lamu. (n.d.). *Solid Water Management Policy*. https://municipality.lamu.go.ke/pdf_files/solid_water_management_policy.pdf

⁴ This included Significance Assessment (Attribute Identification & Value assessment) and Risk Assessment Reports.

⁵ Jointly organized by ICCROM, British Council and National Museums of Kenya (December 2020).

Stakeholders



Source: UNESCO. (2024).

Replicability

- Inventorying and mapping of historical layers in the local context, preferably in collaboration with the local community.
- Revival of traditional building techniques and knowledge systems.
- A participatory approach to management and conservation of heritage sites together with capacity-building activities, including training of the local community and stakeholders.
- Value assessment prior to undertaking conservation plans and works.

Lessons learned

- The local community holds extensive knowledge of local geography and historical weather patterns over long periods of time and a deep understanding of how flora, fauna and other environmental characteristics can provide critical information on changing weather patterns.
- Ensuring that the envisioned disaster risk management plans for each of the participating sites strongly advocate for the active participation of women and girls especially in governance structures of the respective sites.
- The important role in providing linkages between alternative non-destructive livelihoods and climate change.

The text of this case study was adapted from: UNESCO. (2023). *World Heritage Canopy*. The above are some of the conclusions and recommendations provided during the “Emergency Preparedness Project for the Lamu Museum in Lamu Old Town” including the Capacity Building Workshop for National Museums of Kenya Staff and Community Emergency Responders in June 2021, and “Climate Action and Disaster Risk Management for Cultural Heritage Sites along the Coast of Kenya (CADRM-K),” in December 2020.



GettyImages/Anja Koeberle

The Ellen DeGeneres Campus of the Dian Fossey Gorilla Fund

The Ellen DeGeneres Campus provides cutting-edge gorilla research, education and conservation facilities, serving as a model for biodiversity protection and community engagement in the face of climate change.

Photographer: Iwan Baan



DBQS HIGHLIGHTS
ENVIRONMENT
ECONOMY
BEAUTY

Presented by MASS Design Group

Situated at the base of the Virunga Mountains in East-Central Africa, The Ellen DeGeneres Campus of the Dian Fossey Gorilla Fund is an initiative that addresses the urgent threats facing the critically endangered mountain gorilla. The 12-acre campus, completed in 2022, serves as a hub for gorilla research, education and conservation efforts, using state-of-the-art facilities and innovative techniques to protect biodiversity and engage local communities.

The campus has been designed as a laboratory and classroom in response to the biodiversity loss caused by climate change and urbanization. It provides an avenue for testing new techniques for biodiversity conservation, rewilding and reforestation of the gorilla territory. Local labour and materials were used throughout design and construction to minimize the carbon footprint, develop an immersive reforested landscape, and ensure job training and economic return to the local community while creating a modern facility for public use and education.



Photographer: Iwan Baan

Key outcomes

ENVIRONMENT This project is an ecological restoration of an agricultural plot into a reforested biodiverse landscape supporting four key native ecologies found in the Volcanoes National Park (mixed forest, bamboo forest, hagenia forest and meadow).

The buildings' materials are mostly locally available and sustainably harvested, and most of the furniture come from within 500km of the site. The design prioritizes natural daylighting and ventilation while rainwater is harvested and collected from the green roofs on campus for reuse.

The campus provides educational opportunities for visitors, students and local communities, raising awareness about gorilla conservation and inspiring future generations of African conservationists. The campus serves as a training ground, providing hands-on experience and practical skills to address the complex challenges of biodiversity loss and climate change.

ECONOMY The project invested over \$15 million and contributed to economic development in the region through labour and regionally sourced materials pipelines by employing over 1,500 people, with over 99% of employees hired from Rwanda. It contributed to improving equity in the local construction sector, with 23% of the workforce being female. In addition, during the construction, almost 600 construction workers were trained and certified in construction trades, and formal certifications were given to over 400 workers. All the campus furniture and accessories, over 1,600 items, were made in Rwanda by artisans and design cooperatives.

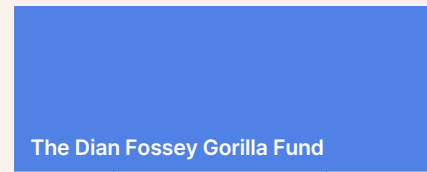
BEAUTY From above, the buildings' green roofs blend into the surrounding landscape. The buildings' footprints integrate seamlessly into the landscape topography, encouraging a natural flow from interior spaces to the exterior through a series of covered patios and connected path networks, all taking advantage of the surrounding volcanoes. The main campus buildings contain different scales of interior and exterior gathering spaces in response to the diversity of programmes and inspired by the campfire gatherings at the original Karisoke Research Center. Encouraging interaction between visitors, staff and researchers, the gathering spaces are designed to provide connection to the landscape.



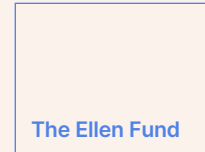
Photographer: Iwan Baan

Stakeholders

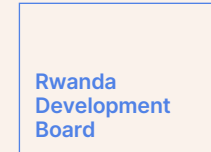
CLIENT



FUNDER



LOCAL PARTNERS



PARTNERS



Replicability

This project offers helpful insights for addressing climate change through innovative approaches to biodiversity conservation, ecological restoration and reforestation and pollination planting methods. The experimental landscape and green roofs are grounds for testing species adaptation at lower elevations and methods for sequestering carbon on site. The constructed wetlands are a low-carbon naturalized wastewater treatment system, which promotes ecological system health and resiliency. The system, the first of its kind in Rwanda, is gravity-fed, reducing overall energy use. Finally, local natural materials, such as volcanic stone found onsite, pine wood and clay tiles, are used throughout the campus, reducing waste and the need for new quarried material.

In addition, the project partners continuously engaged with the local community from the early stages of the project and continue doing so today. Furthermore, workforce development and capacity-building strategies were employed by the project team and contributed to increased community pride in and commitment to the project's mission.



Lessons learned

Key aspects which were key in delivering impact included:

- Taking a “purpose-built” approach that considers how an organization can make systemic change and align the design to support the mission through a comprehensive feasibility study.
- Early financial planning and thorough capital preparedness assessments to ensure financial sustainability throughout a project's duration and joint fundraising efforts diversified funding sources and increased support.
- Close collaborative relationships and shared alignment with partners about the project's goals and intended impact from the beginning. Similarly, promoting meaningful engagement with local communities to build trust and support.
- Defining and measuring impact through ongoing evaluations. MASS Design Group conducted three surveys of construction workers throughout the project, including one survey a year after opening. In a survey conducted after construction was completed, 85% of workers reported sustained and increased incomes. To maintain a learning cycle across all projects, MASS developed, implemented and continues to use a measurement framework that evaluates mission-driven impact, as well as indirect impact related to environment, education, equity, economy and emotion.

"The Ellen DeGeneres Campus embodies innovation in conservation and education, addressing the urgent need to protect biodiversity and inspiring future generations of African conservationists."

MASS Design Group

The most significant challenge arose after the project started construction in late 2019, shortly before the COVID-19 pandemic. The pandemic caused supply chain limitations, delays and cost increases, which required the project stakeholders to raise additional funds to complete the project.

Sourcing sustainable, low-carbon, affordable solutions in the region was not easy and required creative thinking. Finding a more sustainable/low-carbon structural system available in the region for this scale of building was challenging. Hence, the project needed to rely on steel and reinforced concrete for the main buildings. The project aimed to offset the use of materials through innovative, sustainable design solutions.

Next steps

This project was developed as a first step for many initiatives:

- The Government of Rwanda is using this research to pilot their ambitious plan to expand Volcanoes National Park, setting new precedents for conservation efforts globally. This will invest in the richness of this biodiversity, reclaim agricultural lands and reduce the overlap between human and gorilla territories so they can thrive.
- The project partners are exploring other opportunities to collaborate to support conservation efforts in East Africa and beyond.
- Learnings from this and other related projects, if funding is made available, would be published to help inform others.



Photographer: Iwan Baan

Residential Energy Efficiency for Low-Income Households

The Residential Energy Efficiency for Low-Income Households (REELIH) programme is creating innovative methods to assist communities in addressing the challenges posed by poorly constructed, energy-inefficient multi-apartment buildings. This initiative contributes to building resilient and healthy communities and neighbourhoods. It also empowers local stakeholders to take action via their local housing associations or representative organizations.





Habitat for Humanity

Residential Energy Efficiency for Low-Income Households (REELIH) was a 10-year project with an overall budget of \$4 million with USAID as the funding source and was piloted in three countries of Eastern Europe: North Macedonia, Armenia, and Bosnia and Herzegovina.

The aim of the project was to tackle a common problem across countries in Central and Eastern Europe: energy inefficiency. After the mass privatization in the 1990s in Central and Eastern European countries, ownership of the multi-apartment buildings was transferred from the state to residents. As there were no prior communal maintenance arrangements, common areas in buildings, like roofs, stairs and façades, fell into disrepair.

The REELIH programme helped groups of high-rise residents to use their existing “homeowner associations” to access bank loans to contribute to the cost of energy-efficiency improvement works. The cost difference was then made up by a local municipality grant facilitated by Habitat for Humanity (HFHI).

