

SUSTAINABLE AND AFFORDABLE HOUSING

Spotlighting action from across the
World Green Building Council network



BETTER PLACES
FOR PEOPLE



WORLD
GREEN
BUILDING
COUNCIL

About World Green Building Council

The World Green Building Council (WorldGBC) is the largest and most influential local-regional-global action network, leading the transformation to sustainable and decarbonised built environments for everyone, everywhere.

Together, with 75+ Green Building Councils and industry partners from all around the world, we are driving systemic changes to:

- Address whole life carbon emissions of existing and new buildings
- Enable resilient, healthy, equitable and inclusive places
- Secure regenerative, resource-efficient and waste-free infrastructure

We work with businesses, organisations and governments to deliver on the ambitions of the Paris Agreement and UN Global Goals for Sustainable Development (SDGs).

Green Building Council

Green Building Councils are independent, non-profit organisations accelerating the uptake of sustainable building. As members of WorldGBC, they work with businesses and governments to collectively drive environmental, economic and social improvements in the built environment at regional and global scales.

Better Places for People

Better Places for People is a WorldGBC global partnership dedicated to supporting partners and the built environment industry to transition to a healthy, equitable and resilient environment. Better Places for People is guided by WorldGBC's Guiding Principle: *environment that delivers equitable and resilient communities and cities*. Action through the partnership is underpinned by the principles of [WorldGBC Wellbeing Framework](#), which catalyse social and economic benefits across the value chain.

Green Building Councils

Green Building Councils (GBCs) are non-profit organisations that have a stake of ownership in the built environment. As members of GBCs, governments can convene with other stakeholders to address environmental, social and economic impact within the built environment on a national, regional or local scale.

Better Places for People

Better Places for People is a global programme, supporting GBCs, to build a more sustainable built environment. The programme is based on the vision of the United Nations Sustainable Development Goal, "a built environment that delivers healthy, resilient buildings, communities and cities". Our global network of experts, across the six core sectors, is working to improve the built environment.

This work is produced by WorldGBC's Better Places for People Global Programme.

Consulted and co-created by the Better Places for People Housing Taskforce, comprised of:

Green Building Councils:

- Chile Green Building Council
- Colombia Green Building Council
- Emirates Green Building Council
- Green Building Council of Australia
- Green Building Council Brasil
- Green Building Council Costa Rica
- Green Building Council Italia
- Green Building Council of South Africa
- Guatemala Green Building Council
- Indian Green Building Council
- Irish Green Building Council
- Jordan Green Building Council
- Kenya Green Building Society
- New Zealand Green Building Council
- Philippine Green Building Council
- US Green Building Council

Knowledge Partners:

- Build Change
- Institute for Human Rights and Business (IHRB)
- Reall
- World Resources Institute (WRI)

Kindly reviewed by:

- Habitat for Humanity International
- ICLEI
- International Finance Corporation (IFC)
- Office of the United Nations High Commissioner for Human Rights (OCHCR)
- The Predistribution Initiative
- The Shift
- UN-Habitat
- United Nations Environment Programme (UNEP)

Better Places for People Global Programme Partners:



BURO HAPPOLD

Foreword

Our world faces great challenges, many of which are unprecedented in the history of our evolution. The climate emergency we face is one of those, and it goes hand in hand with another – the global housing crisis.

According to the UN-Habitat, the world needs to build 96,000 new homes every day in order to house the estimated three billion people who will need access to adequate housing by 2030. In all geographies around the world, people are facing homelessness, poverty or living in substandard homes. Those people are at the heart of this flagship report from our global Better Places for People programme. Housing should, and can be, affordable, sustainable and fit for purpose for everyone, everywhere.

In this report, we challenge the widespread perception that affordable and sustainable housing is not a widely achievable solution. There is no one size fits all solution for the building and construction industry. As the case studies within this report demonstrate, there are many varied strategies available and being used around the world that could be scaled up to address the housing challenge in all global geographies. I want to thank our partners and the 16 Green Building Councils involved in the Better Places for People global programme Taskforce who have co-developed this report with us. They join us in a unified call to drive the much needed uptake of sustainable and affordable housing. Their successes in policy, finances, design and construction

techniques and other grassroots innovations are clear evidence that rapid progress is already being made to overcome the housing, climate and health crises.

The task at hand is a great one; but there is always optimism if we collaborate on solutions, and spark consideration of best practices being implemented around the world to trigger further research in this area. Our report is another step forward in our collective mission to achieve this.



Cristina Gamboa
CEO of WorldGBC



“It’s been a pleasure to collaborate with the WorldGBC on this report and draw attention to what sustainable and resilient housing looks like in practice. At Build Change, our vision is that every house is made disaster-resilient. Achieving this not only requires an engineering solution, but must include considerations of policy, demand, and finance to address systemic barriers to housing access.

One of the simplest and often overlooked mechanisms for enabling pathways to disaster-resilience is through structural improvements of houses - through incremental upgrades, homeowners have more cost efficient, sustainable, and attainable steps towards resilience. It is with this in mind that we’re happy to share highlights of our work in the Philippines, where homeowners have taken charge of decision-making processes to achieve incremental upgrades with microfinance loans for housing that meets their needs, and those of their families for years to come.”

Monica Schroeder, Director of Global Advocacy, Build Change



Closing the global housing deficit within planetary boundaries demands an urgent reassessment of how we build our present and future cities. It is now widely recognised that business-as-usual is no longer possible. A rapid transition to green and low-carbon urban infrastructure is therefore essential, encompassing global goals and commitments on greenhouse gas mitigation, adaptation and resilience. Yet, building quality and secure housing goes beyond the infrastructure-climate nexus, or decarbonising the built environment. It is also a human rights ambition, it is a public health issue, and it underpins more inclusive and progressive urban futures. This welcome report draws attention to the challenge, but it also provides examples of the kind of innovation and leadership necessary to bring about change. It is notable for its attention and celebration of initiatives and entrepreneurship from the global south itself, and what can be learned from actors and actions which are often unrecognised and overlooked. It has been an honour to contribute to this report, developed in such an inclusive way by the World Green Building Council and its network.

Donovan Storey, Head of Global Policy, Reall

Executive Summary

This report presents a high-level summary of sustainable and affordable housing around the world – profiling challenges facing the housing sector and opportunities available that are driving the uptake of new solutions and approaches, illustrated by local examples documented from within the WorldGBC network.

The case study content from each of WorldGBC's five regions highlights cutting-edge built environment projects making sustainable and affordable housing a reality for all. These projects are demonstrating commitment towards the right to adequate housing and a sustainable future for many populations in different geographies.

This report demonstrates a call to action to strengthen the uptake of sustainable and affordable housing, derived from successful global practice, and showcases leadership in regulatory change, financing, governance models and business innovations.

These solutions and successes can and must be scaled to make rapid progress in overcoming the housing, climate and health crises faced worldwide.

Within the industry, the terms 'affordable housing' and 'sustainable housing' have been increasingly receiving attention for the past decade. However, the misconception that sustainable housing is more expensive, difficult to resource and intensive to pursue is affecting its uptake. The good news is that the knowledge, tools, techniques and technologies to allow for the uptake of sustainable and affordable housing already exist.

Understanding the feasibility and the array of possibilities could help tackle the housing crisis and the various challenges surrounding it, while reprioritising health, equity and resilience.

In light of the environmental and social challenges the world is facing, it has never been more critical to demonstrate the attainability of housing that is both sustainable and affordable. Such housing must capture not only the affordability that includes upfront costs of purchase or rental, but also the ongoing affordability of living and operational costs highlighted in the principles section of this report.

In developing this report, a Taskforce of representatives from the WorldGBC network collaborated with other leading industry experts to co-create a series of high-level principles illustrating sustainable and affordable housing in practices. These are:



Habitability and Comfort



Community and Connectivity



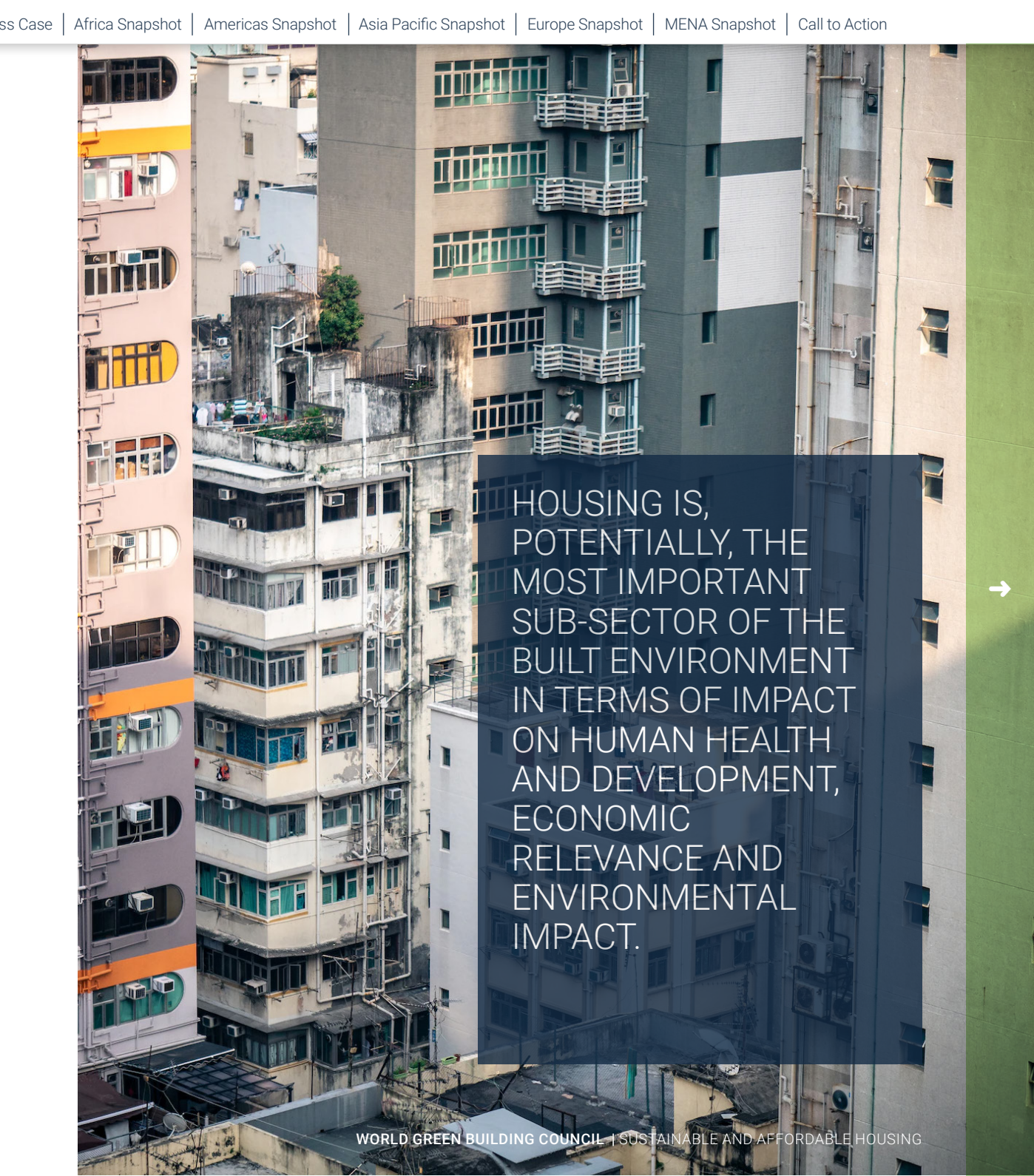
Resilience and Adaptation to a Changing Climate



Resource Efficiency and Circularity

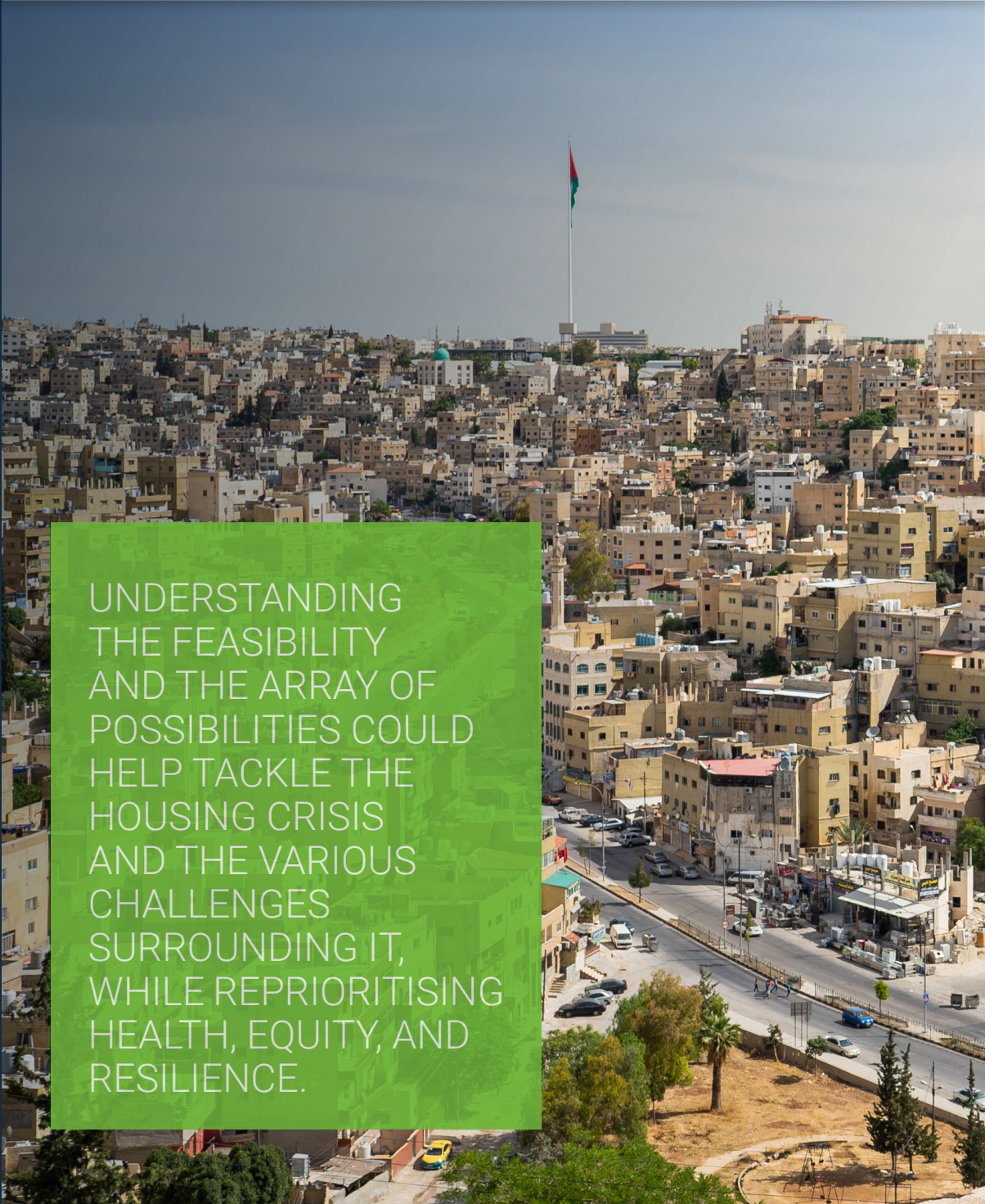


Economic Accessibility.



HOUSING IS,
POTENTIALLY, THE
MOST IMPORTANT
SUB-SECTOR OF THE
BUILT ENVIRONMENT
IN TERMS OF IMPACT
ON HUMAN HEALTH
AND DEVELOPMENT,
ECONOMIC
RELEVANCE AND
ENVIRONMENTAL
IMPACT.



An aerial photograph of a densely populated urban area, likely in the Middle East, characterized by numerous multi-story apartment buildings. A tall flagpole with a red, white, and green flag stands prominently in the center. In the foreground, there is a road with cars and a small park area with trees and a playground. A green rectangular box is overlaid on the left side of the image, containing white text.

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UNDERSTANDING
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RESILIENCE.

Within this report, solutions and best practice examples are presented across all five continents and in diverse geographies, cultures and climates.

In showcasing a varied range of examples, a consistent message emerges – the challenges faced are numerous, but there is a growing body of evidence of progress and opportunities. These include from finance solutions, supporting policies and design and in-use strategies that are being seen in practice worldwide and are making sustainable and affordable homes attainable for people in many regions. This should – and could – be a reality for all.

The availability of solutions in this report should inspire optimism, and spark consideration of best practices being implemented around the world to trigger further research. In the context of tracking the global housing stock's significant and growing gaps in terms of quantity and quality, the good practice and analysis provided in this report demonstrates that the solutions for closing this gap are being used across the world already – both through the development of new units and the retrofit of existing homes.

Through our call to action, WorldGBC and partners lay the foundation for greater prioritisation of the housing sector from all built environment actors, including financial and policy stakeholders. However, much more work is needed to take this vision and leadership and translate it to the global financial and development community who invest in, develop and own the properties. There is no doubt that deep commitment and collaboration will be required from actors across the value chain to tackle the growing crisis we face with global housing stocks, but we hope this report contributes to building the awareness, commitment and value proposition needed for positive change towards sustainable and affordable housing for everyone, everywhere.

The report focuses on sustainable and affordable housing for two target populations based on income levels: Low-income housing and Middle-income housing. The characteristics of each are described in the boxes on the right.

Low-income housing

- Social housing and informal settlements, considering minority groups
- Target towards developments led by governments and procurement bodies, or policy-directed or subsidised private development

Middle-income housing

- Mass market and affordable housing
- Private housing
- Target towards wider supply chain including developers, investors, designers, owners, occupiers, and the construction sector



Introduction and Purpose

WorldGBC's global network is committed to working towards a sustainable built environment for everyone, everywhere.

Housing is, potentially, the most important sub-sector of the built environment in terms of impact on human health and development, economic relevance and environmental impact. Through this publication, WorldGBC hopes to champion a unified vision for sustainable and affordable housing and spotlight best practice worldwide to demonstrate opportunities for success that could be scaled for greater impact.

However, in tackling this topic, WorldGBC's network recognises that the fundamental challenges in developing a sustainable and affordable housing stock for all are intensely localised. **Whilst the scope of this report is global, it is not possible to provide comprehensive coverage, nor to provide universal detailed guidelines, but rather demonstrate that the sustainability outcomes that we aspire to can be, and are already being, achieved in varied locations around the world.**

The development of principles and analysis of case study data against them illustrates how different a set of principles can seem when embedded in local context. This report will bring this message to fruition by spotlighting insights from real-life challenges, leadership and strategies, to encourage the development of high quality,

sustainable and affordable housing in different regions and provide inspiration to be adapted as appropriate to each local context.

The outcome of this work is to highlight that sustainable housing is, by principle, attainable in all geographies from affordability, access, resource and financial perspectives. This should inspire and support mass market collaboration to build upon the principles and learnings in a multitude of ways, including further development of policy recommendations, guidance for global financial and institutional investment sectors, scaling of solutions through awareness raising, upskilling and industry buy-in, and engagement with occupants on the ground.

WorldGBC calls for global action to be accelerated towards a housing stock that embodies the principles outlined in this report, targeting all stakeholders of the housing sector, including built environment practitioners, decision makers, investors, developers, designers and policy makers to scale up the achievements showcased within this report. The content is also valuable for governments and infrastructure agencies to trigger an increase in ambition for procurement of quality and accessible housing, as well

as to create policy environments such as regulations, standards, incentivisation schemes and procurement practices. Unwavering commitment and collaboration are essential within the housing sector for the mass transition to sustainable and affordable housing for all.

THE OUTCOME OF THIS WORK IS TO HIGHLIGHT THAT SUSTAINABLE HOUSING IS, BY PRINCIPLE, ATTAINABLE IN ALL GEOGRAPHIES FROM AFFORDABILITY, ACCESS, RESOURCE AND FINANCIAL PERSPECTIVES.

Background

HOUSING IS
RECOGNISED AS
A SECTOR THAT
IS CENTRAL
TO GLOBAL
SUSTAINABILITY
TARGETS AND IS
A KEY LEVER IN
THE TARGETS OF
THE SUSTAINABLE
DEVELOPMENT
GOALS.

Housing is of fundamental importance to human development, in addition to its role in people's identity and social belonging. People's homes are where these impacts are most often felt.

Housing is recognised as a sector that is central to global sustainability targets and is a key lever in the targets of the UN's Sustainable Development Goals. SDG11, target 11.1 states that: "By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums"¹.

Article 25 of the Universal Declaration of Human Rights states that: "Everyone has the right to a standard of living adequate for the health and wellbeing of himself and of his family"².

The UN Special Rapporteur on the Right to Housing states that: "It is time to recognise that sustainability of housing should become an additional core element of the right to adequate housing, in order to ensure that the right to adequate housing is interpreted in full consonance with the right to a clean, healthy and sustainable environment"³.

At least 85% of the world's population has been affected by climate change^{4,5}.

The housing sector is responsible for between 17–21% of global carbon emissions and has a substantial role to play if the world is to meet net zero carbon emissions by 2050⁶. This is a critical target to keep global temperature change within the 1.5°C of warming. However, as average temperatures are already on the rise, acute hazards such as heat waves and floods are growing in frequency and severity and chronic hazards such as drought and rising sea levels are intensifying, affecting 85% of the world's population. Vulnerability is heightening, impacting liveability with severe reduction in people's health, wellbeing and quality of life.

In addition to devastating climate change events, further man-made conflict, violence and human rights violations are also damaging cities and homes, displacing communities and resulting in housing inaccessibility for millions of people worldwide, especially those of indigenous, minority and migratory backgrounds, neglecting vulnerability and lacking inclusivity.

It is estimated that one billion people reside in slums and informal settlements, 1.6 billion people live in inadequate housing, 15 million people are forcibly evicted every year^{7–9} and 100 million people are displaced by events of conflict and violence⁵.

Such stresses on the housing sector are triggering short-term thinking and reactive decision-making, from rapid home building to informal settlement clearance. It is important to create a demand for sustainable and affordable housing. Transformation that leaves no one behind, with resilient construction, reconstruction and recovery practices and the need to adapt the world's building stock to increasing climate change events^{10,11}.



The world needs to provide two billion homes over the next 75 years¹², with home retrofits and improvements being a vital part of addressing the housing crisis¹³.

By the end of this century, the world's population is set to increase by 50%, to over 11.2 billion — an increase of 45 million people per year¹². In facing global population growth, the demand for urban and residential infrastructure and development is inevitable and the pressure on housing quantity, quality and its affordability will increase¹².

It is estimated that by 2030, three billion people, or 40% of the world's population will need adequate housing units whether new-built or renovated¹⁴, which will double the global material consumption. This is also an essential factor when considering the response to recent socio-economic trends of work and habitation-changing patterns, where it is estimated that people spend about 90% of their time in buildings, with two thirds of that spent at home¹⁶.

Comprising over 70% of land use in most cities already, with increase in both horizontal and vertical

densification, housing is evidently central to the environmental and social sustainability of future cities. Construction is set to add 230 billion square metres of new buildings in the next 35 years, adding the equivalent of the city of Paris, in terms of new floor space, to the planet every single week¹⁷.

However, there are 42 million unoccupied homes worldwide, an estimate of roughly one in 10 homes are vacant¹³. Retrofitting and renovating existing homes and converting unused buildings into residential space helps address the chronic housing crisis in terms of both quantity and quality, as well as homelessness and housing inadequacy in many countries^{18,19}.

Housing infrastructure can continue to exacerbate problems or can be part of the solution. The global building and construction industry needs a monumental shift²⁰.

Effective housing policies that successfully increase affordability at the level of each home, from purchase to maintenance and repair, are crucial for enhancing resilience. In addition, decarbonising the economy, restoring nature and ecosystem services and tackling the production and consumption of raw material and products are essential to mitigate further climate change impacts²¹. The challenge faced is creating the context, such as political will, set of legislations, policies, regulations, business processes and cultural and behavioural change — for rapid acceleration and uptake of solutions.



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Definition of Sustainable and Affordable Housing

Affordability is a global issue which directly affects the wellbeing of people. It is estimated that around 80% of cities worldwide do not have affordable housing options for the majority of their population²².

The housing affordability crisis exacerbates urban inequalities. The lack of affordable solutions often pushes people, and particular social groups, such as low-income households, migrants, as well as young people and the elderly, into sharing overcrowded and unsafe dwellings. It can also cause them to move into areas which have little access to employment and education opportunities, healthcare, or green spaces.

UN-Habitat states that: “A house cannot be considered adequate and accessible if its cost threatens or compromises the occupant’s enjoyment of other human rights and satisfaction of needs such as food, healthcare, education and transport²³”. Affordability is a central component of the right to adequate housing. The definition of ‘affordable housing’ has undergone extensive review from the global community in recent years, reflecting that affordable housing must encompass a broad range of criteria, instead of only its monetary value being below market rate.

‘Affordable housing’ is now increasingly being defined as: “Housing that is priced at or below market rate, whilst considering the average household income of the area (Area Median Income), so that the net monthly expenditure on housing cost does not exceed 30% of the total monthly income of the household^{23,24}”.

This definition relates to the average absolute value of housing itself in relation to the average resident’s purchasing power, capturing not only the affordability that includes upfront costs of purchase or rental, but also the ongoing affordability of living and operational costs²⁵. Together with security of tenure, affordability is central for preventing the risk of evictions as it reflects the capacity of people to sustain rent and mortgage payments, whilst maintaining a wider criteria of household maintenance, utilities, or location, in relation to transport, employment and services²³.

Further Resources:

[OHCHR’s report of the Special Rapporteur on the right to adequate housing](#)



THROUGH CONSULTATION
WITH THE BETTER PLACES FOR
PEOPLE HOUSING TASKFORCE,
WORLDGBC'S NETWORK
DEFINES SUSTAINABLE AND
AFFORDABLE HOUSING AS:

RESILIENT HOUSING THAT
IS ADAPTABLE TO CLIMATE
CHANGE, RESPECTS AND
PROTECTS THE LIFECYCLE
VISION OF MEETING CURRENT
AND FUTURE NEEDS, WHILST
ENCOURAGING SUSTAINABLE
CHOICES AND ENHANCING
QUALITY OF LIFE, ALL WITHIN
AN ECONOMICALLY ACCESSIBLE
MANNER.

Principles of Sustainable and Affordable Housing

The development and upgrading of communities to create sustainable and affordable housing occurs differently around the world. However, through consultation with the Better Places for People Housing Taskforce, WorldGBC's global network has concluded that sustainable and affordable housing in any and all geographies must reflect implementation of the following principles, with consideration of the cross-cutting nature of many of the topics.

Habitability and Comfort

- Health and comfort
- Outdoor environment
- Dignity
- Rights
- Lifestyle

Economic Accessibility

- Purchase and leasing price
- In-use costs
- Economic security
- Living costs
- Development costs

Resource Efficiency and Circular Economy

- Net zero whole building
- Energy transition and efficiency
- Water
- Waste and circular economy

Community and Connectivity

- Inclusive design
- Access to transport and services
- Culture and community



Resilience and Adaptation to a Changing Climate

- Adaptability
- Nature-based solutions
- Safety
- Hazard and disaster resilience

Habitability and Comfort



Community and Connectivity



Resilience and Adaptation to a Changing Climate



Resource Efficiency and Circularity



Economic Accessibility



Efficiency

whole life carbon
position and

materials



Habitability and Comfort



- **Health and comfort:** Enhance indoor environmental quality to boost occupants' mental and physical wellbeing and reduce factors that can lead to viral transmission and ill health, by considering all relevant health and comfort determinants, including air, light, water, sanitation, acoustic, thermal and visual comfort*.
- **Outdoor environment:** Enhance outdoor environmental quality, including access to nature and promote walkability*.
- **Dignity:** Enhance dignity, privacy and security, providing enough space to prevent overcrowding.
- **Rights:** Protect against evictions, destruction and demolition, with appropriate entitlements of land and property.
- **Lifestyle:** Encourage healthy occupant behaviour and lifestyle choices*.

Community and Connectivity



- **Inclusive design:** Prioritise inclusion of citizens in the planning and design stages of community or project development to avoid issues of social unrest or displacement.
- **Access to transport and services:** Incorporate accessible transport systems into community or masterplan, to allow accessibility to employment, services and amenities such as shops, schools, healthcare facilities and public areas.
- **Culture and community:** Foster inclusion and social equity, by enhancing equality, inclusivity, diversity and non-discriminatory, culturally relevant environments that foster a sense of belonging.

Resilience and Adaptation to Changing Climates

- **Adaptability:** Ensure built environment is adaptable, durable and resilient through its lifecycle, allowing for retrofit and reuse**.
- **Nature-based solutions:** Enhance natural capital, maintain and preserve ecological systems to support whole life in health, prioritise the provision of ecosystem services and bio-climatic resilience.
- **Safety:** Ensure structures are safe and designed to withstand change scenarios to ensure usability.
- **Hazard and disaster resilience:** Consider extreme events and weather conditions such as wildfires, droughts, floods and high winds**.

Further Resources:

- * WorldGBC's Health & Wellbeing Framework: For more information on health, equity and resilience strategies in the built environment
- ** WorldGBC's Resilience in the Built Environment Guide: For more information about climate resilience and adaptation in the built environment
- IHRB's Dignity by Design Framework: For more information on each stage of the built environment lifecycle, aiming to minimise risks to people and materials
- ICLEI's Circular City Actions Framework: For more information on a range of strategies and actions available to work towards circular development at the city level

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o offer long-standing

er resilience:
emperature change
ions such as floods,
hurricanes, storms

imise social outcomes.
the local level.

Resource Efficiency and Circularity



- **Net zero whole life emissions:** Target whole life carbon emission reduction, working towards net zero operational and embodied carbon at building and community scales.
- **Energy transition and efficiency:** Support the energy transition away from fossil fuels and towards electrification through the generation and use of clean and renewables-powered electricity, demonstrating energy reduction through efficiency measures to reduce emissions and operational energy use and costs.
- **Water:** Reduce water footprint of materials and processes and ensure water efficiency in operation.
- **Waste and materials:** Support reuse, recycling and up-cycling of materials through circular design principles.

Economic Accessibility



- **Purchase and leasing price:** Support affordable purchase, upfront rental costs, with options to secure housing beyond direct payment.
- **In-use costs:** Ensure accessible and affordable operation, maintenance and ongoing improvement costs.
- **Economic security:** Ensure financial security and a suitable housing option for any income level, whilst supporting the progression of a growing household to a successively higher quality of living, habitat and infrastructure.
- **Living costs:** Ensure access to affordable utilities and services to increase occupants' discretionary income.
- **Development costs:** Source locally and utilise local industries to reduce building costs and support economic development.



Lifecycle of Sustainable and Affordable Housing

The principles of sustainable and affordable housing are to be considered at all relevant stages of the building and construction lifecycle.

Land Acquisition & Choice of location

Assess urban growth, demographic, social needs and climate change impact scenarios to ensure safety of location, adequate accessibility and thriving communities.

End of Life

Minimise human and environmental impact by undertaking careful disassembly, waste management and raw material supply and ensure as many parts as possible can be reused.

Redevelopment & Repurposing

Refurbish existing buildings and structures, reuse available materials, while understanding and maintaining culture and history, and saving precious resources.



Finance & Budgeting

Undertake performance simulation and cost analysis to ensure the feasibility of the project within a budget, while exploring fiscal incentives and establishing partnerships.

Design & Planning

Understand urban form context and future projections, enhancing resource efficiency and reducing harmful emissions to protect people and the environment.