As part of the project, more than 1,500 residents received renovation loans and support through the REELIH project. It helped insulate their homes, cut individual energy bills and improve their building’s deteriorated exterior, enhancing their sense of place.

Key outcomes

FUNCTIONALITY The project succeeded in achieving real improvements in energy efficiency and reducing energy costs. It helped establish functioning management mechanisms for the residential multi-apartment co-owned buildings, enhanced neighbourhood cohesion and improved living standards. The residents’ health was improved through better heating and air quality in their homes.

- In Armenia, 10 buildings (519 housing units, 1,500 residents) have had partial retrofit works completed. The work of HFHI and USAID led to a commitment from the Yerevan Municipality to co-finance retrofits on 900 further units. The evidence and experience gathered through REELIH are being used by the Armenian government to develop better national housing policies.
- In Bosnia and Herzegovina, four demonstration buildings (49 housing units, 133 residents) have been fully retrofitted. This has attracted the attention of local governments in the Tuzla Canton, who have now adopted an action plan to retrofit further homes in 13 municipalities.
- Macedonia was involved in the second phase of the REELIH project, which took place from 2017-2019. Under the REELIH scheme Habitat Macedonia cooperated with local municipalities in Skopje – which are responsible for housing issues. More than 72 buildings were upgraded as a result of the project.

¹ <https://comact-project.eu/>.

Replicability

The REELIH model of providing grants and loans is replicable and scalable. The project modelled a pioneering approach for helping communities overcome the problem of energy poverty and creating strong, stable and healthy communities and neighbourhoods. The continued success of the work in the project countries, has inspired further work in the region such as the ComAct – Community Tailored Actions for Energy Poverty Mitigation was a 42-month project (September 2020-February 2024).¹ The project was funded by the EU and led by HFHI in partnership with 10 partners and was piloted in five countries: Alliance members Hungary, Bulgaria, Lithuania and Ukraine, as well as North Macedonia.

Lessons learned

GOVERNANCE The key to creating and scaling collective action models was regular in-person meetings. Frequent opportunities for different actors and stakeholders to meet and engage in person helped to quickly understand the problems and challenges faced by the different stakeholders and provided the opportunity to collectively come up with solutions. Often these facilitated unexpected cooperation and agreement and were a key tool when engaging with residents and funders.

Furthermore, these meetings helped with getting initial buy in from the project participants and governments that the model would work. They also allowed for community capacity building to occur in terms of navigating processes and technical information, enabling them to take action to make a difference. For example, convincing the home-owner associations (HOAs) of the value of taking on loans to fix common areas of the apartment buildings. This is an often-challenging part of management for large apartment blocks.

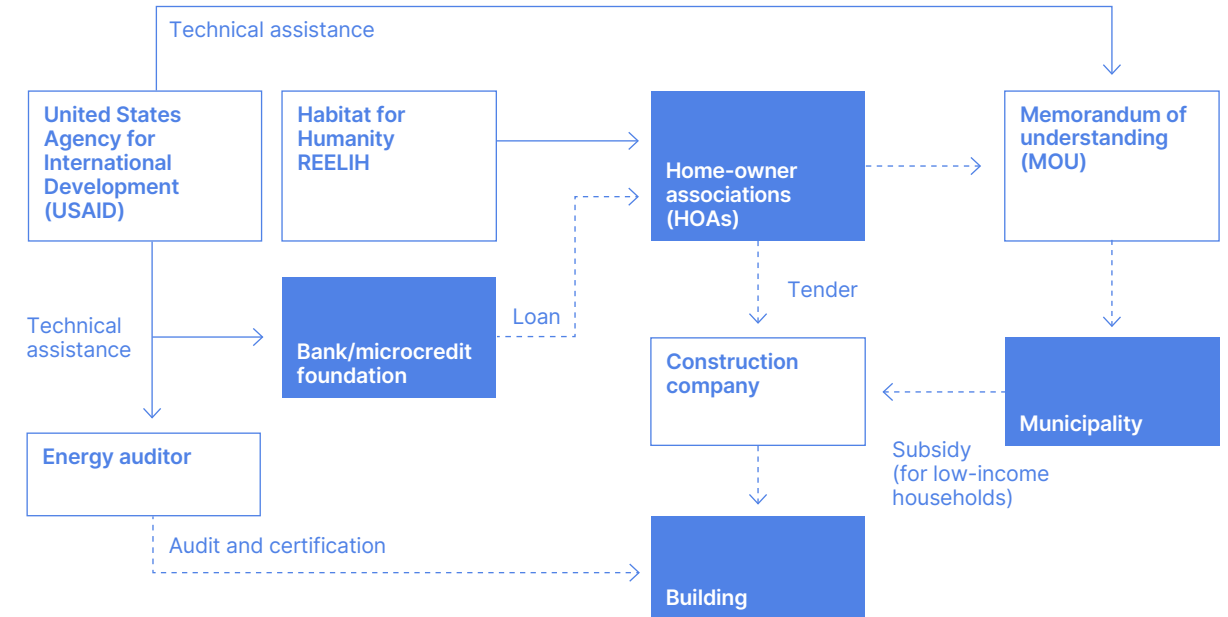
ECONOMY Experience through the programme also showed that HFHI's intervention was necessary to overcome two key challenges. Firstly, limited access to finance and weak national legislation for HOAs are frequent impediments to implementation and therefore programmes rely more heavily on key partners, including HFHI. Secondly, convincing local banks to provide loans to the residential associations as this had never been done before and was viewed as "risky". The reputational capital of HFHI and local municipalities helped overcome this.

Next steps

The project has the potential of further scale up in other countries in Eastern Europe and other global regions trying to address energy efficiency issues in residential buildings. Most immediately is the implementation of the second phase ComAct2.

¹ <https://comact-project.eu/>.

Stakeholders



Source: Habitat for Humanity



Habitat for Humanity

At-Turaif and Bujairi Terrace District



A scenic view of At-Turaif UNESCO world heritage site. Diriyah Company

Diriyah, “The City of Earth”, is the original home of the Saudi Arabian royal family and the home of UNESCO world heritage site, At-Turaif. The development of Diriyah seeks to combine traditional Najdi architectural styles with modern urbanism and a comprehensive quality of life programme, celebrating the Kingdom’s rich heritage, and acting as a testimonial to Vision 2030’s transformational changes.¹

DBQS HIGHLIGHTS

ENVIRONMENT
ECONOMY
CONTEXT
SENSE OF PLACE
BEAUTY

¹ Vision2030. Overview.
[www.vision2030.gov.sa/en/
vision-2030/overview/](http://www.vision2030.gov.sa/en/vision-2030/overview/).

The Diriyah project (\$63.2 billion) is responsible for developing 14 square kilometres of land, with At-Turaif and Bujairi Terrace representing the first phase of this development. The Diriyah project prioritizes the liveability, access, sociability and well-being of the local community and visiting guests through three core principles: sustainability across environmental, social and economic pillars; regeneration based on the historic environment, local traditions and natural ecologies; and pioneering integration of advanced technologies are intertwined with the centuries-old Najdi vernacular.

The UNESCO World Heritage Site of At-Turaif is more than 200 thousand square metres. It is one of the world's largest districts built and inspired by the traditional Najdi construction techniques and mudbrick materials. Restoration and renewal of At-Turaif include the opening of multiple galleries, museums and parks, offering visitors an experience of Saudi history and culture in an authentic environment.

Bujairi Terrace covers an area of approximately 30 thousand square metres with space for dining and enjoying At-Turaif and the lush greenery of Wadi Hanifah. The development also features pop-ups and open spaces for the local community, small entrepreneurs and artisans to participate in creating a local traditional experience and benefit from the economic opportunities that Bujairi Terrace provides.

By 2030, Diriyah aims to attract 50 million visitors annually, create about 178,000 jobs and contribute more than \$18 billion annually to the Kingdom's GDP.



Drone shot of At-Turaif district, Diriyah Company

Key outcomes

Bujairi and At-Turaif strengthen connection to heritage while enhancing access and visibility to new visitors. In 2023, At-Turaif and Bujairi received more than one million visitors, demonstrating how Diriyah has helped towards unlocking Saudi Arabia's 56% increase in international tourist arrivals compared to 2019.¹

ENVIRONMENT The project has aimed to foster and enhance local biodiversity. At-Turaif and Bujairi Terrace are separated by Wadi Hanifah, a traditional Wadi ecosystem and seasonal river valley. Former farms in Wadi Hanifah were restored and upgraded to support local flora and fauna and enable more efficient irrigation. The Wadi was re-greened with date palms and indigenous plants strengthening the local ecosystem and biodiversity. Food produced from these restored farms are then distributed through local philanthropic organizations. Across the wider site, Diriyah has already planted an estimated 6.5 million trees, shrubs and bushes.

At-Turaif and Bujairi Terrace are part of the Diriyah master plan, which has achieved Platinum Level LEED for Cities Certification, and a comprehensive quality of life framework has been developed by DC to continuously assess and improve the city's built environment, services and programming.

ECONOMY Diriyah aims to be a good neighbour by fostering stronger relations with its community and supporting local businesses, which in turn revitalize the development. To date, the first phases of At-Turaif and Bujairi Terrace have created approximately 2,000 direct jobs spanning construction, facilities management, security and guest relations, and over a thousand additional jobs across the wider supply chain. Diriyah Company is committed to prioritizing female and community employment and opportunity². For example, in 2023, around 80 community businesses opened in Souq Almawsim, a temporary market event hosted on the Bujairi site, which generated a total income of more than 1 million SAR (Saudi riyal) (approximately 300,000 US dollars). In addition, the Diriyah Engineers programme is training the next generation with practical professional skills and sustaining Diriyah's growth in the future.

CONTEXT The unique Najdi human-centred urbanism and architectural design of At-Turaif has been reinterpreted in Bujairi Terrace from both architectural details and materiality through to the street network – narrow sikkas, providing natural shade and walkable streets. Transport infrastructure is being placed beneath ground to further promote active travel within the site and a dedicated Najdi Traditional Material facility has been set up to produce sustainable traditional mudbricks and construction materials. The development of Diriyah also incorporates advanced Smart City solutions, which are sensitively intertwined with the Najdi vernacular structures.

These principles will continue to form the foundation of future development phases such as [Diriyah Art Futures](#), a research and educational center interdisciplinary promoting creative practice at the intersection of art, science, and technology. The design of which explores a contemporary reinterpretation of the Najdi heritage.

¹ Saudi Arabia topped the UN Tourism's ranking for the growth of international tourist arrivals in 2023 compared to 2019 among large destinations, achieving an increase of 56% in international tourist arrivals compared to 2019. Saudi Arabia Ministry of Tourism. (2024). [Saudi Arabia Ranked 1st in the Growth of International Tourists Arrivals in 2023 Compared to 2019 Among Large Tourism Destinations](#) [Press release].

² 25% Saudi females, 10% of which coming from the Diriyah community.

SENSE OF PLACE A prominent national symbol of the Kingdom of Saudi Arabia, Diriyah is considered the birthplace of the first Saudi state. Therefore the Diriyah project is vital in shaping a strong sense of place locally and nationally. Diriyah was the place from which unification of the tribal lands began and evolved into today's Kingdom of Saudi Arabia, founded in 1727 by Imam Mohammed bin Saud. He made it his initial base and capital and Diriyah quickly became a centre of government and science for the region. It is a matter of pride for visitors to come and experience the birthplace of the entire Kingdom.

BEAUTY The driving principle behind the reviving and modernizing the unique Najdi architecture is to showcase the distinctive beauty of the centuries old urban fabric, which was almost extinct before the present work commenced to preserve and revive the historic site and develop the wider area at an urban scale.

Replicability

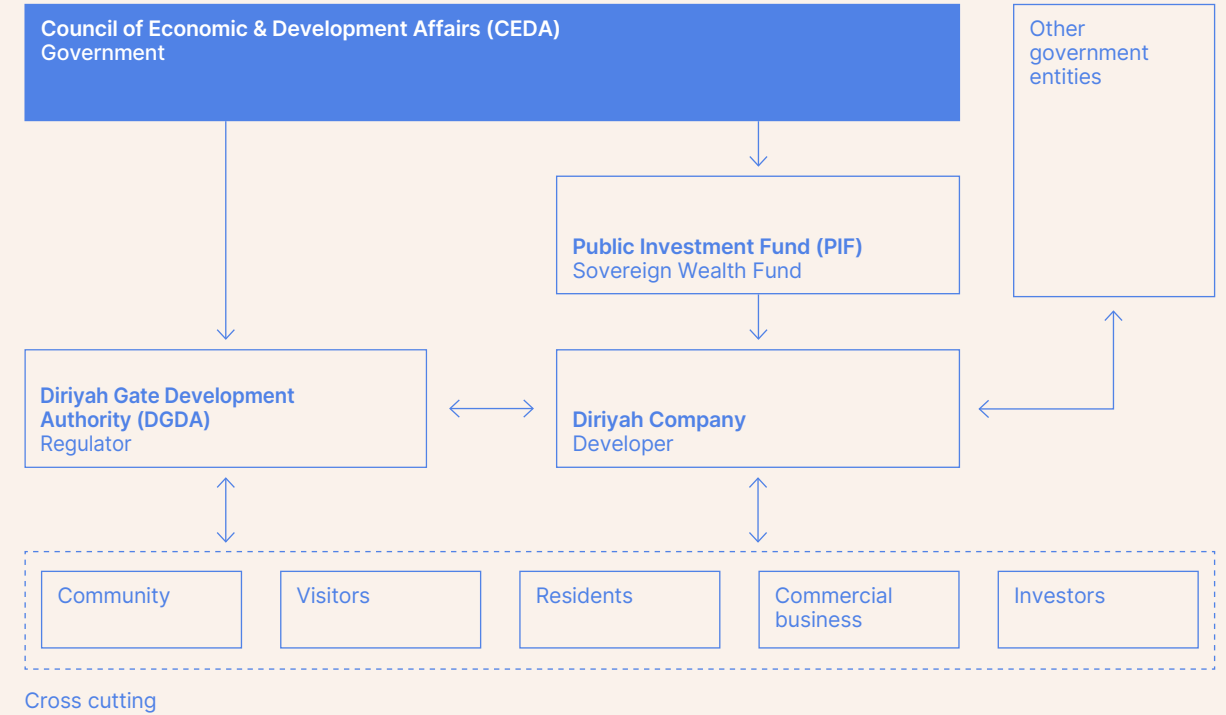
Heritage as catalyst: Diriyah has adopted an integrated approach to heritage management, seeking to reflect the insights, beauty, importance of community and architectural principles inspired by At-Turaif into all its activities, from development to operations. This is done through programmes such as giving priority to community members to become guides for At-Turaif so that those sharing At-Turaif with the world have personal connections to it.

Community integration: the project seeks to understand and meet the community's needs through ongoing engagement and encouraging their participation in community initiatives. A core means by which the community is already integrated into the success of the project is by providing jobs, training and business opportunities. These opportunities have resulted in the Diriyah Company employing over 60% Saudi nationals, with more than 10% coming from the local Diriyah community. Further trainings and job opportunities are inherently focused on involving Saudi youth, as over 60% of Saudis are under 30.

Timeline

- 1727 Diriyah founded by Imam Mohammed bin Saud.
- 2010 At-Turaif district inscribed as a World Heritage Site by UNESCO for its tangible heritage value and for being one of the largest mud brick districts in the world.
- 2017 King Salman bin Abdulaziz issued a royal decree establishing Diriyah Gate Development Authority (DGDA) and forming its board of directors headed by His Royal Highness, The Crown Prince Mohammed bin Salman.
- 2022 At-Turaif, the ancient mud-brick capital, revitalized and preserved to welcome visitors to experience and live the Diriyah story and unique Saudi hospitality. Bujairi Terrace launched alongside Turaif.