Supply & Manufacture

Understand the market, source locally available and sustainable materials and products responsibly, with optimised transportation and adopt a circular supply chain.

Building & Construction

Use techniques that improve health and wellbeing for building occupants, release fewer emissions and mitigate negative local environmental sustainability implications.

Operation & Maintenance

Maintain and repair the building to ensure optimal performance, extending the building life, while using less energy and water, creating minimal waste and delivering long-term energy savings.

Lifecycle of Sustainable and Affordable Housing

The Business Case for Making Housing Sustainable and Affordable

It is fundamental to establish a value proposition for investing in sustainable and affordable housing to mobilise action across the built environment. The risks of inaction and cost of remediation at later stages outweigh the opportunities and investments required to change practices today.

Some prominent arguments to drive the business case combining present and future action and inaction are outlined in the following tables.



Governments including: local, district, national, international government and multi-level governance

Industry stakeholders including: developers, investors, contractors, engineering, architectural firms, investors and banks

Occupants and communities

Opportunities for action

By setting regulatory pathways and enforcement, building inspectors can:

- **Increased energy security:** Power on site – therefore no reliance on imported energy, risk of supply disruption.
- **Reduced carbon emissions:** Energy efficiency globally⁹. Energy efficiency in sustainable construction can make significant contributions.
- **Greater resilience and quality of life:** Improved health and wellbeing.
- **Protection of human rights:** Improved social housing programmes, and social justice.

By investing, developing, and managing, stakeholders could experience:

- **Investment opportunities:** Increased investment benefits and returns.
- **Access to green finance:** Improved mortgages and insurance.
- **Low carbon portfolios:** Reduced carbon footprint and pressures.
- **Reputational benefit:** Enhanced reputation.
- **Housing value:** Increased housing value and engagement.

By owning, renting and managing:

- **Economic security:** Sustainable energy generation. Renewable energy generation.
- **Resilience:** Strengthened resilience to climate change impacts. Sustainable maintenance.
- **Quality of life and social justice:** Improved quality of life for occupants and improved access to better quality energy.

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ways for sustainable buildings by means of building codes, subsidy schemes, minimum standards, as well as inspections, and control – governments could recognise:

Energy: Sustainable and affordable homes require less energy to heat, cool and power, and generate renewable-sourced energy. Decreasing energy consumption and reducing strain on national energy demands. This may result in reduction of energy shortages, and energy poverty.

Carbon and waste: 550 million metric tonnes of CO₂ equivalent emissions could be saved by 2050 from residential energy-efficient residential construction practices could also result in a 40% reduction in global energy savings. Construction and operation of homes would also greatly reduce waste production, increase circularity and limit landfill

Quality of life of population: Quality housing best services the needs of the population, with expected improvements in health, education, and employment.

Worker rights: Community and supply chain workers' rights can be protected and enhanced through public policy welfare and justice considerations.

Designing, constructing, managing, or owning sustainable affordable housing, built environment industry can experience:

Investment opportunities: Research suggests there is a \$17 trillion USD opportunity for investing in sustainable housing⁹, with long-term reliable returns through impact investment²⁷.

Access to capital: Increased access to green bonds and loans, lowered default rates and superior collateral value for green projects and rates.

Achieving sustainability goals offers investment benefits alongside resilience to policy change and investor risk.

Enhanced sustainability credentials may improve brand recognition and faster market differentiation.

Increased desirability of properties, with higher resident retention, particularly through creation of community and resident engagement.

Retrofitting homes and communities towards sustainable and affordable outcomes, occupants could experience:

Financial savings: Sustainable and affordable homes offer financial savings and better spending predictability on utility and service bills. Energy efficiency practices can also provide return on investment benefits for the owner.

Health and well-being: Strong community relationships allow for greater resilience to environmental and systemic stressors, such as climate change. Sustainable housing presents better durability during extreme weather events, with enhanced opportunity for retrofit and

Added value: Sustainable and affordable properties lead to greater comfort, health and wellbeing standards for occupants. Improved standards of living and productivity. Improved accessibility and services may lead to generation of new jobs and economic growth, education and healthcare.

Continued on next page >



The Business Case for Making Housing Sustainable and Affordable (Continued)

Further Resources:
[IFC's article on building the
business case for green affordable
housing](#)

**Governments
including: local,
district, national,
international
government and
multi-level
governance**

**Industry stakeholders
including: developers,
investors, contractors,
engineering,
architectural firms,
investors and banks**

**Occupants and
communities**

Risk of inaction

Without concentrated and
homes, governments could

- **Spiralling energy demand:** unmanaged demand for
- **Mitigation and adaptation:** trillion USD in total costs; impacts.
- **Urban sprawl and planning:** lack of access to adequate negative impacts.
- **Risk of stranded assets:** greater risk from damage
- **Economic distress:** Uns increasing financial burden of ill-health from
- **Environmental degradation:** of biodiversity.
- **Growth of informal settlements:** displacement of low-income housing, which may lead

If the transition to sustain

- **Stranded Assets:** Increased damage from extreme w
- **Finances:** Reduced attra
- **Community conflict and pressure:** pressure on local comm

Owners or occupiers of un

- **Financial stress:** Unsust impacts include reduced
- **Lack of resilience:** The g increases vulnerability of
- **Socio-spatial segregation:** for all.
- **Health risks:** Increased d extreme temperatures.

Without dramatic action towards the transformation of the national housing stock towards sustainable and affordable housing, the world could experience:

Risks: Unsustainable housing in areas of growing population – and increasing electrification of transport – risks increased demand for domestic energy use.

Cost measures: Each additional year of delay in implementing sustainability measures, costs an additional \$0.3–0.9 billion.²⁶ Sustainable and affordable housing are an essential part of climate change mitigation and adaptation to

Health and well-being: Unmanaged urban sprawl could present socio-economic and environmental risks for the population, such as reduced access to services, jobs, green spaces and other facilities. Sustainably planned communities would limit the risk of these

Displacement: Social housing and communities, including public services and infrastructure, that are unsustainable present a high risk of deterioration or abandonment in future climate scenarios.

Energy poverty: Unsustainable and unaffordable housing for the population increases levels of financial and energy poverty, thereby increasing the need for support on the state and possibly social unrest. Possible risk of spiralling healthcare costs due to public health issues in substandard homes.

Environmental degradation: Continued emissions and waste creation, including increase in toxic landfills, deforestation, pollution, and loss of biodiversity.

Social and economic impacts: Lack of preparation for population change, increase in climate refugees, continued evictions or displacement of renters by gentrification presents a greater risk of informal settlements, gentrification, and substandard housing leading to displacement and migration.

If sustainable and affordable homes for all is not realised, industry stakeholders could experience:

Financial risk: Increased risk of stranded assets due to lack of attention to ESG, human rights considerations, regulatory shifts or climate change events.

Reputational risk: Lack of responsiveness to sustainable financial products, risking loss of investors and income.

Operational risk: Unplanned opposition: Unsustainable developments increase risk of conflict and opposition to projects, as well as increasing costs and delays.

Unsustainable homes may experience:

Energy poverty: Unsustainable dwellings create higher operational housing costs, and risk increasing levels of energy poverty. Further risk of decreased housing value and increased insurance premiums of non-resilient homes.

Physical risk: Increased risk of significant damage and loss to non-resilient and non-durable structures from climate change events such as flooding, fires, and storms.

Social and economic impacts: Unplanned, sprawling settlements leads to reduced access to jobs, education, and creates a lower quality of life

Health and well-being: Increased diseases and illnesses associated with substandard housing and environmental degradation, such as pollution and

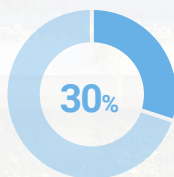


Sustainable and Affordable Housing Worldwide

This section will present a high-level summary of sustainable and affordable housing in every continent, with illustrated local examples documented from within WorldGBC's network. Each regional snapshot will include the following:

- **Challenges facing the housing sector:** Considering population growth and movement, political and environmental challenges that are causing difficulty in the uptake of sustainable and affordable housing.
- **Driving the uptake of sustainable and affordable housing:** Opportunities, leadership, financial innovations and supportive planning and policy that are driving the uptake of sustainable and affordable housing.
- **Case studies for sustainable and affordable housing:** Cutting-edge built environment projects, making sustainable and affordable housing a reality for all, demonstrating a commitment towards the right to adequate housing and a sustainable future.

WorldGBC recognises that the fundamental challenges in developing a sustainable and affordable housing stock for all are intensely localised. The scope of this report is not to cover the entire world, nor to provide instructions, but rather, demonstrate that these outcomes can and are already being achieved, with spotlight and insights on real-life challenges, leadership and strategies that require global attention, to encourage the development of high quality, sustainable and affordable housing in different regions and provide inspiration to be adapted as appropriate to each local context.



All the case studies in this report are within 30% of area median income as defined on **page 16**, and are mapped against the sustainable and affordable housing principles as seen on **page 18**.

Africa Regional Snapshot

CHALLENGES FACING THE HOUSING SECTOR

Africa is the most rural region in the world, yet has incredible diversity across the continent, with centres of wealth and urbanisation. The continent is also at the frontline of climate change impacts, such as droughts and expansion of desertification.

The African continent is experiencing the fastest urban growth in the world, with population projected to grow 63% by 2040 and double by 2050²⁸.

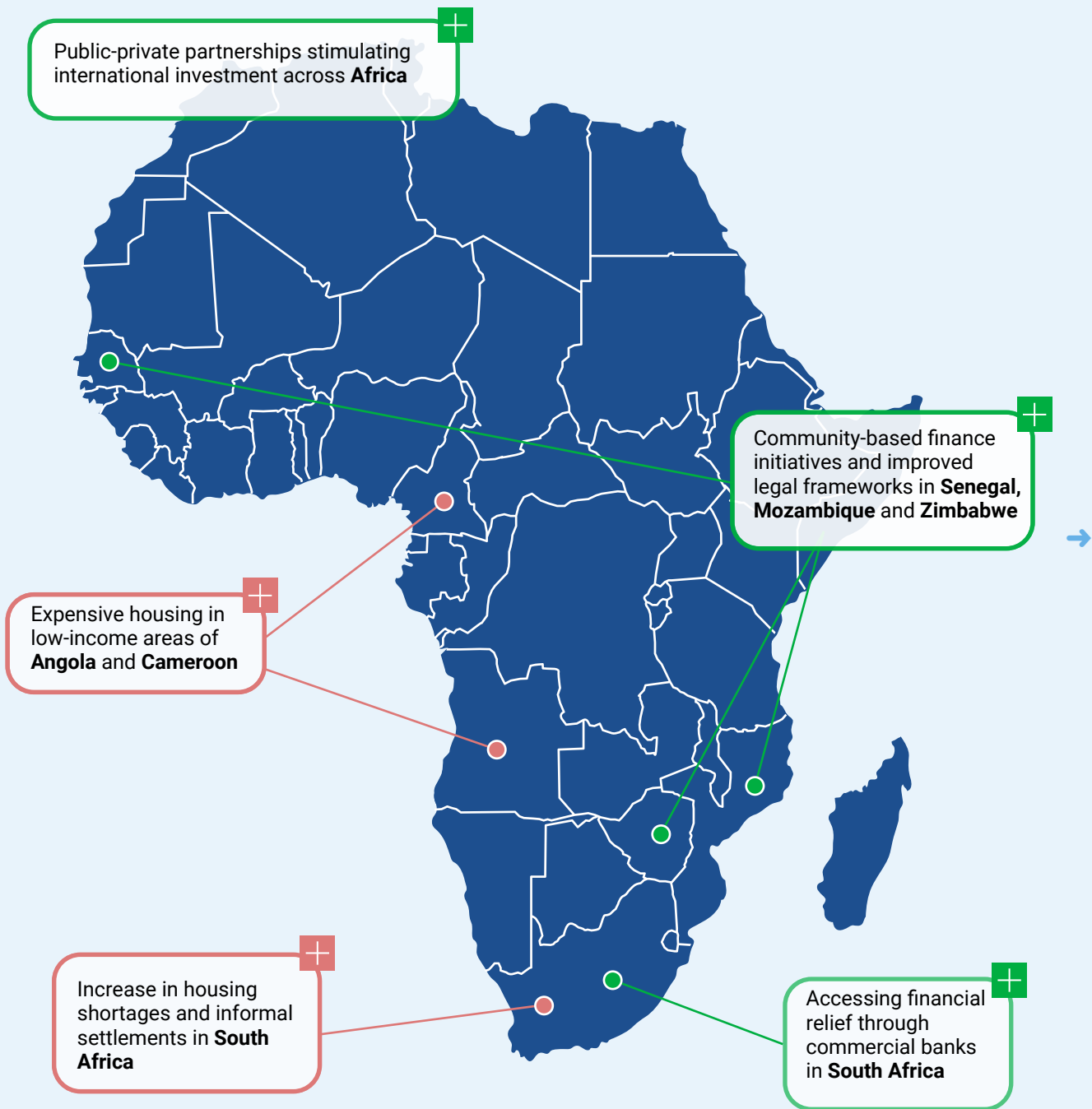
Two-thirds of this growth will be absorbed by urban areas, with cities becoming the new home to over 40,000 people every day and adding 950 million people in the next 30 years²⁹. Almost 53 million people live in slum conditions, with a growth of under-serviced, substandard and insecure housing that is disconnected from livelihood options³⁰.

In some areas of Africa, particularly central and sub-Saharan Africa, there is little formalisation in urban planning, with some countries experiencing overlapping markets for land, ownership, buildings, finance and services such as water, electricity and sewerage. These challenges could be compounded with major issues on inadequate infrastructure and supply capacity, with a lack in technical and financial strength to construct large-scale projects³¹.

DRIVING THE UPTAKE OF SUSTAINABLE AND AFFORDABLE HOUSING

In the last decade, there is a growing body of evidence of sustainable projects, policies and plans being implemented across the built environment in Africa.

Signals of change are evident across the continent, with opportunities that can be scaled across the region. Many international agencies and independent companies have been investing in Africa for the construction of affordable homes, while creating jobs in the community and focusing on upskilling local developers³⁴.

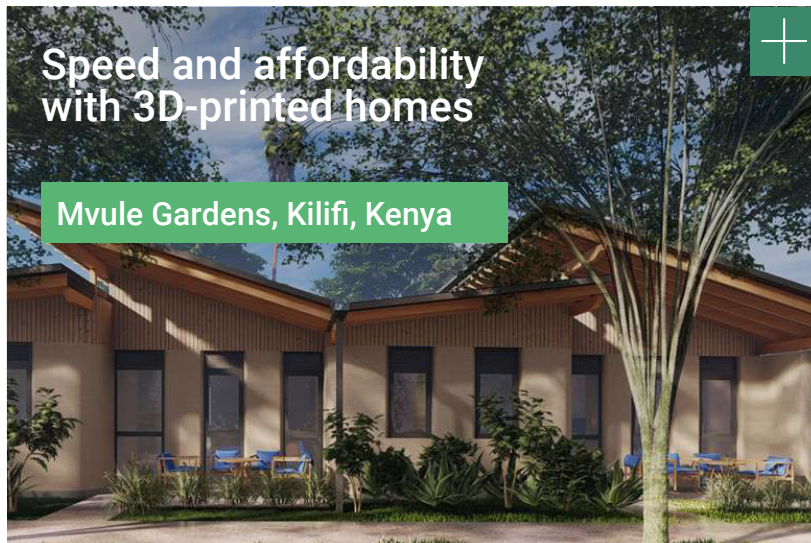


Africa Regional Snapshot

Case Studies

Speed and affordability with 3D-printed homes

Mvule Gardens, Kilifi, Kenya



The largest 3D-printed affordable housing projects in the world, emphasising replicability and speed. The project is part of the 'Green Heart of Kenya' regenerative ecosystem, a model for inclusive and climate-resilient cities. The goal of the project is to build an affordable homes movement which will transform the lives of 100 million people in urban Africa and Asia by 2030, while creating qualified jobs, placing people on a development trajectory.

Unlocking low-income finance with proven Resilient homes

Casa Real, Beira, Mozambique



Beira's first zero-carbon home housing, all cyclone-proofed sustainable hardwood. In 2018, at least 70% of housing in the area. Real's pilot homes remained minimal and easily repaired. Before housing was unaffordable to most, 80% of homes were self-built, being extremely vulnerable to cyclones. Real is now providing for 160 homes with new sites in nearby cities and municipalities.

Home housing Climate

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es being negotiated with

Transforming an industrial area to a vibrant and affordable economic hub

Jewel City, Johannesburg, South Africa



Jewel City is an urban redevelopment project that revitalized a former hub of the diamond and precious metals trade industry, an area that has historically suffered high vacancy and crime rates. The project achieved this revitalization by integrating affordable housing, along with retail, business, sport, and creative spaces. These elements are all centered around a meticulously planned public realm, which caters to the diverse needs of inner-city residents.

Africa Regional Snapshot

NEARLY 950 MILLION
PEOPLE ARE SET
TO MOVE TO MORE
URBAN AREAS IN
AFRICA IN THE NEXT
30 YEARS

In Africa, housing provision is often characterised by low density, under-serviced, substandard and insecure housing disconnected from existing transport networks and economic opportunities. This is causing great risk to the nearly 950 million people set to move to more urban areas in the next 30 years²⁹.

The rate of implementation of quality and sustainable housing close to economic opportunity is dwarfed by demand. However, progress is noted across the region with governments, international organisations, independent companies and investors leading initiatives that are taking steps towards transforming the housing market and demonstrating how well-located and well-designed housing is vital in tackling the region's socio-economic challenges.

Identified case studies demonstrate the successful use of modern technologies for faster construction, as well as retrofitting and redevelopment techniques to meet the housing demand of a growing population, while mobilising finance into communities. This is exhibiting positive direction and progression in which social, environmental and financial aspects are considered for long-term sustainability and stability, providing inspiration for further action.

With thanks to:

Green Building Council of South Africa,
Kenya Green Building Society and Reall



Americas Regional Snapshot

CHALLENGES FACING THE HOUSING SECTOR

The Americas region is the second most disaster-prone region in the world, with 152 million people affected by over 1,200 natural disasters from the years 2000-2019; including floods, storms, droughts, wildfire and extreme temperatures⁴¹.

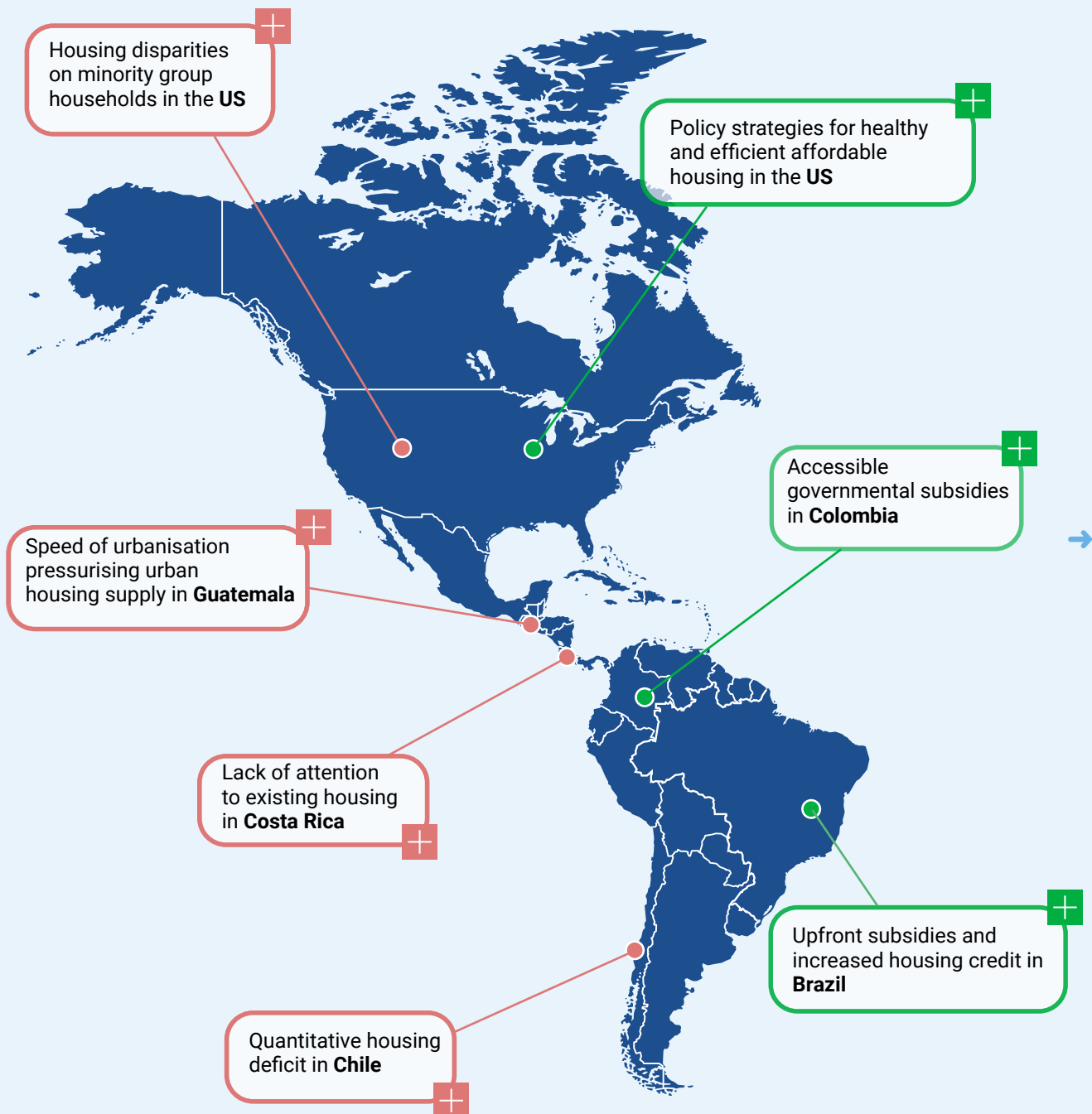
In Central and South America, around 500 million people live in cities under an accelerated, defective and exclusive urbanisation process, with almost 94% of urban homes being insufficient in quality⁴². The right to adequate housing has been particularly poorly provided amongst women, ethnic minorities, migrants and other disadvantaged groups, despite it being supported by the legislation in many countries. This has often resulted in low-quality shelter with minimal facilities or without any permanent accommodation for vulnerable populations across the continent⁴³. Informal settlements are a persistent challenge in Latin America, with approximately one-quarter of the urban population living in informality⁴⁴.

North America is the third-largest continent in the world, home to approximately 515 million people. The region is not only suffering impacts from climate change, but is a disproportionate contributor to climate change, producing a greater share of greenhouse gas emissions over time than any other continent⁴⁵. The US alone has the highest national GDP per capita in the world⁴⁶, yet suffers from a housing shortage of between 5.5 million units to seven million units and severe inner-city poverty, with about 1 in 10 homes impacted by natural disasters⁴⁷. Inner cities represent 10% of the population in the US, 16% of unemployment, 22% of poverty and 32% of minority poverty⁴⁸.

DRIVING THE UPTAKE OF SUSTAINABLE AND AFFORDABLE HOUSING

A range of innovation and financing, policy and development models are being utilised across the continent to drive affordable, sustainable housing across the Americas.

In Latin America, there are various degrees of dependency on private Foreign Direct Investment (FDI) and international aid for housing provision, as well as on regional development banks. There is a great opportunity to strengthen the role of the state as city-wide or state-wide provider of basic housing; and to develop financial mechanisms, such as public housing and utility companies to strengthen public finance. In addition, community-based financing models are increasing, as well as public FDI between governments⁵⁶.



Americas Regional Snapshot

Case Studies

Creating financial sustainability and climate resilience through social housing

Urbanización El Paraíso, Valparaíso, Antioquia, Colombia

El Paraíso is a social housing project that achieved high environmental standards, with excellent community flourishing and habitability characteristics.

Defying the market and increasing available incentives and finances

Trasciende La Parroquia, 15 Avenida 7-47, Zona 6, Guatemala City

The project was developed to bring those living in informal settlements to a more urban environment within the city, closer to sources of employment, urban facilities and public transportation.

Sustainable affordable housing with low carbon footprint

SEXTUPLE, T de Zuñiga, M

This project was under the EcoCa which aims to reduce emissions in affordable houses and contribute to the achievement of SDG 11: Sustainable Communities. The project used tools to measure related to energy, water savings, health environment and carbon footprint of materials, ensuring compliance with standards that allows the development of a preferential rate



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3,500 affordable
houses within a
thriving climate-
conscious community

Casa Laguna, Guayaquil,
Ecuador

Ecuador's largest
 climate-conscious
 construction project on the
 outskirts of Guayaquil ensures
 affordable housing for 3,500
 families.



Affordable LEED
platinum apartments


Hatch, New Mexico,
United States

El Camino Apartments'
 integrated design made
 it possible for residents
 to achieve financial
 sustainability by offering
 rental costs in keeping
 with agricultural workers'
 seasonal income. Resilience
 and efficiency strategies
 lowered operating costs while
 supporting wellbeing.



Americas Regional Snapshot

LARGE-SCALE CLIMATE
CHANGE IMPACTS
ARE LIKELY TO AFFECT
THE HOMES AND
SETTLEMENTS OF
APPROXIMATELY ONE
BILLION PEOPLE.



The Americas is experiencing large-scale climate change impact on residential homes and widespread informal settlements that represent approximately one billion people.

Despite huge diversity in wealth and development levels, almost 94% of urban homes are insufficient in quality, with particular urgency for housing rehabilitation in inner-city regions across Central, North and South America.

The overall speed of transition to sustainable and affordable housing is alarmingly slow, with the need for increasing innovation in creating the context for change, as well as having appropriate solutions for the specific challenges in the vast geographies of the region.

Points of optimism are seen, notably in policies, subsidies and regulations that are stimulating the increased development of sustainable and affordable housing. Finance schemes, housing models and the use of innovative technologies featured in the case studies demonstrate great leadership by developers, investors and communities with opportunities for collaboration and replicability across the region.

With thanks to:

Colombia Green Building Council, Chile Green Building Council, Green Building Council Brasil, Green Building Council Costa Rica, Guatemala Green Building Council, US Green Building Council, World Resources Institute (WRI) and Institute of Human Rights and Business (IHRB)

Asia Pacific Regional Snapshot

CHALLENGES FACING THE HOUSING SECTOR

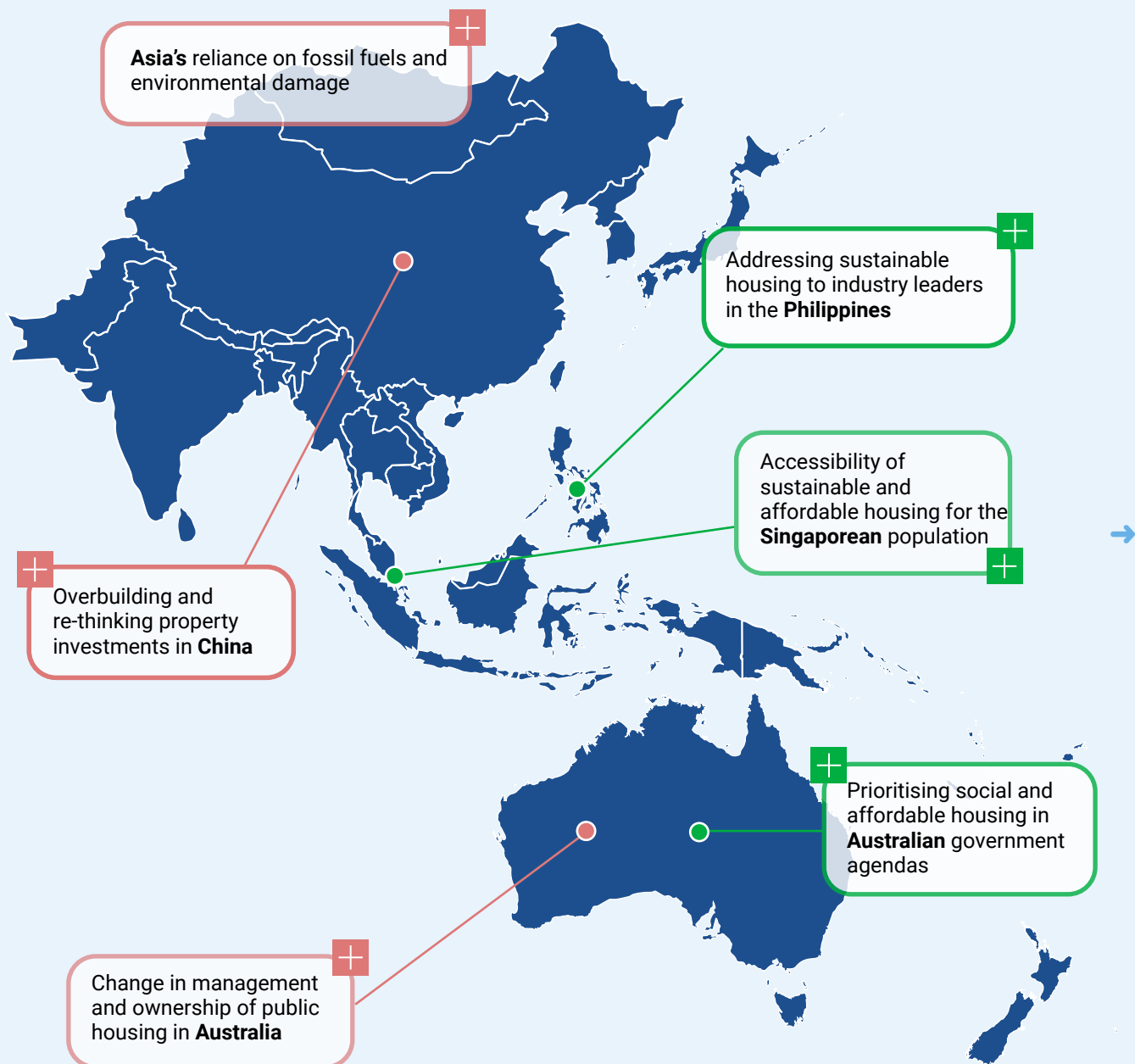
The continent of Asia is experiencing massive demographic changes, with the growing and urbanising populations of Asia's developing nations presenting an urgent demand for sustainable and affordable housing. Across the entire continent, the physical impacts and risk of climate change have already been realised⁶².

Asia is the most populous continent in the world, with a population expected to reach 5.3 billion by 2050⁶³. By 2030, India will need an additional 25 million homes and China will have a further 70 million people moving into its cities. The demand is also seen in Vietnam, Indonesia, Philippines and many parts of Asia with a largely growing population⁶⁴.

Asia's rapid economic growth in recent decades has lifted hundreds of millions out of extreme poverty, but the gap between Asia's rich and poor has widened alarmingly. Asia accounts for two-thirds of the world's poor, with more than 800 million people still living on less than \$1.25 USD a day and 1.7 billion people surviving on less than \$2 USD a day⁶⁵.

DRIVING THE UPTAKE OF SUSTAINABLE AND AFFORDABLE HOUSING

Increasing the supply of sustainable and affordable housing has been a national priority for many governments in the Asia Pacific region, with a consistent message that countries need to build more and an increase in private investors supporting local development.



Asia Pacific Regional Snapshot

Case Studies

Resettlement of impoverished communities and creating a positive dialogue of collaboration

Salyani housing project, Bharatpur, Chitwan District, Nepal



Disaster resilience retrofits, improving quality of life and keeping costs to a minimum

Tiwi, Albay, Philippines



The project was dedicated to the alleviation of poverty through the improvement of shelter conditions and upgrading of slums for vulnerable communities of informal settlements, while strengthening communities and increasing household savings and credits.