Stakeholders

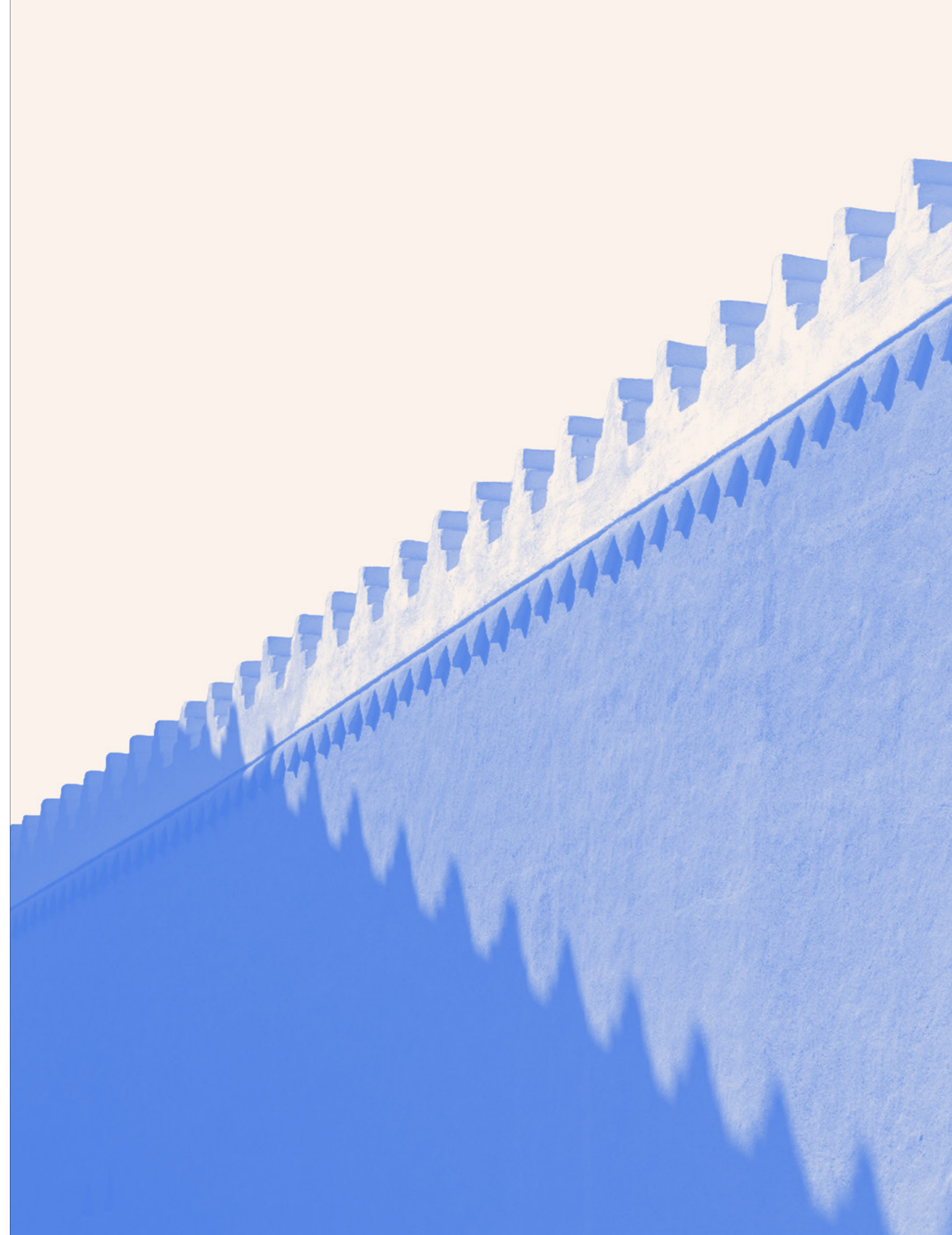


An elevated view of Bujairi Terrace, Diriyah Company

“At-Turaif and Bujairi Terrace offer a unique example of human-centric development that draws on a rich tapestry of heritage and culture to encourage visitors to not only learn our story but become a part of it.”

Diriyah Gate Company

Traditional Najdi design aspects exemplified by Bujairi Terrace. Diriyah Company





Saudi family enjoying Bujairi Terrace (top); traditional Najdi Diriyah door (bottom). Diriyah Company

Lessons learned

Heritage and tourism-led transformation requires both a compelling destination and a good service offer, which are both reflected in Diriyah's ongoing visitor experience surveys. Diriyah's proximity to Riyadh and the diversity of tourism opportunities available meant it was vital to differentiate the experience for those visiting, working and living in Diriyah. This was done through building on the core natural and historic features of Wadi Hanifah and At-Turaif to provide opportunities that are not present in the wider region.

At-Turaif and Bujairi Terrace have demonstrated the importance of authenticity and showcasing the traditional architecture, landscape, culture and hospitality of a place. There has been a very positive reaction to the restoration of the historic built environment with visitors often ranking the natural and built beauty as a reason for returning. Key to Diriyah's success so far is avoiding not over-engineering new additions to the detriment of the historic setting but rather aligning new development with the proven historic principles

Next steps

At-Turaif and Bujairi Terrace are the small opening phases in the transformation of Diriyah. Next stages of the Diriyah project include:

- Enhancing sustainability measures and raising sustainability awareness of Saudi Arabian locals and international visitors.
- Continuing to monitor and improve visitors' and residents' experiences and continue implementing the Diriyah specific quality of life programme.
- Ensuring the learnings from At-Turaif and Bujairi Terrace are reflected throughout the rest of the development through continued review processes.
- Exploring how Diriyah can increase engagement and opportunities for the community, such as ongoing pilot programmes to identify, train and hire Diriyah locals for soon-to-open Diriyah assets next to the Bujairi Terrace.

Sustainability and circularity

Incentivizing and accelerating the adoption of sustainable and circular construction models, retrofitting of buildings and improved spatial planning to advance net-zero and nature-positive communities.

Novkabel, Novi Sad, Serbia

2020-2023

InGrid Schneider Electric Hub

Photographer: Miloš Martinović

Presented by Ministry of
Culture of the Republic of Serbia;
Union of Architects of Serbia

DBQS HIGHLIGHTS

FUNCTIONALITY

ENVIRONMENT

CONTEXT

The InGrid Schneider Electric Hub transforms the “Novkabel” factory complex through reconstruction and adaptive reuse. This project repurposed a former industrial hall into a carbon-neutral, LEED Platinum-certified modern office building for Schneider Electric, establishing it as a future tech hub. This initiative marks a key step in converting an industrial zone into a mixed-use neighbourhood.

Novkabel was a 20th-century industrial giant in Novi Sad, the second-largest city in Serbia. It consciously raised the quality of working and living conditions of its employees to the benefit of the entire community. During the fall of the former Yugoslavia, Novkabel lost many of its clients and never fully recovered. The production hall ceased to be used, and rapidly evolving technology used in modern processes made restarting manufacturing on-site unfeasible. However, the values instilled by the industry remained alive in the collective memories of older generations.

Upon selecting Novkabel to serve as the office for Schneider Electric and its future tech hub, incorporating the values and culture of the historic Novkabel workforce and community was one of the most important priorities. As the selected site was situated adjacent to a park, existing landscape features were treated as start-up capital to be emphasized, preserved and enriched.

The design and construction took place from 2020 to 2023, transforming an 11,000-square-metre existing industrial hall while avoiding more undeveloped land. Instead, the project focused on creating new open courtyards internally and introducing 600 square metres of additional floor area through new “floating” mezzanine levels. The final office building achieved LEED Platinum certification.



Photographer: Mилоš Martinović

Key outcomes

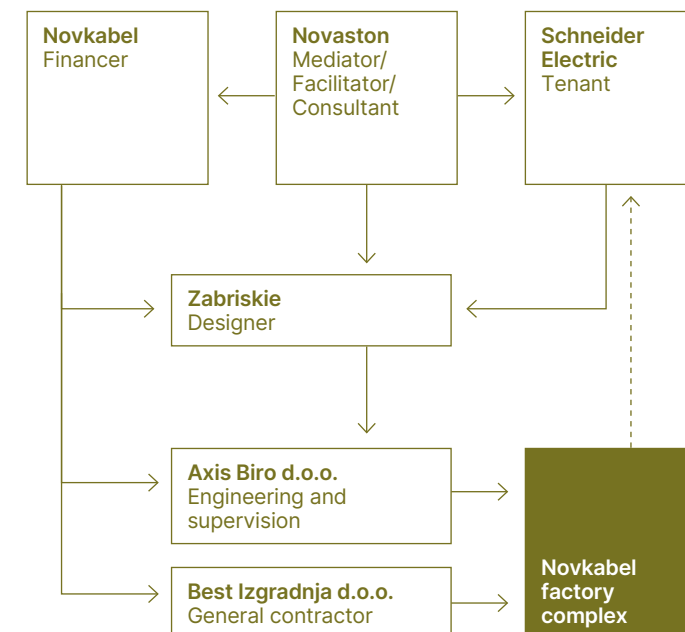
FUNCTIONALITY The original generous double-height industrial hall has been transformed into a shared gathering space, complemented by the original oversized window openings and enhanced with hanging textile room dividers. In addition, bicycle and pedestrian paths to the complex and within the complex were renewed and a bus line that ran through the site will soon be reactivated.

ENVIRONMENT The project has prioritized environmental benefits in its built and natural context. InGrid is carbon neutral and LEED Platinum certified, using only renewable energy sources. Circularity was embedded into the construction process, reusing all dismantled material from the construction site. For example, the demolished concrete was crushed and reused for the sub-base layers beneath the floor slab.

In addition, natural features and ecology were a key component of the high standards in working conditions of the original Novkabel complex. The project sought to enhance these through a new green ring of planting and four landscaped atriums inserted deep into the floor plan, both being used to organize the internal spatial arrangement.

CONTEXT The site of the old Novkabel factory has been reconstructed and transformed to respond to present needs while preserving it so that the history, architecture, high working standards and values of the site’s rich industrial past are communicated to future generations. It sets a standard for transforming ageing industrial zones into vibrant mixed-use neighbourhoods through reconstruction and adaptive reuse.

Stakeholders



"The high standard of working conditions from the period when Novkabel was a symbol of the city of Novi Sad inspired us to design a space where those at work could coexist with green space and nature, ensuring a high-quality environment for workers today."

Zabriskie





Photographer: Miliš Martinović

Replicability

The project is a regional exemplar for adaptive reuse of 20th-century era industrial spaces, many of which are finishing their life or in disrepair. It shows how industrial halls of this type could be transformed into a variety of other typologies and bring new economic activity to industrial zones sustainably. This requires a clear vision, rigorous feasibility studies and a clear execution strategy, as well as a deep understanding of the market and the relevant regulations to propose a realistic and economically viable solution. This is the role Novaston – project manager and LEED consultant – played, which saw the potential in connecting Novkabel and Schneider Electric. Finally the support of the site owner – which remained Novkabel – was vital to facilitate the ambition of the project.

In addition, amendments to the Planning and Construction Act in 2023 help encourage replication of this within Serbia given their focus on implementing environmentally friendly construction practices and spatial allocation for greening.

Lessons learned

A detailed study¹ was undertaken to analyse the successful methods used in Novi Sad and highlight key lessons for other projects:

- A rigorous construction programme supported by detailed condition surveys of the existing site. Setting out the required steps within the programme is crucial, given how a reconstruction project is far more complex and time-consuming than a new-build project.
- Strict adherence to construction sequences to avoid delays and mistakes.

A key step in adaptive reuse projects is to ensure rigorous and thorough condition surveys are undertaken of the existing site and structure to minimize unexpected findings that can impact project delivery.

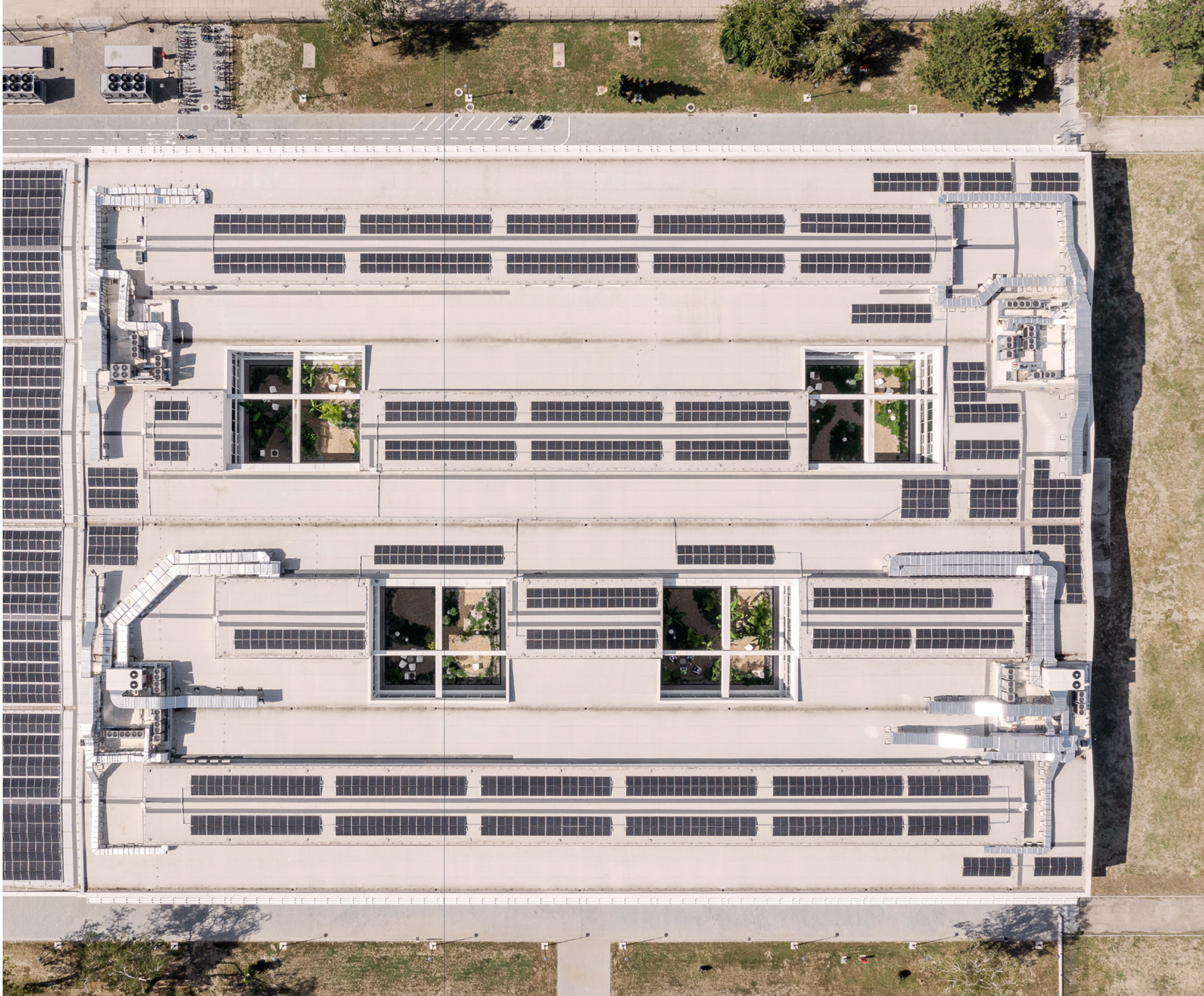
In addition, there is additional time and cost related to the reuse of existing structures to ensure compliance with current regulations and standards. For this project, this was predominantly around significant changes in seismicity and fire protection.

Next steps

Schneider Electric hopes to be the anchor tenant for an IT campus with subsequent development led by interested digital and information technology tenants. Following the development of this IT campus, Novi Sad hopes to see Novkabel revitalized as a vibrant mixed-use neighbourhood.

Building on the positive biodiversity enhancements the project introduces, there is work planned in the next phases to enhance the habitats of the wider Novkabel site.

¹ Departman za gradevinarstvo. (2023). *Integration, Novelty, Design, Interdisciplinarity, Sustainability*. https://indis.gradjevinans.net/wp-content/uploads/2024/01/INDiS_2023_Zbornik.pdf



Avison Young



Avon Lake Power Plant

Ohio, United States

2023 to present

DBQS HIGHLIGHTS

GOVERNANCE
FUNCTIONALITY
ENVIRONMENT
CONTEXT
SENSE OF PLACE

Coal power plant facilities are major employers and crucial for tax revenue in their communities. However, the rapid transition to alternative and renewable energy sources demands new strategies for these universal industrial sites. An example is the recent transformation of a decommissioned coal-fired power plant on the shores of Ohio's Lake Erie, demonstrating an innovative approach to post-industrial regeneration.

Presented by Avison Young

For nearly 100 years, the coal-fired power plant on the shore of Lake Erie has served as an economic and social backbone to the community, providing jobs to residents and significant tax revenues for city services and local schools, as well as power to homes and businesses. At the time of construction in 1926, it was one of the world's largest coal-fired power plants. However, the economic benefits were accompanied by environmental degradation, a common issue in similar industrial areas. Additionally, this development restricted local community access to the shoreline. The city, new site owner (ALERG), Avison Young and Gensler have partnered to remediate and reimagine the large, decommissioned site to kick-start economic growth and environmental revitalization.

This transformation is being achieved by replacing the decommissioned plant with a large-scale mixed-use development that includes residential, office and retail spaces. Once complete, this aims to fully replace tax revenues lost from the plant closure, which contributed substantially to city services and the school district. In addition, the project will restore and reintroduce substantial new greenspace for public access and the creation of new lakefront paths.

Key outcomes

GOVERNANCE The project team and city council are collaborating closely with public agencies and community organizations to create a unique stakeholder-driven plan. This plan aims to prioritize current and future residents' needs and wants for the site while honouring its historical significance. An ongoing consultation process aims to empower the community by involving them as stakeholders in shaping project priorities. This includes initiatives such as opening up the previously privatized waterfront.

FUNCTIONALITY The site's mixed-use development programme proposes 1,300 residential units and 150,000 square feet of new office and retail space. It aims to compensate for tax revenues lost due to the plant closure and establish a new, higher-density, compact land-use model.

ENVIRONMENT The project eliminates 3 million tonnes of annual CO₂ emissions, recycles factory building materials within the site, and removes and repurposes fly ash into concrete through a remediation process.

In total, the project remediates 125 acres of impacted land by reintroducing native plantings, cleaning the area of toxins, and restoring watersheds and aquatic and shoreline habitats. For example, one key initiative is reinstating Powdermaker Creek, an ecologically significant feature currently situated within a concrete culvert. This will support increased biodiversity and naturally manage stormwater. These habitat enhancements are significantly helped by eliminating the daily cycling of 365 million gallons of water.

CONTEXT The design will retain significant physical references to the site's industrial heritage. Spatially, this involves preserving key historical features, including the most prominent 160m tall plant silo and a significant portion of the original 1926 turbine hall façade and transformer hall.

SENSE OF PLACE The project is redefining the community's connection to the shoreline by adding 31 acres of greenspace for public use and lakefront access. This effort is creating the largest open space and public lakefront project that the region has seen in decades.

Stakeholders



“There are hundreds of sites like Avon Lake set for decommissioning and in need of discovery around development, remediation and a new contribution to the communities they are in by uncovering impactful value to the local community.”

Avison Young



ALERC, Avison Young, Gensler

Replicability

Of the more than 13,000 coal power plants globally, some 4,600 have closed or are set to close soon. These numbers are projected to continue increasing as demand for coal reduces. While this trajectory is advantageous for the environment, it requires proactive planning and expert coordination for owners, operators, developers and city leaders to address site complexities and viable opportunities to build towards an impactful use for the future.

Decommissioned fossil fuel infrastructure is an opportunity for local communities, particularly smaller towns, to rethink their future. Redevelopment of coal plants in particular benefits from enabling factors such as existing connection to the power grid and proximity to water bodies, which are essential resources for generating steam power. Although site conditions vary greatly across coal power plants, a replicable constant is the importance of proactive coordination between the owners, operators, developers and municipal leaders ahead of plant closure. Together they must consider various factors that could impact redevelopment planning, including site complexities and viable opportunities to transform it for future beneficial use.