The project retrofitted houses with measures to ensure the overall strength and resilience of the house during a disaster, specifically targeted towards prevention of damage caused by earthquakes, typhoons and heavy rains. This provided safe space for families, increasing quality of life, while keeping the overall cost to a minimum.



A zero-water discharge community

Thanisandra,
Bangalore, India

The project uses water efficiency and recycling techniques, creating a 30% reduction in freshwater demand and recycling 100% water in a hot and humid climate, all year round.



Promoting affordable housing for indigenous populations, while standing the test of time


Gibbons Street,
Redfern, Australia

The development is a modern and secure 18-storey building, comprising 162 residential units of which 40 are social housing and 122 are affordable housing units. In addition, 40% of the units are allocated to First Nations households, recognising the cultural significance of the indigenous Australian people.



Asia Pacific Regional Snapshot

SUSTAINABLE AND
AFFORDABLE HOUSING
IS ACCESSIBLE
THROUGHOUT
DEVELOPING NATIONS
AND AMONGST LOW
AND MIDDLE-INCOME
HOUSEHOLDS.



Asia Pacific is a densely populated region with a wide range of geographies, experiencing different challenges varying from climate change impacts, to policies, finances and management. The rates of sea-level rise in the oceans surrounding Asia are faster than the global mean, putting pressure on land, destructing biodiversity, creating water pollution and water scarcity, while causing significant physical damage to properties and infrastructure. Challenges also include building and overbuilding and the difficulty addressing sustainable housing to leaders of the industry.

Nevertheless, Asia's developing nations offer some of the biggest opportunities for sustainable and affordable housing, with consistent messages across countries for its clear demand. Countries such as Singapore are demonstrating the ability to provide sustainable and affordable housing for the entire population that could be used as a model across the continent.

The case studies demonstrate that sustainable and affordable housing are accessible throughout the developing nations and amongst low-middle-income households, as well as for vulnerable groups of people regardless of the challenges.

With thanks to:

Green Building Council of Australia, Indian Green Building Council, New Zealand Green Building Council, Philippine Green Building Council and Build Change

Europe Regional Snapshot

CHALLENGES FACING THE HOUSING SECTOR

The European region has the highest GDP per capita of any continent⁸⁰ and yet only represents less than 10% of the world's total population. However, most European countries are projected to experience a 20% decline in population by 2050⁸¹.

Europe has witnessed the average house prices in the private sector increasing by over 30% and rents increasing by around 15% between 2015 and 2021^{82,83}.

This is due to several factors including population growth, increased rents, unregulated tourism, the privatisation of social housing stock. Together with growing prevalence of insecure work contracts, these factors increase concern for low and middle-income households, as well as vulnerable groups, with countries seeing an upward trend in social exclusion, urban poverty, and unemployment⁸⁴. Europe is also being affected by climate change as extreme weather events such as droughts, floods and heat waves are becoming more frequent⁸⁵.

DRIVING THE UPTAKE OF SUSTAINABLE AND AFFORDABLE HOUSING

There are many sophisticated examples of affordable and sustainable housing in Europe being driven through a range of channels, from policy to private funding. Concern about physical climate risk is recognised as a key driver for greater investment in the residential sector, alongside EU-level policy driving retrofits as part of the 'Green Deal'; the regional action plan for moving to a clean, circular economy while restoring biodiversity, cutting pollution and reaching climate neutrality by 2050⁹¹.

Strong regional financial mechanisms and shift in **EU** policies

Policy changes creating wealth disparities and unaffordability in the **UK**

Contrast in the use of frameworks and targets in the **Netherlands**

Increasing affordable housing with laws and regulations in **France**

Renovation tax-back mechanisms in **Italy**

Minimal increase in renovation rate in **Italy**

Europe Regional Snapshot

Case Studies



Reducing costs through cooperative housing

Stavnsbolthave 1-51,
Farum, Denmark



Creating adequate, sustainable and affordable housing through pension fund capital

Diepeveen,
Rotterdam, Netherlands

The project follows a cooperative housing scheme, in which it is financed, developed, maintained and owned by the residents of the co-housing, creating an increased sense of ownership.

About 7% of the Danish population live in a form of cooperative owned housing, accounting for one-third of the housing stock in Copenhagen.

The project is a primary example of how adequate, sustainable and affordable housing could be created with pension fund capital.

The project is also alleviating the severe housing shortage, especially for the middle-income segment. The Netherlands is set to build approximately one million homes by 2035.




Measuring everything to achieve sustainable and affordable social housing

Kilbride Lane, Bray,
County Wicklow, Ireland

A 40-unit multi-award-winning social housing scheme.

This project was the first multi-unit development in Ireland to be awarded a gold certification under the Home Performance Index (HPI), a certification system developed by the Irish Green Building Council (IGBC) to assess quality and sustainability in new residential developments.



Renovating 32 terraced houses, enhancing satisfaction and comfort

Rue d'Auvergne and Rue Maurice Suard, Angers, France

The EnergieSprong approach has a strong focus on satisfaction and comfort of the inhabitants.

The objective of the project's approach is to drastically reduce costs through mass production and industrialisation of processes, developing a more mature market and multiplying the operations to achieve economies of scale. The replicability of this project contributes to improving the affordability of high-performance renovation projects.



Europe Regional Snapshot

THE FACILITATION OF KNOWLEDGE SHARING AND THE ADOPTION OF VARIOUS HOUSING MODELS COULD BECOME WIDE-SPREAD AND BENEFICIAL ACROSS EUROPE, CREATING A 'HEALTHY COMPETITION' AMONG COUNTRIES.

Europe is a region with countries of various economic wealth, population sizes and quality and quantity of housing. It is also at risk from extreme weather and climate-related hazards such as heat waves, floods and droughts, which have already been felt in recent years. Such environmental impacts are set to intensify and worsen, leading to adverse impacts on ecosystems, economic sectors and human health and wellbeing.

Europe has seen fluctuations in the housing sector with increased rental and purchase prices, inflation, as well as increasing insecurity in employment and homelessness.

Housing stock deficits in the European region are minimal compared to other regions, but the crucial renovation rate remains low, with its impacts flowing into the overall energy crisis and urban poverty faced by the region.

Sustainable and affordable housing has become an essential element embedded into European policies, regulations and frameworks. The facilitation of knowledge sharing and the adoption of various housing models could become wide-spread and beneficial across Europe, creating a 'healthy competition' among countries. In addition, the awareness, knowledge, skills, resources and technologies are clearly at hand for the European region, placing them at a great advantage for a swift uptake of sustainable and affordable housing.

With thanks to:
Green Building Council Italia and
Irish Green Building Council

Middle East And North Africa Regional Snapshot

CHALLENGES FACING THE HOUSING SECTOR

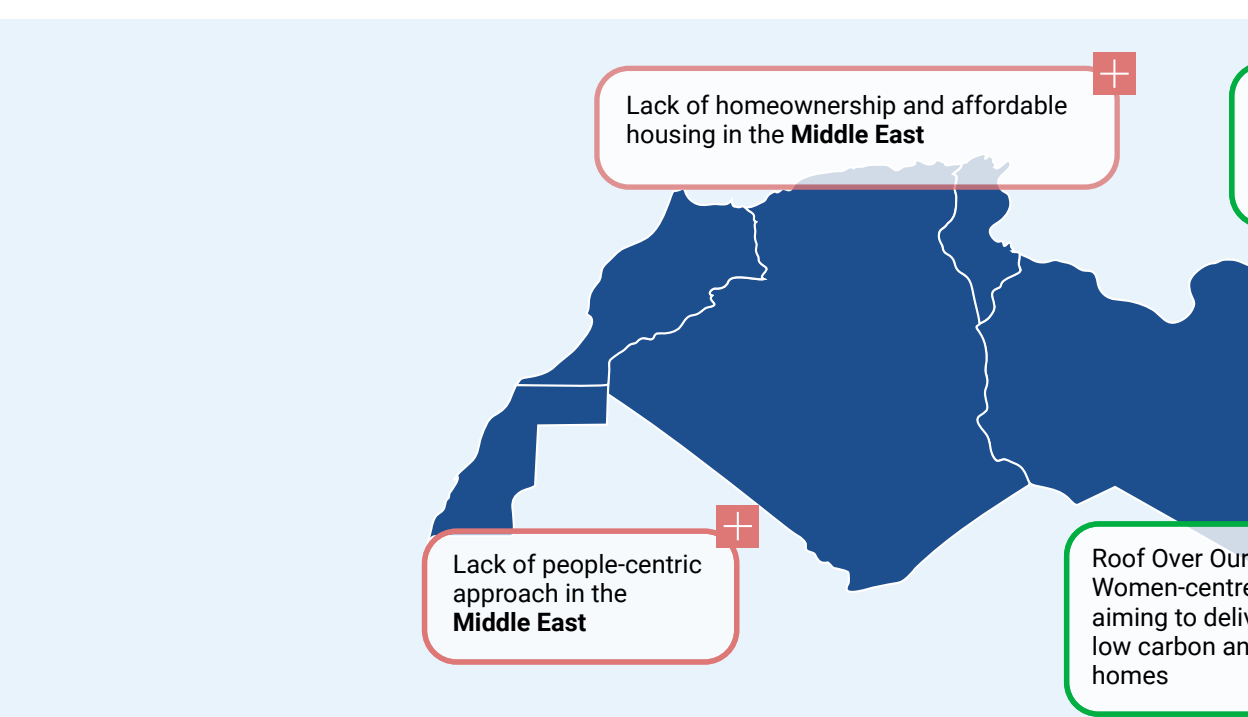
The Middle East is one of the most urbanised regions in the world, with over 56% of inhabitants living in cities. As average inhabitants grow younger and refugee populations increase, this is set to rise to 68% of total inhabitants, approximately 646 million people, living in cities by 2050. The housing demand will result in 70% of land use in most cities comprising housing⁹⁸.

Climate change is already exacerbating fragility in the MENA region that is undergoing post-conflict transitions. Climate change effects will have a devastating toll on the region’s water supplies and food production systems, with average temperatures soaring at a rate that is 2-7 times faster than any other region⁹⁹.

DRIVE AFFORDABLE

Varied approach
of governments
friendly, and
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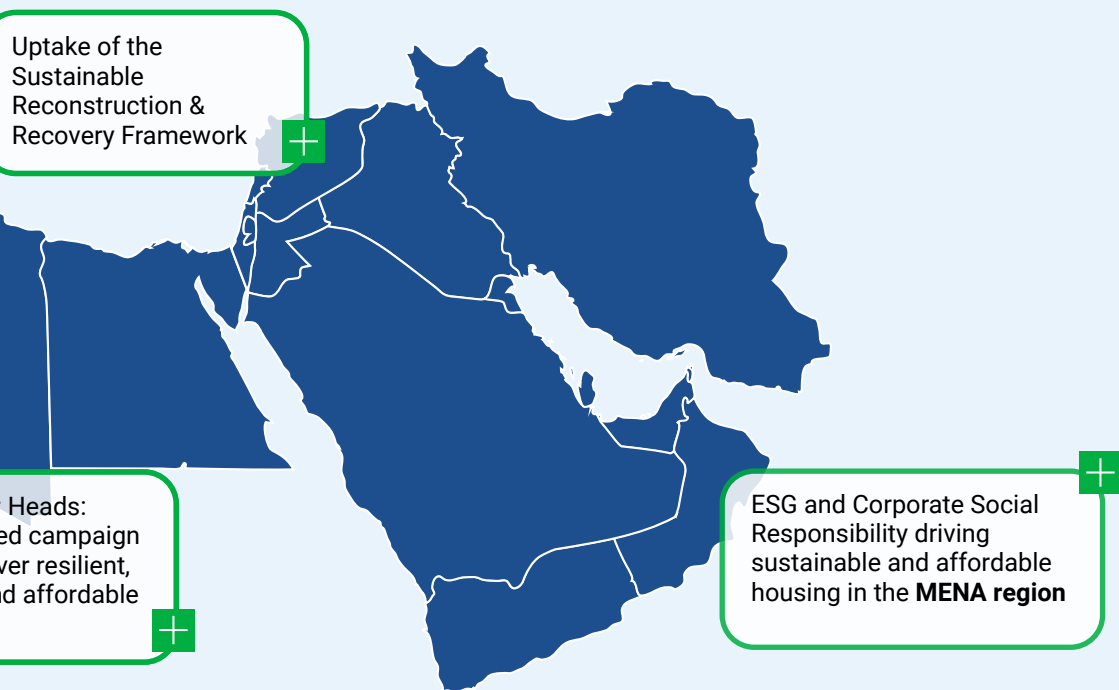
Broadly, and their
housing
fuel the
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IMPROVING THE UPTAKE OF SUSTAINABLE AND AFFORDABLE HOUSING

Approaches to sustainable, affordable housing can be observed, with greater or lesser degrees of government intervention in this area. The MENA region has strived to become more environmentally sustainable, with record-breaking developments and a shift towards more sustainable practices in design and construction.

These trends correspond to the strength of government institutions at points in recent history with an emphasis on social benefits and welfare. The market for developing sustainable and affordable housing is operational, and subsidised land and rebates for affordable developments have been helping drive movement in countries such as Morocco, Tunisia and Egypt³⁵. Several programmes have been implemented in collaboration with international organisations for the sheltering of low-income, migrant and refugee populations. Many of the future MENA region housing policies are also having to confront the challenges of repair and destruction of housing stock from years of conflict¹⁰¹.



Middle East And North Africa Regional Snapshot

Case Studies

Strengthening the community through retrofits and word-of-mouth

Jordan



The Affordable Housing Project retrofitted 48 homes and built three new homes across five different districts in Jordan, demonstrating that sustainable housing is affordable, with fast pay back periods.

The project created an opportunity for cohesion between locals and refugees through their engagement and involvement, with notable change in “a greener way of thinking within the society”.

t

Enhancing lives of refugees,
one retrofit at a time

Qadura refugee camp,
Ramallah, Palestine



The project contributed to sustainable housing and the wellbeing of refugees and underprivileged communities, by offering 'home retrofitting' measures to support the implementation of economically and environmentally friendly practices.

This was done through a bottom-up approach, taking into consideration the occupants' needs and designed in a participatory manner, while involving all key partners.

Middle East and North Africa Regional Snapshot

THE REGION HOLDS TREMENDOUS OPPORTUNITY THROUGH ITS HIGH EDUCATION LEVELS, AS SOCIAL AND ENVIRONMENTAL ISSUES ARE COMING TO THE FORE WITH GOVERNMENTS SEEKING TO TRANSITION TO A SUSTAINABLE FUTURE.

The MENA region has experienced extreme temperatures, set to worsen in the next decades, compounded by precipitation patterns, water insecurity and projected sea level rise, affecting livelihoods and infrastructure.

Average inhabitants are growing younger and refugee populations increasing, with particular urgency for awareness, as well as a people-centric approach and the need for clear communication and collaboration amongst stakeholders and project implementers.

The region holds opportunity through its high education levels, as social and environmental issues are coming to the fore with governments seeking to transition to a sustainable future. The case studies have also demonstrated a movement and focus on vulnerable populations with the much-needed people-centric approach.

The region has experienced massive developments and a shift towards more sustainable practices in design and construction, with varied approaches to sustainable and affordable housing. This includes the region's rapid transformation of economic growth, diversifying economies, creating jobs, giving back to communities and improving overall quality of life.

With thanks to:

Emirates Green Building Council and
Jordan Green Building Council

Call to Action to Strengthen the Uptake of Sustainable and Affordable Housing

In showcasing a varied range of examples, a consistent message occurs — the challenges faced are numerous, but there is a growing body of evidence of progress and opportunities. These range from finance solutions, supporting policies and design and in-use strategies that are being seen in practice worldwide and are making sustainable and affordable homes attainable for people in many regions. These practices can and must be scaled to make rapid progress in overcoming the housing, climate and health crisis faced worldwide, while applying key principles of sustainable and affordable housing, adapted to the specific needs of a place and population.

The key successes and themes that are being used to create and strengthen the uptake of sustainable and affordable housing demonstrated in this report, are outlined in the following summary.

For more information on each of the call to action areas, see worldgbc.org

Call to Action for Policy Change

Strategies for all built environment decision makers to support change include:

Regulations and standards

- Integrate the principles of sustainable and affordable housing into national building codes and regulations.
- Ensure that Nationally Determined Contributions reflect the goals of sustainable and affordable housing.
- Analyse existing housing policies to determine gaps that need to be addressed.
- Call for greater regulatory ambition around sustainability and affordability complemented by support to local government for enforcement, tailored incentivisation schemes to drive development and knowledge sharing to enhance the capacity of supply-side sectors.
- Reflect global sustainability frameworks and targets such as the SDGs into national development agendas.

Support and incentives

- Greater support for local governments to increase technical capacity and financial resources to: enforce ambitious codes, develop sustainable urban development plans, develop public procurement practices and monitoring frameworks, implement programmes to help vulnerable groups and strengthen skills of local construction and renovation value chain actors, among others.
- Awareness raising campaigns to enable a better understanding of the co-benefits of improved housing by decision makers.
- Incentivise development on brownfield land through fast-track planning processes and tax breaks, and raise awareness of environmental justice boundaries.
- Support national infrastructure developments to maximise affordable homes and support the resilience of the city and its population.
- Develop well-structured subsidies on the demand and supply side to avoid distortions that work against the under-served.

Monitoring

- Implement policy data and monitoring to keep up to date with the progression of the country's sustainability goals and measure progress towards goals where possible.

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Call to Action to Increase Access to Finance

Strategies for all built environment stakeholders to increase access to finance include:

Public-facing initiatives

- Promote mortgage financing in local currencies, to avoid currency mismatches.
- Promote financial instruments with a sustainability or social focus, such as green and social bonds and loans and seek out opportunities with international or local public frameworks and participation of the private sector.
- Increase accessibility of mortgages through partnership with developers.
- Establish processes to cap rent-to-income ratios and ensure affordability.
- Support infrastructure development through public sector investment, such as in-filling the land, such as public water pumps and the mobilisation of resources for better accessibility of the population to basic services.
- Fund lighthouse projects, where the supply side is strengthened through the involvement in such projects (e.g. skills development) and the demand side is made more aware of sustainability issues.

Collaboration and partnerships

- Encourage private investment and collaboration to increase access to finance, through public-private partnerships, for greater finance accessibility for tenants and homeowners/occupiers, such as with pension and private equity funds.
- Encourage collaboration with credit cooperatives and local financial institutions to arrange affordable finance for clients.
- Encourage partnerships with microfinance institutions for improved access to funds.

Impact returns

- Overlay the financial return offered to investors with strong environmental impact returns.
- Offer competitive returns to investors through good design, quality construction and property management.
- Encourage responsible investment for increased acknowledgment and understanding by the investor, on the relevance of environmental, social and governance factors, as well as of the long-term sustainability of the housing sector, while also encouraging transparency in programmes and sustainable procurement practices.

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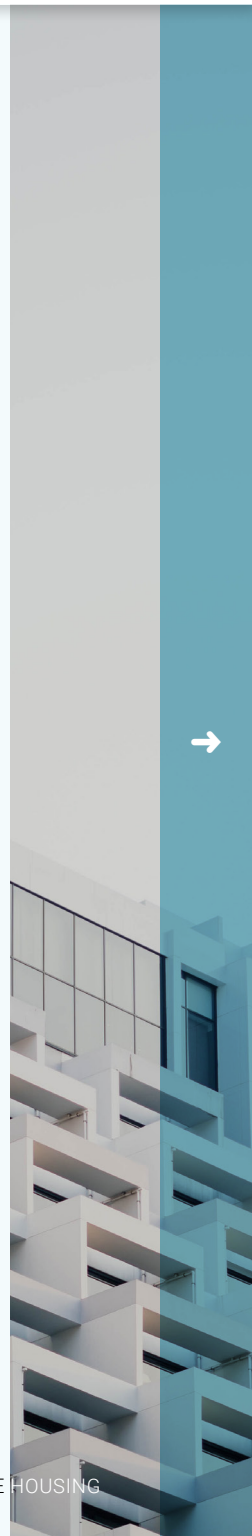
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Incentives and subsidies

- Create incentives for sustainable and affordable housing projects, creating greater interest for various developers and projects.
- Encourage banks to generate financial incentive programmes for developers seeking a certification for their projects.
- Offer grants, preferential interest rates, free technical assistance and expedited building permits to developers who achieve certain local certifications, compensating for the additional costs of implementing sustainable technologies, with the aim that the end user has access to sustainable and affordable housing at the same price as a conventional one.
- Create financing schemes that promote the local and regional production of sustainable building materials, components and technologies to reduce cost and strengthen local production and capacity.
- Develop insurance policies against climate risks and stresses for sustainable buildings, to reduce governmental reconstruction expenses and to incentivise sustainable buildings.
- Access funds and financial incentives by using climate-smart and construction simulation tools and sustainable technologies adapted to local conditions, to measure and demonstrate a sustainable whole-house approach.
- Promote the participation of commercial banks in new subsidies to make finance for housing accessible to all, such as default guarantees or housing credit insurance.
- Reduce licence fees for housing projects under a green building certification process to encourage the increase of sustainable building development.
- Make loans and grants available to vulnerable and minority groups.

Further Resources:

Ahead of the wave: Financing the transition to a decarbonised built environment



Call to Action for Community Participation

Strategies that demonstrated successful use of bottom-up community focused approaches include:

Community capacity building

- Conduct regular community engagement on financial capabilities, saving strategies and mortgage credit to strengthen the capacity of the communities.
- Give technical and legal support where possible to low-income households to apply for housing subsidies from the national and subnational governments and family compensation funds.
- Implement social strategies for leadership where possible such that technical and community self-management skills are developed.
- Formalise companies supplying materials and services to the development, to generate formal jobs, with inclusive equal employment opportunities.

Engagement and involvement

- Prioritise the involvement of local communities and focus on diversity, inclusion and social equity to enhance the sense of ownership and belonging.
- Bridge the country's infrastructure gap and create skilled local jobs, such as training locals on-site throughout the building lifecycle to enhance community resilience.
- Create an opportunity for inclusive communities through their engagement to strengthen collaboration and a sense of belonging and security.
- Involve all key partners and design in a participatory manner, while considering the occupants' needs to cater long-term development and sustainability.

Awareness raising

- Raise awareness on the impact of every intervention on comfort and energy efficiency, creating a long-term impact on occupants and their future decision making regarding rehabilitation and energy management behaviours.
- Support the implementation of economically and environmentally friendly practices.
- Empower occupants by encouraging home retrofits, to enhance efficiency for better comfort.

Communication

- Maintain open communication with the community to understand their needs and enhance resilience.
- Develop a continuous dialogue with the municipality to collaborate for the benefit of vulnerable communities and strive for a positive change in perception of the local governing body and public perception towards the marginalised groups.

Liveability

- Facilitate improved quality of life and disease prevention through natural lighting, indoor air quality, safe ventilation systems and thermal comfort, while promoting safe areas for the entire population.
- Use locally sourced materials and with considerations of cultural norms around construction and housing to ensure appropriateness and longevity in the usage of the building.
- Avoid relocation and allow the community to continue development and growth within the existing social fabric, with easy access to public transport, education and employment.



Call to Action for Sustainable Built Environments

Strategies for the built environment sector to accelerate sustainable housing projects include:

Decarbonisation

- Prioritise energy efficiency in all new and existing homes, efficient design of new dwellings and retrofit of existing properties, prioritising passive design strategies in the first instance as the use of natural ventilation, shades or insulation for thermal mass.
- Target net zero whole life carbon emissions, working to eliminate across the whole lifecycle of all housing and generate energy through renewable sources.
- Contribute to the clean energy transition by supporting the phase out of fossil fuels and the transition to a highly efficient, renewable energy and all electric homes.

Resilience and adaptation

- Support occupant resilience to climate change by future-proofing buildings and developments to comfortably withstand predicted climate change impacts, based on assessment of vulnerabilities of the built environment to ensure the adoption of risk mitigation strategies.
- Consider community adaptation, designing to enhance people's ability to respond to environmental, social and economic changes to address current and future climate change impacts.
- Support a just transition, prioritising an equitable phase transition for societies and economies.

Health, wellbeing and equity

- Design and construct to protect occupant health and wellbeing by maximising indoor environmental quality, limiting exposure to pollutants, tackling energy poverty through passive design measures and meeting minimum requirement for comfort.
- Maximise equity and positive social impact throughout the value chain and recognise community values – including cultural and indigenous knowledge.
- Support the development of sustainable infrastructure to support community and city scale transformation.

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Circularity and regeneration

- Minimise product and material use and waste production through circular economy strategies, with a focus on housing adaptation and retrofit, material reuse and recycling and modular construction.
- Prioritise the regeneration of nature and ecosystem services through housing design, construction, retrofit and end of life, with a focus on water management – using strategies such as rainwater harvesting, stormwater retention and blue/green infrastructure.
- Avoid degradation of nature through prioritising development on brownfield sites (previously developed areas) or repurposing existing buildings, with minimal requirement for new land.



Conclusion

WORLDGBC'S
GLOBAL NETWORK
IS COMMITTED TO
WORKING TOWARDS
A SUSTAINABLE
BUILT ENVIRONMENT
FOR EVERYONE,
EVERYWHERE.

Further Resources:

- WorldGBC Global Policy Principles
- Health & Wellbeing Framework
- Net Zero Carbon Building Commitment

The global housing crisis, interlinked dual crises of unprecedented climate and biodiversity loss, is undoubtedly one of the greatest social challenges we are facing.

According to UN-Habitat, the world needs new affordable homes to be built every year in order to house the estimated three billion people who will need access to adequate housing by 2030.

Through this report, WorldGBC challenges the widespread perception that affordable and sustainable housing is not a mass market solution. By presenting a unifying definition and high-level summary of sustainable and affordable housing in each of WorldGBC's regional networks whilst profiling challenges facing the housing sector, the report supports working strategies and key opportunities driving the uptake of sustainable and affordable housing across the world today.

Five key principles, co-developed by an international Taskforce of Green Building Councils and affordable housing experts, underpin the analysis of best practice solutions across the globe. These are:



Habitability and Comfort



Community and Connectivity



Resilience and Adaptation to a Changing Climate



Resource Efficiency and Circular Economy



Economic Accessibility

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WorldGBC invites the residential real estate market to engage with and evolve these high-level principles for their geographies and markets, noting the core themes of occupant health, social equity, decarbonisation, resilience and resource efficiency that must be fundamental to all housing across the world.

Through this publication, WorldGBC has also initiated necessary discussion on the business case for making housing sustainable and affordable. There are many opportunities, alongside risks of inaction, that should be central to the industry narrative for driving change from governments, private sector and community stakeholders — from regulations and resilience to investment loss and stranded assets. WorldGBC invites further work and collaboration from the sustainable finance community to help propagate an engaging financial and non-financial discourse to drive action throughout key markets.

Bringing to life the wider societal co-benefits and the value proposition of sustainable and affordable housing, are over 18 local example case studies documented from within WorldGBC's network. By presenting content from each global region, this report has highlighted cutting-edge built environment projects whilst also demonstrating that sustainable and affordable housing can and must be a reality for all, in every geography and community.

Through an analysis of case study data, this report derives key calls to action for government and policy makers, finance community, local authorities and communities, the design and construction industry. Many of the solutions

to the global housing crisis already exist and strengthening the uptake of sustainable and affordable homes can be scaled from existing solutions and derived from successful practices from within the case studies. In order to catalyse change at the necessary speed for impact, solutions and successes must be scaled at unprecedented pace.

WorldGBC's global network is committed to working towards a sustainable built environment for everyone, everywhere. Housing is potentially the most important sub-sector of the built environment in terms of impact on human health and development, economic relevance and environmental impact. Through this publication, WorldGBC champions a unified vision for sustainable, affordable housing and spotlights best practice worldwide to demonstrate opportunities for success that could be scaled for greater impact.

WorldGBC hopes to plant the seed for the further work needed to take this vision and leadership and translate it to the global financial and development community who invest in, develop and own the properties. There is no doubt that deep commitment and collaboration will be required from actors across the value chain to tackle the growing crisis we face with global housing stocks. We hope this report contributes to build the awareness, commitment and value proposition needed for positive change towards sustainable, affordable housing for everyone, everywhere.



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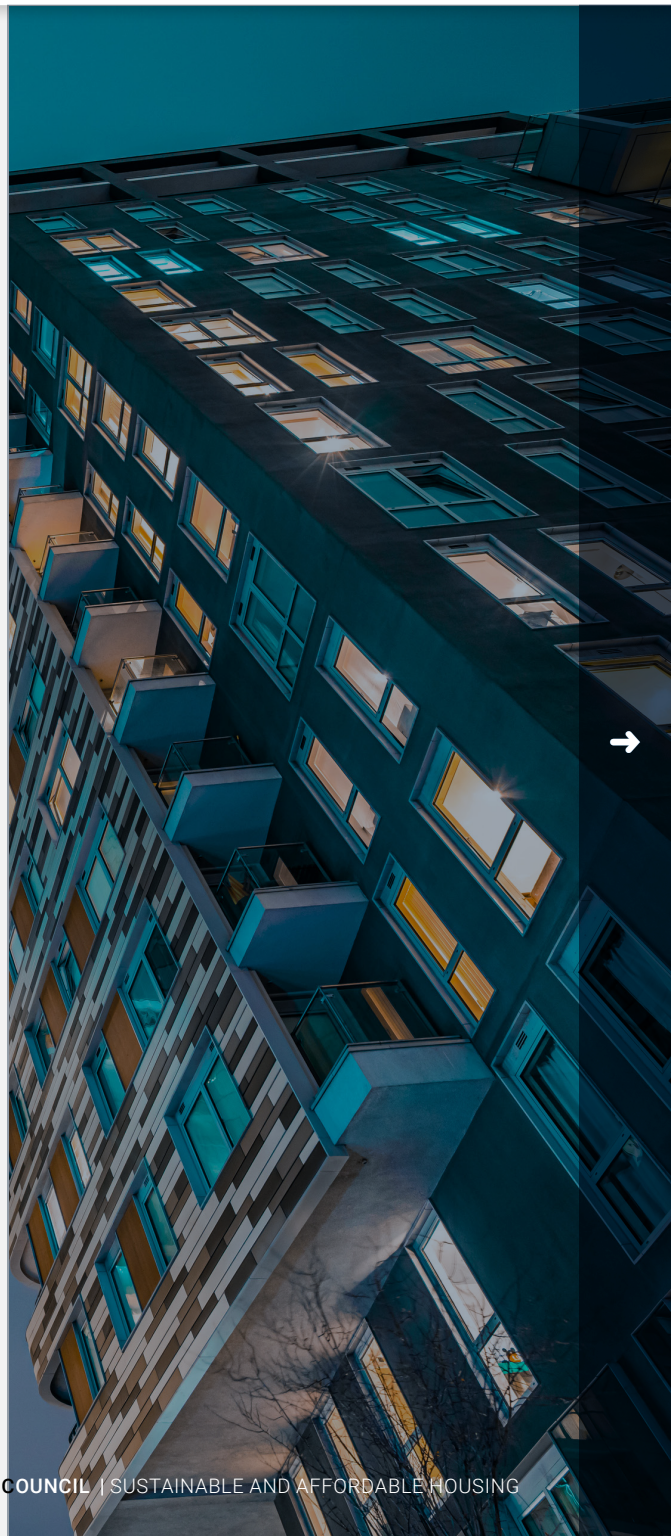
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Case Studies

Speed and affordability with 3D-printed homes

Mvule Gardens,
Kilifi, Kenya





the largest 3D-printed affordable housing projects in the world, emphasising replicability and speed. The project is part of the 'Green Heart of Kenya' regenerative ecosystem, a model for inclusive and climate-resilient cities. The goal of the project is to build an affordable homes movement which will transform the lives of 100 million people in urban Africa and Asia by 2030, while creating qualified jobs, placing people on a development trajectory.