Lessons learned

A key consideration for project sites like the Avon Lake coal power plant is the need for technical expertise to manage environmental risks and liabilities associated with site remediation. Companies like Charah seek to help utilities and power plant operators assess existing sites for remediation against needed compliance, which includes planning the decommissioning, repurposing or demolition of plants. Additionally, they address any environmental conditions remaining on the site safely and complete the necessary environmental remediation.

Proper planning and involving the right partners can ensure that both environmental and economic considerations are addressed. This approach maximizes opportunities to revitalize the area and increase the well-being of citizens in the community, while also eliminating associated liabilities for owners and operators.

Next steps

Demolition and site preparation continues at the plant ahead of construction. It is scheduled to be complete in spring 2025.

The municipality is currently developing a robust Economic Recovery and Resiliency Plan for Avon Lake through a recent federal grant. This rigorous study and actionable plan will help navigate the present economic challenges relating to the closure of the plant by identifying opportunities for economic growth and diversification. Identifying mechanisms and opportunities to attract new business to the area is a key component of the plan.

It is hoped that once the final demolition phase is complete, construction can begin on the residential-focused eastern portion of the site.

Recygénie

The Recygénie is a 220-unit inclusive housing complex, notable for being the world's first building constructed entirely from recycled concrete. This pioneering project used a custom concrete mix composed solely of recycled materials – cement, aggregates and water. This approach conserved over 6,000 tonnes of natural resources and surpassed current regulatory standards, proving the viability of fully circular concrete construction.

DBQS HIGHLIGHTS

GOVERNANCE
FUNCTIONALITY
ENVIRONMENT

Holcim



Presented by Holcim

Developer Seqens, a subsidiary of Action Logement Group, and Holcim France have partnered to construct the first building made entirely of recycled concrete using Holcim's ECOCycle® technology. This partnership is the result of a shared goal to innovate and accelerate the development of "ecological" concretes. By also delivering significant numbers of affordable housing, it set a precedent for future projects to prioritize both environmental and social sustainability while highlighting the importance of partnership and collaboration within the sector to achieve sustainability goals within the construction industry.

This project was made possible by going beyond current regulations and comparing research and development with the needs and realities of construction sites, as well as legitimate expectations in terms of ecology and circular economy. This project confirms that combining building performance with environmental performance is possible.

Key outcomes

The Recygénie project is an example of high-quality Baukultur principles that combines environmental and social goals. It is both the first fully recycled concrete building in the world while also providing 220 inclusive homes, 70 of which are social housing units.

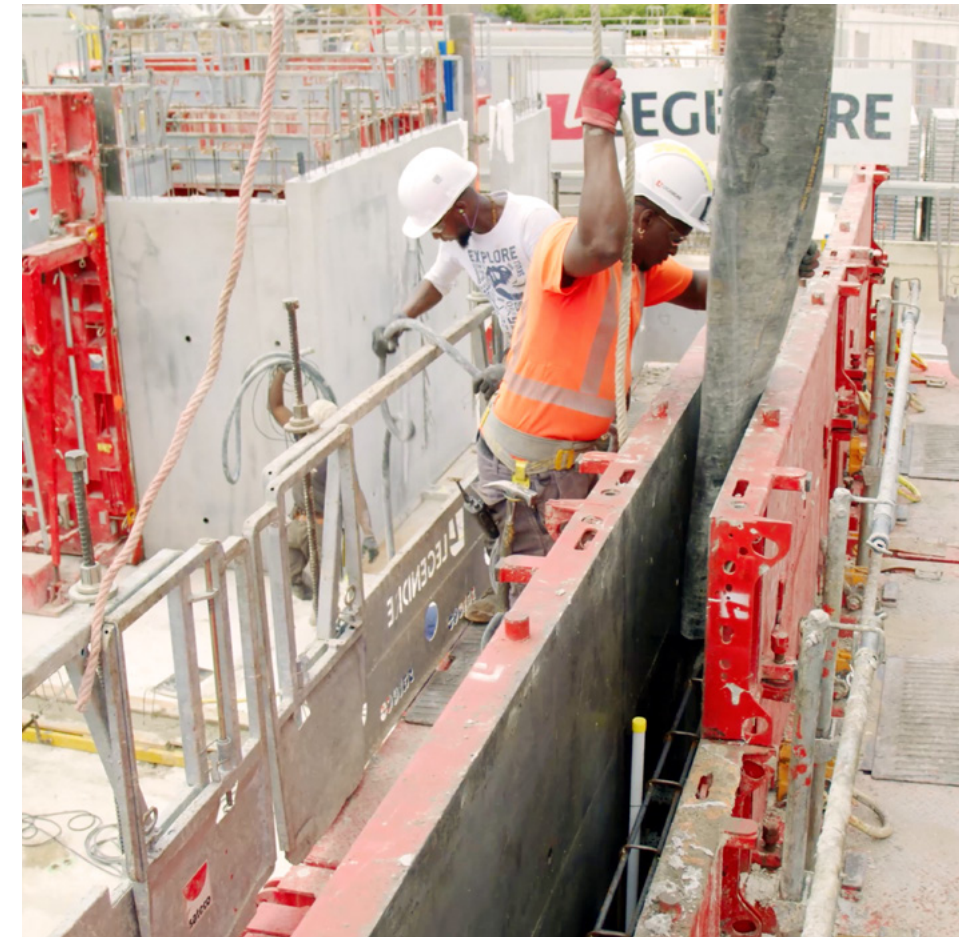
GOVERNANCE Due to the present regulatory and business structures of the construction sector, replicating 100% recycled concrete construction is not yet feasible at scale. Instead, the objectives of the project are to build a compelling case for the introduction of a minimum industry baseline of recycled concrete within all projects in France, one of the most regulated construction markets globally.

FUNCTIONALITY Succeeding in the technical challenge of constructing a multi-storey residential building with fully recycled concrete that performs just as well as standard concrete in all aspects of performance and spatial experience.

ENVIRONMENT To achieve full recycling, all avenues of waste recovery and material recycling had to be pushed to the limits as practised today in the construction world. By using recycled cement, aggregates and water, the building reduces its reliance on virgin materials, contributing to resource conservation and reducing environmental impact. This included 2,000 tonnes of 100% recycled clinker that were produced to make the recycled cement for the Recygénie concrete, saving about 3,000 tonnes of natural resources that would have normally been excavated in a quarry. In addition, the project used 2,200 tonnes of 100% recycled aggregates. All the water used for this concrete comes from the "process" water circuit; therefore, it is used at least once to clean the concrete plant's equipment, the ground surfaces or the trucks returning from delivery.

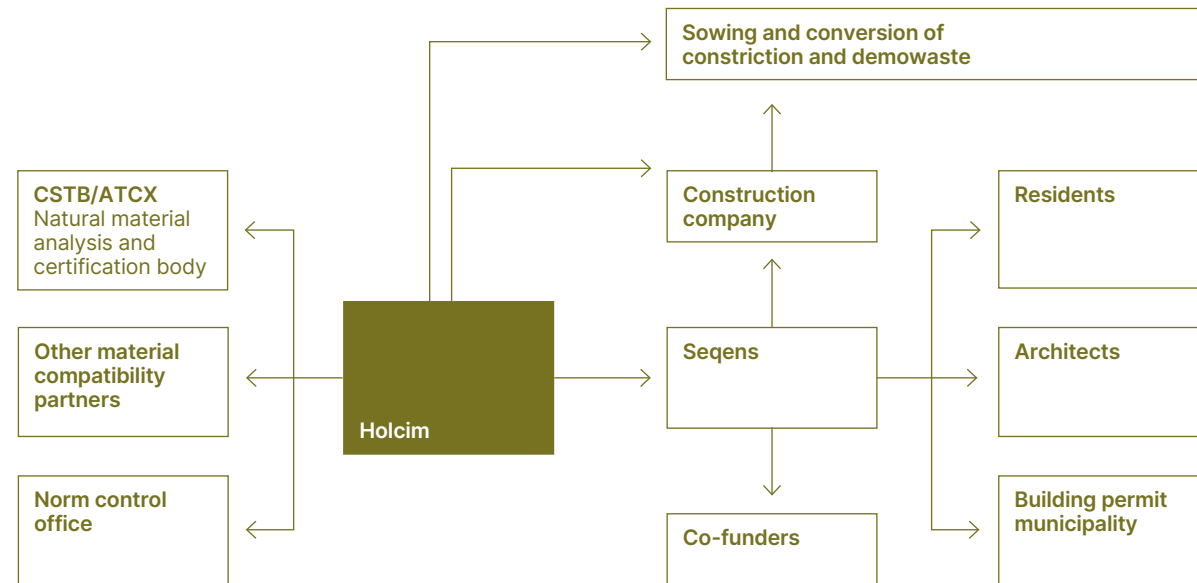
"The project Recygénie is a step forward to change the normative framework on the use of recycled materials in new construction."

Holcim



Holcim

Stakeholders



Holcim

Replicability

Starting in Europe, Holcim will scale the development and implementation of recycled concrete across its markets, adapting the solution to local building norms and material availability.

In addition, the project partners hope the deepened and substantiated knowledge of recycled concrete in combination with a delivered exemplar project is to be used to demonstrate proof of concept for fully circular concrete construction. This will be used to help convince the French government to increase the minimum national regulatory standard of recycled content within cement, which other countries could replicate.