Habitability and Comfort

Home ownership is a key principle for the project, providing homes designed in collaboration with future homeowners and the ability to grow with the new occupants.

Large roof overhangs were designed in the front and the back of the house to provide shade and comfortable indoor temperatures, even on very hot days.

Community and Connectivity

The neighbourhood offers gardens, common outdoor spaces and pedestrian pathways, promoting a safe and inclusive environment for children, women and elders in a landscape that enhances biodiversity.

The project is bridging the country's infrastructure gap while creating skilled local jobs, such as training locals to use 3D printers and recruiting locals on-site for the set-up of machines, site preparation and operation.

Resilience and Adaptation to Climate Change

Local construction habits were studied to come up with a design that was innovative, yet in harmony with local designs in coastal Kenya.

The project is looking to prove the viability of climate-smart and innovative construction technology for the low-income housing bracket in a way that can be scaled and replicated.

Resource Efficiency and Circularity

The walls of the house can be built at a record speed of 12 to 18 hours, allowing the fast execution of construction projects.

- Reduction in carbon emissions by up to 70%, and reduction of environmental footprint of each house by more than 50% compared to conventional methods, while minimising construction material use and waste production.
- Focused on accelerating three technologies: construction printing, durabrick soil-stabilised bricks, and concrete formworks, offering a complete range of sustainable and affordable solutions.
- The project's advanced sustainability profile won an IFC-EDGE Advanced sustainable design certification, which recognises resource-efficient and zero-carbon buildings.

Economic Accessibility

- 20% reduction in construction costs, allowing for affordability for people living on low incomes.
- Collaboration with credit cooperatives and local banks to arrange affordable finance for clients.
- Houses are below \$30,000 USD, targeted for first time buyers and homeowners of income below \$1,360 USD, the bottom 20-40% of the income pyramid.

Partners:

14Trees, Holcim and British International Investment (BII)

Certification:

EDGE Advanced Design Certification

More information:

<https://mvulegardens.com>

<https://www.14trees.com>

<https://www.holcim.com/who-we-are/our-stories/largest-3D-printed-affordable-housing>

Unlocking low-income housing finance with proven climate-resilient homes

Casa Real, Beira, Mozambique





Beira's first zero-carbon home in partnership with Easy Housing, all cyclone-proofed and constructed from sustainable hardwood. In 2019, Cyclone Idai destroyed at least 70% of housing in the area, but all 10 of Casa Real's pilot homes remained standing, with only minimal and easily repaired damage. Prior to Casa Real, housing was unaffordable to 99% of the population, and 80% of homes were self-built with low quality materials, being extremely vulnerable to natural disaster. Casa Real is now providing for 160 households in Beira, with new sites in nearby cities being negotiated with municipalities.

Habitability and Comfort

- All houses come equipped with indoor water, electricity, and sanitation, improving health outcomes and security.
- The foundations laid on the project empower residents to add extra rooms and floors, adding value to their homes, and building for the future.

Community and Connectivity

- The project's safe and quality homes have been life-changing for families, situated within walking distance to schools, healthcare centres, local markets, employment hubs, and easy access to national and international transport links.

Resilience and Adaptation to Climate Change

- Innovative construction techniques and high-quality materials ensure built-in resilience to climate shocks, providing vital protection to vulnerable communities.
- The project considers environmental factors, design and building materials, to improve climate resilience of all homes.
- Introduced innovative cyclone-proof technologies into Mozambique and resilient houses that stood up to Cyclone Idai.

Resource Efficiency and Circularity

- The project's latest range incorporates solar power, wastewater recycling, insulated roofs and FSC certified timber.

Economic Accessibility

- Casa Real was the first organisation to work with a bank in Mozambique to access mortgages for earners on low incomes. In a country of 30 million people, only 600 mortgages were available, and housing finance was only for the wealthy elite.
- Casa Real has pioneered an innovative approach to house financing in Mozambique, generating revenue by selling and leasing homes. Having worked closely with the Beira Municipal Council to agree to much smaller plot sizes for affordable homes, Casa Real has been working to establish a rent-to-buy partnership with a local bank.
- Homes on site are accessible to the bottom 40% of income earners, with prices starting at just \$10,000 USD per unit. All of Casa Real's incremental homes are available for purchases or on a tenant purchase scheme with a rental price of \$70 USD per month for five years, giving new homeowners time to acquire a credit rating to access housing finance.
- For each year of rental, tenants gain a reduction in the eventual sales price. The tenant purchase scheme is renewable up to a maximum of 15 years, by which time the capital has been paid off.

Partners:

Casa Real and Reall

Awards:

- Second cheapest house in Africa in 2021 as recognised by the Centre of Affordable Housing in Africa (CAHF).
- Finalist at API's 'Best Affordable Housing Award' Africa in 2021.

More information:

<https://casareal.co.mz>

Transforming an industrial area into a vibrant and affordable economic hub

Jewel City, Johannesburg, South Africa



Jewel City is an urban development that revitalized a former industrial area and precious metal hub that has historically suffered from high unemployment and crime rates. The revitalization by introducing mixed-use housing, along with public spaces and creative spaces, all centered around the public realm, which addresses the needs of inner-city residents.

Habitability and Community

- Designed with livability in mind, including natural lighting and ventilation.
- Buildings are designed to prevent overcrowding, with a mix of apartment sizes to prevent noise and provide a comfortable environment for occupants.
- The new residential development offers a range of apartment sizes, from studios to family-sized units, encouraging both diversity and community.

Community and Culture

- Set in a well-located area, the development includes a mix of uses, including clinics, sporting facilities, restaurants, large retail spaces, and an urban park that is animated by four public art installations.
- The development also includes existing buildings that were maintained and renovated, and also introduced new buildings and interpretive spaces, providing a mix of uses and injection into the local economy, prioritising the inclusion of small businesses and artisans.
- The development also includes a mix of uses, including clinics, sporting facilities, restaurants, large retail spaces, and an urban park that is animated by four public art installations.



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Connectivity

ted, pedestrianised area,
schools, healthcare
facilities and clubs, shops,
e public square, and
at is flanked with trees,
ntains and public art.

t made use of a number of
s where heritage aspects
. A layer of heritage was
through artworks, signage,
panels, with an economic
local art economy,
volvement of local artists

t consists of residential

rental units complemented by commercial
spaces, offices, a school, and a medical
facility. This diverse mix contributes
positively to the urban environment.

Resilience and Adaptation to Climate Change

- Built for durability and serviceability of the building in the long term.
- Jewel City Precinct has received an EDGE Preliminary Design Certificate from the Green Building Council of South Africa (GBCSA). It is nearing post-construction EDGE status, indicating compliance with the EDGE Standard for a minimum 20% improvement in energy, water, and embodied energy in materials compared to standard building regulations.

Resource Efficiency and Circularity

- Includes solar, LED lights, efficient water fixtures, and energy efficient central heat pumps, while contributing to carbon emission reductions from it being centrally located.
- Architectural brief involved repurposing the existing industrial buildings into six blocks of residential and mixed-use buildings, with a 13-storey residential building standing as the Flagship building of the Jewel City precinct.
- Existing building facades were refurbished and adorned with local artwork throughout the precinct.

Economic Accessibility

- Average rental cost of an apartment is \$230 USD, with no sales. Average household income of the area is \$860 USD per month.
- Efficient and sustainable facilities aims to reduce monthly utility costs for families and residents.

- Acquired an estimate of \$43 million USD investment through private sector investors such as pension funds and private equity funds. This was achieved by overlaying the financial return offered to investors with strong social and environmental impact returns.
- Market-beating returns offered to investors targeted equity returns of 15% to 18% in line with market expectations, through good design, and efficient construction and property management.

Developer:

Diversity Urban Property Group

Awards:

- South African Property Owners Association (SAPOA) 2022 Property Development Awards: winner of 'Innovative Excellence: Best Residential Development' and 'Overall Transformation (impact) Award' categories.
- Shortlisted for the UN-PRI 'Emerging Markets Initiative of the Year' award: 'Real-world impact of the year' and 'the emerging markets initiative of the year' categories.
- Construction World's Best Projects 2021 Awards: winner of 'Architects' Category.

More information:

www.divercity.co.za

<https://www.worldbuildingsdirectory.com/entries/jewel-city/>

https://gbcса.org.za/wp-content/uploads/2021/09/30.09-Diversity_Carbon-Study_Final.pdf

<https://app.edgebuildings.com/project-studies/jc-the-onyx>

Creating financial sustainability and climate resilience through social housing

Urbanización El Paraíso,
Valparaíso, Antioquia, Colombia





El Paraíso is a social housing project that achieved high environmental standards, with excellent community flourishing and habitability characteristics. This project, located in a small city in Colombia, is an example of residential development designed to enhance local community life quality. El Paraíso resolved a large part of the quantitative housing deficit in the municipality, a notable result in Colombia, where the housing deficit for people of lower socio-economic status is approximately 35%. This project allowed its residents to become homeowners, achieving financial sustainability with adequate access to subsidies and mortgage loans.

Habitability and Comfort

- El Paraíso obtained the highest score in the 'Wellbeing' category of the CASA Colombia Certification. The housing units and buildings have natural ventilation systems, guaranteeing thermal comfort in a region that reaches temperatures around 27°C all year. These ventilation characteristics prevent diseases caused by factors such as indoor air pollution and mold. The housing unit's design improves the residents' quality of life through natural lighting and ventilation systems.
- Most of the residents are homeowners (67%) of their housing unit. The project allows and encourages the residents to improve the interior design of their house, a condition that differs from most social housing projects where changes are not allowed.

Community and Connectivity

- El Paraíso is located on the main municipal transport route and is within walking distance of various service facilities and the central park. The project is proposed as a new municipal centre due to its generous open spaces for social interaction, recreation, and commercial areas. Also having an ecological trail for the enjoyment of the entire community.
- Within El Paraíso, there is an area for an urban agriculture project, benefitting the project and the community by contributing to financial sustainability. This is also planned as an initiative for food and nutritional security in the future.
- The project contributes to developing technical and

financial capacities, and increase of local population participation in the project's construction. Through the National Learning Service (SENA) and the CESDE Academic Institution, the project had 26 people from the local community training and participating in the project.

- Through a social strategy called SYMA CULTURE, leadership skills and community organisation processes are developed. These skills contribute to developing security conditions, a sense of belonging, care, and protection of the acquired common heritage.

Resilience and Adaptation to Climate Change

- Recovery of the surrounding forest and the Yalí creek. Planting native species adapted to local conditions, adding ecological corridors that promote natural diversity to the internal landscaping. The care of the Yalí creek, the respect for its hydric ground and the reforestation processes will generate the conditions to adapt better to possible flood events in the rainy season.
- Differentiated networks for domestic wastewater and rainwater, prioritising green areas and built rainwater infiltration and storage strategies to reduce peak flows and preserve the water balance.
- The project rated 100% in the flood risk mitigation criteria from extreme weather events. It meets earthquake resistance criteria, exceeding those required by Colombian law for this type of project.

Resource Efficiency and Circularity

- With appropriate practices in block-cut modulation, classification, and proper maintenance. More than 688 tonnes of CDW have been reused and have contributed to the project's landscape enrichment.
- 99% of waste diverted during construction, and more than 18,000 tonnes of solid waste material recycled during the construction phase and the first operational year, with 100% organic waste composted. The waste collection system, with classification at the source, has allowed the use of more than 7.1 tonnes of organic material during the Project's construction and first year of operation.

- Passive and active energy efficiency measures lead to housing unit energy efficiency of 18.95% [ASHRAE 90.1-2010 standard], with 25% reduction in water consumption through efficiency measures.

Economic Accessibility

- The Project has created local jobs and contributed to the sector's formalisation. El Paraíso generated 120 formal jobs, with high diversity and equal employment opportunities, directly linked by the company. Within the new jobs created, 20% were people over 55, 25% were under 25, 10% were indigenous, 5% were women, and 3% were disabled people.
- For 91% of homeowners at El Paraíso, this was their first home. 15% of the collaborators of the project became owners of the houses they were building.
- SYMA conducted workshops for the local community on financial capabilities, saving strategies, and mortgage credit. Families with incomes of less than \$15 USD a day can access the benefits of the social housing policy; therefore, SYMA guided and supported the families in their application for housing subsidies from the national and departmental governments, and family compensation funds.
- Mortgage instalments were obtained on a very low average of USD 68.3, while the rental value ranges from \$91 USD, which means savings of surplus for the owner families.
- Colombia has a maximum value of social housing of \$30,733 USD. However, the total value of the housing in the urbanisation project was just over \$25,000 USD, ensuring the construction costs were accessible to the local market.

Developer:

SYMA Consultores y Constructores
S.A.S. Beneficio de Interés Colectivo
"BIC".

Awards:

- Recognised by Construimos a La Par awards for the Women in Construction category.
- National Camacol Corporate Social Responsibility Award - Best Environmental Management programme 2022 - Integral Habitats in the Province.
- CASA Colombia Certification Exceptional Level of Sustainability - 5 Stars.
- Winners of the Corantioquia Sustainability Seal in Category A.

More information and awards:

<https://www.syma.com.co/>



Defying the market and increasing available incentives and finances

Trasciende La Parroquia,
15 Avenida, 7-47, Zona 6,
Guatemala City



The project was designed to provide affordable housing for low-income settlements to a more accessible location closer to sources of employment and public transportation. The project also involved increased efforts to improve infrastructure in the urban context.

This project was the first of its kind within its housing type in the city. Under the new pricing policy, the project was also one of the first to achieve the local certification from the project to achieve the CASATOP certification. CASA Guatemala promotes sustainable housing for all, not only to housing developers but also to housing recipients for prioritization.

Habitability and Community

- Ensures optimal living conditions
- Gardens offering green spaces

Community and Social Integration

- Located in close proximity to various urban facilities such as gyms, supermarkets, schools and educational institutions
- Socialisation programme for maintaining open spaces and management of common areas

Resilience and Adaptability

- A stormwater runoff management system that protects residents as well as the surrounding infrastructure.
- The implementation of the project has minimised the impact of climate change in Guatemala city, which has faced alterations in weather patterns and more volume in extreme weather events vulnerable to hurricanes.



developed to bring those living in informal more urban environment within the city, of employment, urban facilities, and public the success of this project created interest and to promote sustainable and affordable housing ext.

the first of its kind to integrate 'sustainability' model, and the first pilot project approved priority housing regulations in Guatemala City. The one of the first to register in the pilot version for ion programme, 'CASA Guatemala', and the first the certification. Guatemala GBC created the programme as a way to encourage and measure ng development. CASA Guatemala is applicable developments and is currently being very well y housing projects.

omfort

l natural air flow conditions in all interior spaces. g exercise machines and swings for children.

onnectivity

e proximity to collective transport stations and facilities within walking distance such as banks, kets, restaurants, a hospital, and more than four ucation institutions.

ocess during the construction process, including en communication with the community for waste nd dust mitigation.

aptation to Climate Change

unoff retention tank for better resilience for ll as the surrounding neighbourhood and

ation of responsible stormwater management flooding and overloading of public infrastructure. located in a warm tropical climate zone, tions in the natural rain cycles where it rains short periods of time, making it considerably avy rains.

Resource Efficiency and Circularity

- Built in a previously developed area with minimal requirement of new land space, reducing environmental impact.
- 20% water reduction per day per household, with a landscape design that achieved a 34% water reduction for irrigation.
- Reduced waste production, such as the use of cast-in-place reinforced concrete walls.