Lessons learned

The key technical challenge was creating a 100% recycled clinker¹ and developing the formulation for a concrete made from 100% recycled aggregates and sand. Given the innovative nature of the concrete developed for Recygénie, obtaining a technical review of the project was a key challenge. To overcome this, Holcim conducted multiple trials in cooperation with the French national Centre Scientifique et Technique du Bâtiment.

This research and further testing confirmed the concrete complied with performance standard concrete EN206CNA2+, justifying its durability. The cement met the CEM III/A 42.5 N industry standard. Furthermore, Holcim and Sequens have chosen to submit a specific ATEX (Appréciation Technique d'Expérimentation) to the Centre Scientifique et Technique de la Construction (CSTB) for the Recygénie project to validate the hypotheses and test programme for these progressive concretes, and to establish an initial database to advance knowledge of the behaviour of recycled materials in concrete.

Next steps

- AUG 2021 Start of deconstruction phase
- JUL 2022 Building permit obtained
- MAR 2023 First concrete pour for infrastructure
- Q4 2024 Delivery and occupation

Holcim and Sequens hope the research and implementation will contribute to an evolution within the national legal and regulatory framework through formalizing a new universal industry minimum of recycled content in all construction projects within France. Once achieved within France's tight regulatory environment it is hoped it can quickly expand to other European and global contexts.

¹ An intermediary material within the process of making Portland cement.



Petaling Jaya, Malaysia – Gettyimages

Klang Valley, Malaysia

2023 to present

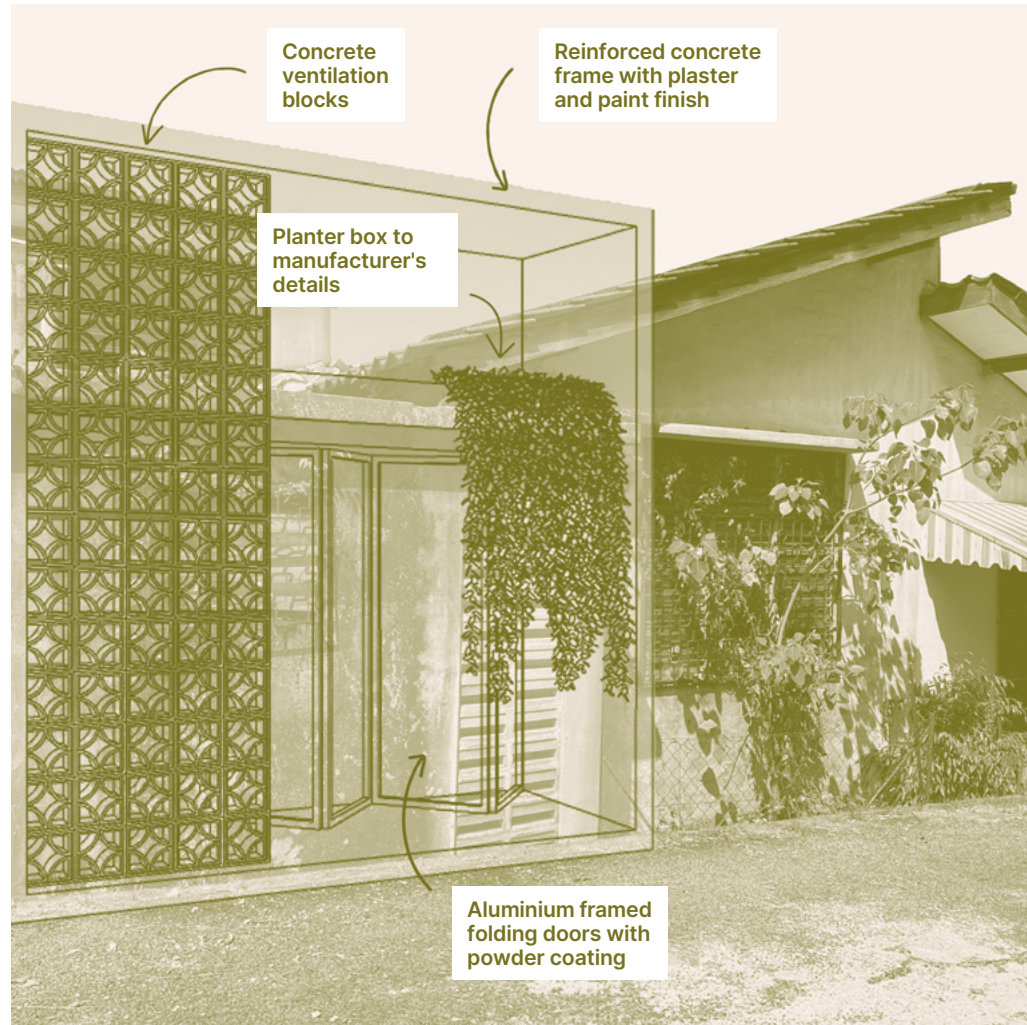
UrbanWave

UrbanWave is a home co-ownership scheme that offers financial support to homeowners purchasing and refurbishing run-down homes in prime locations. This initiative helps young families achieve affordable homeownership.

DBQS HIGHLIGHTS

- ENVIRONMENT
- ECONOMY
- DIVERSITY
- CONTEXT
- SENSE OF PLACE

Presented by Urbanmetry



Urbanmetry (left and below)

AFTER

BEFORE



In Malaysia, 1.9 million homes are vacant as of 2022 – almost 20% nationally.¹ Of these homes, 435,000 are within the Klang Valley, where homes in established neighbourhoods are often left abandoned. Younger generations are priced out from buying these homes due to the cost of renovation. The UrbanWave co-ownership programme provides accessible funding for homeowners to purchase, renew and restore homes, encouraging the rejuvenation of mature neighbourhoods in central locations and enhancing environmental performance and quality. The programme seeks to make liveable houses affordable and improve quality of life for the community, diverting funds from unsustainable development models to promote healthy real estate and housing sectors.

UrbanWave homes are chosen based on age, land tenure and price. Prices must match Urbanmetry's proprietary artificial intelligence (AI) property price prediction machine, Nowcast™² to ensure that financially sound investments are being made. In exchange for funding, UrbanWave co-owns the house with the homeowner for a minority stake of up to 40%. The homeowner retains majority ownership and full occupancy rights and can restore and renovate the house to their liking. If or when the house is eventually sold, any profits from the sale are shared between UrbanWave and the homeowner.

Over the past year, seven homes have benefitted from the UrbanWave programme and are nearing on-site completion with another 20 homes expected to join the programme in 2024.

Key outcomes

ENVIRONMENT Upcycling existing homes has a far lower carbon footprint than new builds and greatly enhances the energy use of the building. Properties also go through a flood risk check before entering the UrbanWave programme. Typically, the abandoned properties are located within central neighbourhoods; therefore, new residents have far less need to use a private car compared to where many are currently living – in the outer areas of the metropolitan area. This, therefore, reduces emissions and the subsequent negative air quality impacts.

ECONOMY UrbanWave diverts funds from speculative property investments into a longer term, sustainable and socially beneficial development model. The business model discourages owners from “flipping” houses, by encouraging owner-occupancy. Furthermore, the programme has pioneered the creation of a new mortgage product where only the homeowner is named in the mortgage while both the homeowner and UrbanWave are named in property ownership documents.

DIVERSITY By making centrally-located housing more affordable, UrbanWave assists families of varying ethnicities and incomes to move into traditionally higher-income and monoethnic neighbourhoods, encouraging ethnic and social class diversity.

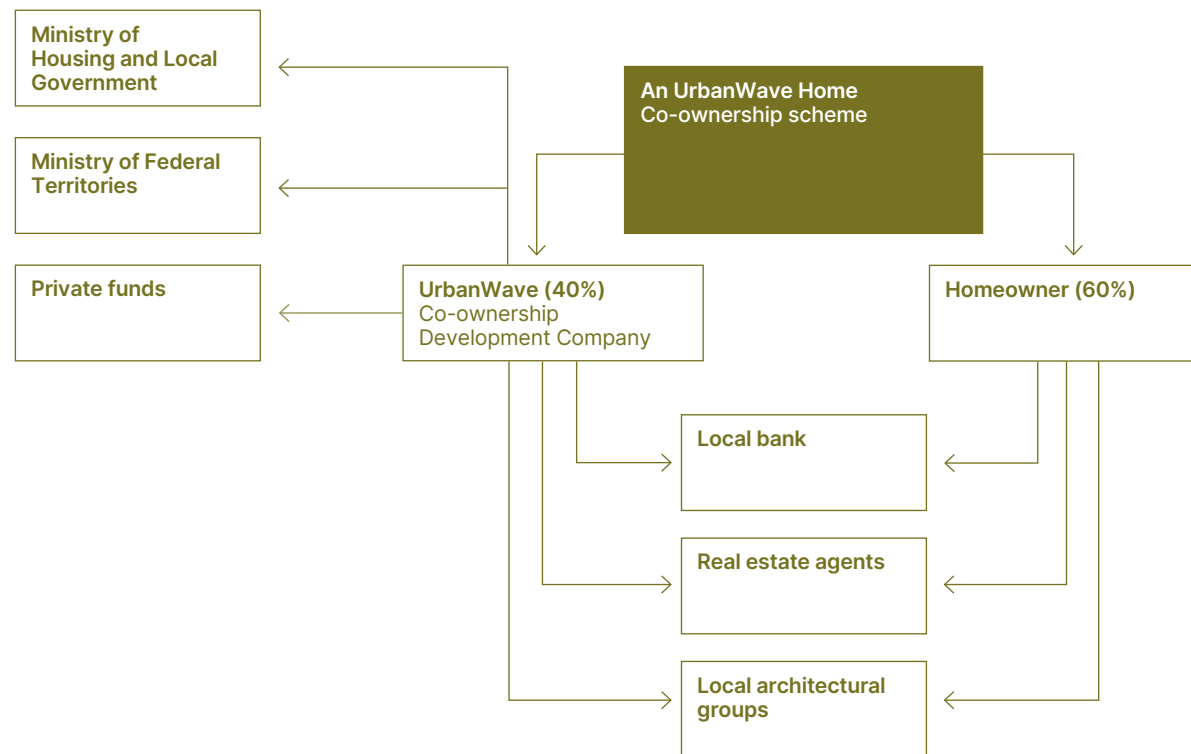
¹ Department of Statistics. (2020). *Malaysia Census*. <https://open.dosm.gov.my/dashboard/kawasanku>

² UrbanVault. (n.d.). Nowcast.

CONTEXT UrbanWave homeowners are supported to restore their homes to incorporate design elements that better respond to the tropical climate and diverse heritage of the existing neighbourhoods. In addition, UrbanWave homes can preserve the heritage of neighbourhoods and help to reduce problems associated with abandoned housing.

SENSE OF PLACE The programme reinvigorates existing neighbourhoods and new residents help build on existing social networks unlike many new urban developments that need entirely new social infrastructure. By giving homeowners the opportunity to own a home in an urban location, homeowners can choose to live in the same neighbourhood as their family and community, positively contributing to homeowners' well-being. With the freedom to design to their liking, the homeowner has the freedom to express their identity through the design of their home, making each home unique to the homeowner.

Stakeholders



“UrbanWave financially empowers diverse homeowners to create beautiful homes with a sense of place while fulfilling their environmental and functionality aspirations.”

Urbanmetry

Replicability

The model of financing the restoration or repurposing of abandoned housing in a sustainable manner is easily replicable across different contexts because the legislation and banking regulatory framework of Malaysia is similar in most Commonwealth countries. Malaysia also has a matured mortgage market akin to many global contexts.

Replicating homeowner support mechanisms is another crucial step. Urbanmetry provided financial guidance by helping homeowners calculate the upfront costs of buying a house. Furthermore, to guide homeowners through the renovation process, Urbanmetry hosts a series of talks where architects, designers and experienced homeowners have a platform to share their experience and provide guidance on home renovation. To support this knowledge, Urbanmetry curated a list of sustainable construction and design businesses that homeowners can choose from to undertake refurbishment.

Lessons learned

Purchasing a home is often seen as a milestone with long-term impacts on clients' lives. Furthermore, due to the novelty of UrbanWave, educating the clients on the concept of funding in exchange for joint ownership with a relatively unknown entity requires significant time and monetary investment. Partnerships with trusted entities such as banking institutions and government agencies help to build trust with clients, giving them the confidence to enter co-ownership with UrbanWave.

Communicating the terms and conditions of the scheme can be challenging if financial literacy is low. Thus, accessible training needs to be facilitated within the process for prospective homeowners who require it when starting a project.

Identifying stock that is worth purchasing is a key aspect and is currently made possible by the proprietary tool, Nowcast™; therefore, developing equivalent locally specific tools will be necessary for other projects.

Finally, creating strong partnerships across sectors is important. Throughout its development, the UrbanWave programme has engaged the Ministry of Housing, Ministry of Federal Territories and Local Government as well as major banks and architecture groups in the development and implementation of the project to enhance its robustness, expand the trust in the new model with consumers and scale its adoption.

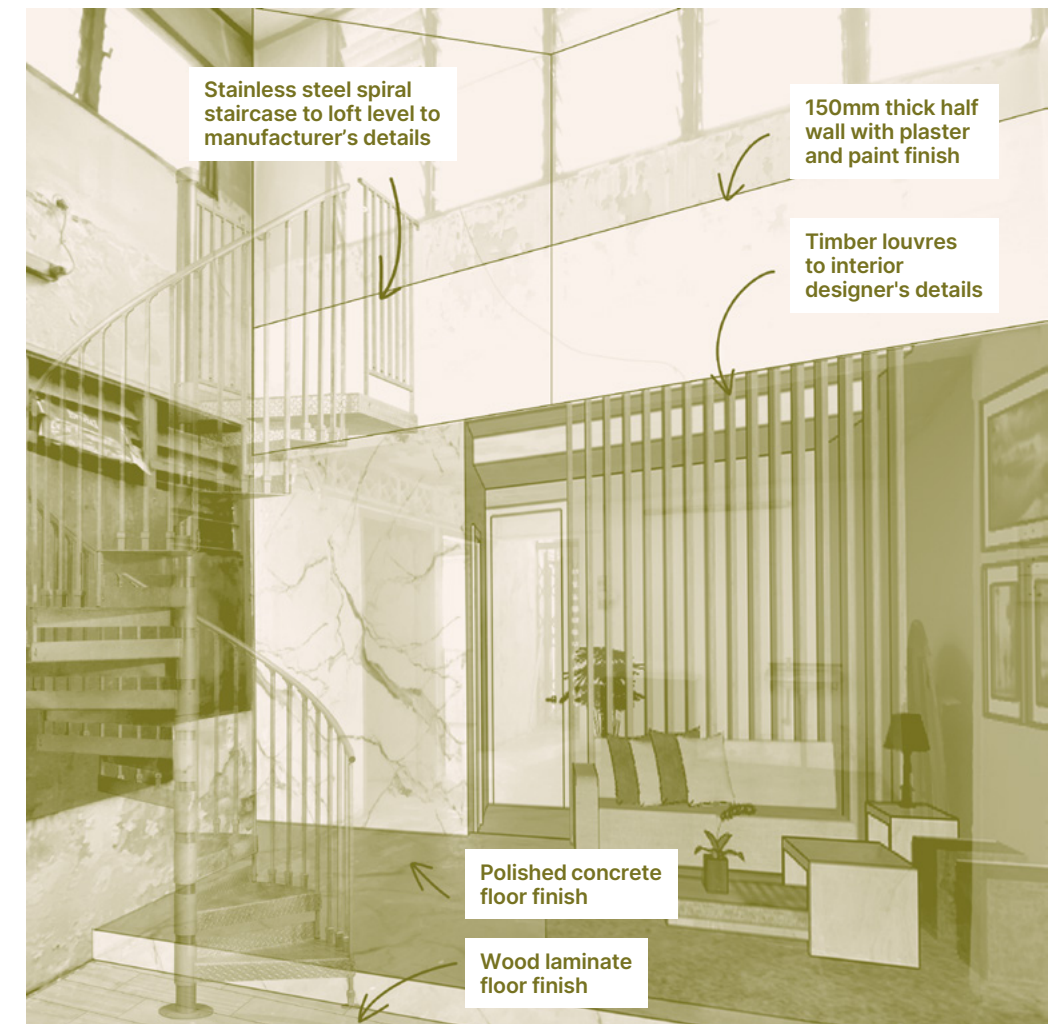
Next steps

In addition to continued work with key institutional and professional organizations, Urbanmetry is leveraging additional partners such as real estate agents to scale the programme significantly to upcycle many more abandoned homes for local families in the region and beyond.



BEFORE

AFTER



Urbanmetry (left and above)

List of members

67 Alliance members

- Steering committee member ■
- Chair ▲
- Secretariat ●

Alliance members as of May 2024

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)
United Nations Educational, Scientific and Cultural Organization (UNESCO)
United Nations Human Settlements Programme (UN-Habitat) ■
World Economic Forum ●

International non-governmental organizations

Architects Council of Europe (ACE) ■
Conference of INGOs of the Council of Europe ■
European Council of Spatial Planners (ECTP)
Europa Nostra ■
European Public Real Estate Organization (EPRA)
Global Infrastructure Basel Foundation
Habitat for Humanity
International Council on Monuments and Sites (ICOMOS)
International Federation of Landscape Architects (IFLA Europe)
International Union of Architects

Businesses

ARUP
Avison Young ■
Bankers without Boundaries
Bouygues Batiment International ■
BLOXHUB
DGNB (German Sustainable Building Council) ■
Dark Matter Labs
Dialogue Design
Diriyah Company
Drees & Sommer
Holcim
Investcorp
Impact One (Therme Group)
MASS Design Group
Meridiam
Mott MacDonald
Neri&Hu
Ramboll Group
Stone Estate Swiss
Urbanmetry
Velux A/S

Innovative Practice

June 2024

Design by Studio Miko

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Martha Howlett, Editor

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COMMITTED TO
IMPROVING THE STATE
OF THE WORLD

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