Economic Accessibility

- Total investment of \$1,937,742 USD from a private developer.
- Each housing unit costs an estimated \$25,836 USD – \$32,295 USD, less than half the median home value in Guatemala City.
- One of the largest companies in Central America for cement and concrete is supporting and promoting developers and municipalities to create incentives for the easier uptake of sustainable housing projects, creating great interest for various developers and projects.
- Currently, there are eight projects for urban affordable housing, with access to incentives, and working with three banks that offer special mortgages for projects certifying CASA Guatemala, such incentives are supporting urban projects to take more sustainable approaches.
- The Municipality of Guatemala now offers a 25% reduction in licence fees for social housing projects under a green building certification process. Additionally, banks began to generate financial incentive programmes for developers seeking a certification for their projects. Three of the projects that are currently pre-certified in the CASA certification programme arise from these incentives.

Partners:

Intepro (developer), Cementos Progreso, Municipality of Guatemala and Guatemala GBC

Certification:

CASA Guatemala

More information:

<https://casagt.org/trasciende-la-parroquia/>

<https://casagt.org>

http://www.fopavi.gob.gt/Documentos_en_Index/junio2020_Politica_Vivienda_vf.pdf

Sustainable and affordable housing with low carbon footprint

SEXTUPLE, Tlajomulco de
Zuñiga, Mexico



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This project was evaluated under the EcoCasa program, which aims to reduce CO₂e emissions in affordable housing and contribute to the achievement of SDG 11: Sustainable Cities and Communities. This project used tools to measure aspects related to energy efficiency, water savings, housing environment and carbon footprint of building materials. The compliance with these criteria allows the developer to access a preferential rate on its loan.

Habitability and Comfort

Obtained an 88% comfort range. This is estimated at 25°C for the upper limit during summer, and 20°C for the lower limit during winter. Projects supported by EcoCasa programme, increase the level of comfort in housing from 40% to 80%, compared to a conventional home.

Community and Connectivity

Close proximity and accessibility to: health centre, sports facilities, public administration facilities, recreational facilities, employment opportunities, and access to public transportation, facilitating the mobility and accessibility of its inhabitants.

Resilience and Adaptation to Climate Change

Integrates strategies that can be allied in future scenarios, including insulating the house and the use of very low water consumption furniture and sanitary fixtures.

Construction of housing with quality materials at an affordable cost, taking care of the location to avoid building in flood zones and alignment with municipal urban development plans.

Resource Efficiency and Circularity

Achieved a mitigation of 32% CO₂e compared to a baseline dwelling, contributing directly to the reduction of 37,981.56 tonCO₂e emissions during the life cycle of its homes.

Achieved greater energy and water efficiency, shorter commute times for transport CO₂ reduction, and lower carbon footprint of building materials.

Economic Accessibility

- Inclusive access to financial mechanisms for construction of affordable sustainable housing with a government standard supported by international resources and whose methodology was certified by Climate Bonds Initiative (CBI) as a "Low Carbon Residential Building", becoming the first residential housing programme in Mexico to be certified by the CBI and the first to focus particularly on social housing in the world.
- The average rental cost for each housing unit is \$126 USD, and the average purchase cost for each housing unit is \$19,660.95 USD, almost 70% lower than average housing costs.
- A Mexican development bank grants preferential interest rates and free technical assistance to developers who achieve the EcoCasa standard, compensating for the additional costs of implementing ecotechnologies, with the aim that the end user has access to adequate sustainable housing at the same price as a conventional one.
- Financial incentives provided to developers were based on results of four simulation tools used to measure a sustainable whole-house approach: DEEVi-Energy Efficient Housing Design, SAAVi-Water Saving Simulator in Housing, HEEVi-Assessment Tool of the House Environment and materials carbon footprint tool.

Partners:

Edificaciones Integrales Futura (developer and Sociedad Hipotecaria Federal (SHF) (organisation)

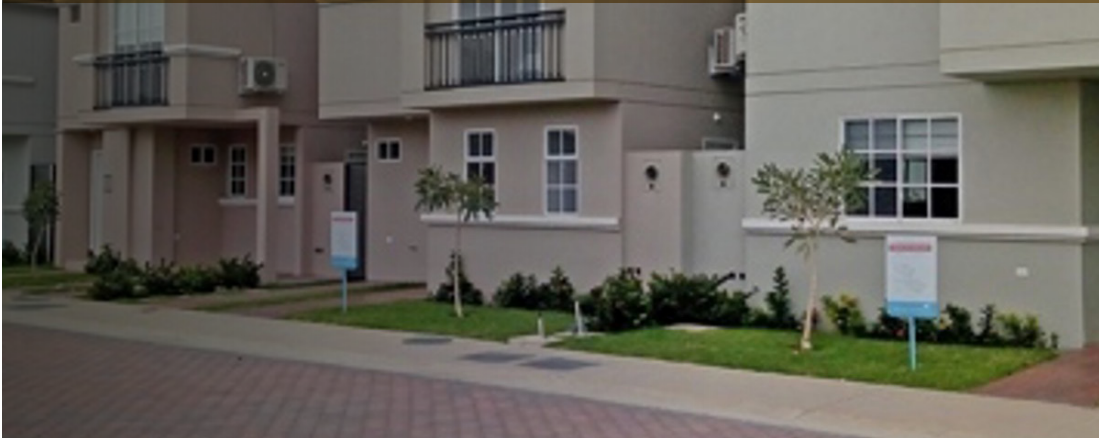
Certification: EcoCasa I

More information:

<https://www.gob.mx/shf/acciones-y-programas/programa-ecocasa-shf>

3,500 affordable houses within a thriving climate- conscious community

Casa Laguna, Guayaquil,
Ecuador





Ecuador's largest climate-conscious construction project on the outskirts of Guayaquil ensures affordable housing for 3,500 families. Ensuring that this housing development was as sustainable and climate friendly as possible were key priorities for the developer.

Habitability and Comfort

- Directly benefits 3,500 families, from a social, environmental, and economic approach.
- The community benefits approach of the project allows the enjoyment of a better quality of life for all with affordable and low costs.
- Housing models ranging from of 111m² to 160 m² per unit.

Community and Connectivity

- Located near shopping centres, schools, colleges, and banks, as the project is mindful of Ecuador's deficit for housing and the needs of good location, accessibility, and ease of acquiring food, medicine, and access to schools.
- Includes a community events hall, community swimming pool, parks, and recreational areas.
- The project is creating sustainable livelihoods for the communities it works with through the management of bamboo plantations alongside local communities. There is also the development of industrial-scale bamboo plantations creating further value for the communities.

Resilience and Adaptation to Climate Change

- Development built on a safer northern area of the river basin to avoid climate change impacts such as sea level rise and flooding, as Guayaquil is the fourth most vulnerable coastal city to climate change in Ecuador.
- Studies carried out to quantify economic losses caused by floods and ensure a safer ground for the development to prevent damage.

Resource Efficiency and Circularity

- Used ECOPact green concrete for all housing units, resulting in a reduction of 98kg of CO₂ equivalent to each cubic metre sold. This amounts to 60% less CO₂ emissions, or a total of 1,100 tonnes of CO₂ saved.
- The use of ECOPact also achieved a 30% reduction in carbon footprint.
- Where regulatory conditions allow, ECOPact+ concrete integrates upcycled construction and demolition materials, further closing the resource loop to reduce the environmental footprint.

Economic Accessibility

- Ease of direct and fast financing with the builder, state financing and private banking. Highly developed area, properties with a high possibility of increasing capital gains over time.
- Holcim Ecuador supplied all of the ready-mix concrete needed to complete the project, totalling a volume of 13,000 m³ of ECOPact to meet the sustainability requirements.
- Average rental cost for each housing unit - \$600 USD per month.
- Average purchase cost for each housing unit - \$120,000 USD per house which is the average cost of an apartment in the area.

Developer:
Ritofa

More information:
<https://www.holcim.com/who-we-are/our-stories/ecuador-affordable-housing-ecopact>

Affordable LEED platinum apartments

Hatch, New Mexico,
United States



El Camino Apartments' integrated design made it possible for residents to achieve financial sustainability by offering rental costs comparable with agricultural workers' seasonal income. Resilience and efficiency strategies lowered operating costs while supporting well-being.

Agricultural workers in the city of Hatch, New Mexico were uniquely vulnerable to seasonal economic fluctuations. While the soil and water conditions are beneficial for growing chilies that are unique to this region, there are few opportunities for work. This affordable residential community, El Camino, became a healthy and resilient solution for the people of Hatch. An integrative design and construction process resulted in a 70% improvement in energy efficiency over the baseline and reduced term costs for residents. Recognising the impact El Camino changed the community's quality of life for the better, USGBC celebrated the project as a Finalist award in the LEED for Homes 2015 the Year competition.

Habitability and Comfort

- For a vulnerable population, choices that support health and comfort are especially valuable. The design team selected materials for durability and wellness. The community chose a no-smoking policy to foster high-quality air.
- Mobility-accessible units are available.

Community and Connectivity

- Less than a mile from downtown chile banks, and bus services.
- Unique outdoor environments of different scales offer opportunities for connection and solitude, including walking paths, rest areas, playgrounds, a gazebo, and low-water landscaping.



Resilience and Adaptation to Climate Change

- Designed to be 70% more energy-efficient than average construction, and zero-energy-ready, El Camino reduces energy costs and increases resilience.
- Rooftop solar photovoltaics take advantage of the optional solar exposure in the southwest of the United States, generating clean energy and offsetting the remaining energy usage.
- With climate change, the risk of damaging seasonal storms has increased. On-site stormwater management reduces the risk of flooding. Going beyond the site, a retention pond slows runoff from the surrounding hills.
- This high desert climate receives less than 12 inches of rain a year. The project design minimizes water use by selecting low and no water use fixtures and planning for water reuse.

Resource Efficiency and Circularity

- Energy modeling was used throughout the design process to maximize efficiency. This approach allowed the project team to evaluate the energy demands of each component, including heating, cooling and ventilation systems, water heating, and appliances.
- The building envelope's design was also integrated into the energy modeling and cost evaluation processes.
- Exterior shading elements and interior blinds reduce heat gain and reliance on air conditioning.

Economic Accessibility

- The project was designed to be affordable for the agricultural workers of Hatch by offering income-based rent that fluctuates between the busy growing season and the off-season, supporting the workers whose labor helps the Hatch Chile to continue to be a celebrated part of the cuisine of the southwest.

- Through resilience and efficiency measures, the residents have low – or even no – utility bills. This supports residents' financial wellbeing.
- Low maintenance interior and exterior materials prolong the lifecycle of materials and reduce long-term costs.
- The design team prioritized creating healthy indoor air quality, which promotes better health and leads to fewer doctor visits. Most occupants do not have health insurance, so the community is designed to promote day-to-day health.
- All 40 units meet the Federal Tax Credit for Zero Energy Ready Homes with a 50% energy reduction requirement, which brings an additional \$80,000 in tax credits.
- The New Mexico Sustainable Building Tax credit of \$360,412 USD also offsets expenses.

Partners:

Thomas Development (Developer), Crestline Builders (Contractor), Environmental Dynamics (EDI) and Green Insight (Consultants)

Awards:

- LEED for Homes Finalist for Project of the Year.
- LEED Platinum | Certified August

More information:

<https://www.usgbc.org/projects/el-camino-real-phase-1>

Resettlement of impoverished communities and creating a positive dialogue of collaboration

Salyani housing project,
Bharatpur, Chitwan District,
Nepal

BEFORE



AFTER



The project was dedicated to the improvement of shelter for vulnerable communities and increasing their resilience.

The community also developed a strong relationship with the municipality to collaborate on the project, resulting in a positive change towards the impoverished communities and the development of community architecture.

Habitability and Comfort

- Fear of eviction, loss of land, and lack of confidence in government decision-making led to a low confidence level of the community.
- Upgrading of 31 on-site housing units.
- The city has become a more developed area, showing secure housing.

Community and Connectivity

- The community was reorganized through the procurement of the materials.
- Households located along the forest and national park, with easy access to the forest with easy access.
- Maximum participation in the project, with funds and decision-making in the implementation phase.
- Community involvement in the project, with the community helped build a sense of community and ownership.

Resilience and Adaptability

- Community members identified their problems and work together by being organized, strong, and developing management skills.
- Community established a strong relationship with the municipality, resulting in a positive change towards the impoverished communities and cities.
- The use of open space for agriculture, creating a sense of community and ownership.



led to the alleviation of poverty through better conditions and upgrading of slums for informal settlements, while strengthening household savings and credits.

Developed a continuous dialogue with the community for the benefit of vulnerable communities, leading to a change in perception of the local governing body and communities. This was also the beginning of the community initiatives in Nepal.

With the help of shelter investment, and doubts on the part of the community itself reduced, and the community grew.

For the households.

As a positive supporter of a community-driven approach, progress towards the community achieving its goals.

Community Involvement

Responsible for the management of the funds, the material, and building the houses.

Along a stretch of road near a community settlement. Therefore, every household is a member of the community with access to timber for firewood and construction.

Involvement of women including management of the construction during planning, development, and implementation.

Participation in construction, where members of the community visited each other's homes, strengthening the community and ownership.

Approach to Climate Change

Developed viable solutions for their housing together to ensure secure tenure in the city and strengthening savings and communities, and building technical skills.

Developed an effective model to resolve issues in the informal areas, which can be replicated in other informal settlements.

Established a community opposite to the settlement for urban self-reliant and resilient community.

Resource Efficiency and Circularity

- There has been a variation in the type of construction materials for the houses depending on the financial status of the households.
- Houses built entirely by the residents, showing a variety of incremental building strategies and budgets, using a variety of materials and construction systems, mostly purchased collectively in bulk by the community committee at subsidised rates.

Economic Accessibility

- The house construction was funded by loans from the Asian Coalition for Community Action programme (ACCA), budgeting \$40,000 USD.
- Infrastructure was granted from the municipality – approximately \$3,000 USD from the local government for landfilling, road, drainage and electricity. Community members contributed to its implementation.
- The cost of upgrading or rebuilding the houses came to \$2,000 - 3,000 USD per family.
- Each family was given loans up to \$1,000 USD, with a minimum interest rate of 5%, payable over 5 years.
- The owners of the houses contributed to 50% of the total construction cost from savings.
- Savings of the community grew to a very strong capacity in recent years, with repayment of loans being very organised and regular.
- Received funds from the municipality for in-filling the land, as well as public water pumps, and the mobilisation of resources to further support infrastructure development, such as drainage in the community.

Partners:

Lumanti Support Group for Shelter, ACCA programme, The National Federation of Informal Communities 'Nepal Basobas Basti Samrachyan Samaj', The National Women's Federation 'Nepal Mahila Ekta Samaj', The Amar Deep Women's Savings Cooperative, Community Forest Department, Bharatpur Municipality and Bharatpur Citizens Forum.

More information:

<http://www.lumanti.org.np>

https://www.youtube.com/watch?v=_eDmrAue3w0

Disaster resilience retrofits, improving quality of life and keeping costs to a minimum

Tiwi, Albay, Philippines

BEFORE



AFTER





The project retrofitted houses with measures to ensure the overall strength and resilience of the house during a disaster, specifically targeted towards prevention of damage caused by earthquakes, typhoons, and heavy rains. This provided safe space for families, increasing quality of life, while keeping the overall cost to a minimum.

Habitability and Comfort

- Prioritised both structural improvements as well as habitability measures to improve overall quality of life.
- Addition of rooms for family members, providing better comfort and privacy.

Community and Connectivity

- Houses were improved using homeowner-driven reconstruction, prioritising the needs and interests expressed by the homeowners during the overall improvement process.
- Avoided relocation and allowed the community to continue development and growth within the existing social fabric, with easy access to public transport, school, and employment.

Resilience and Adaptation to Climate Change

- Use of resilient building materials, and best practices in design and engineering to safeguard the houses' ability to withstand the local hazards.
- Undertaken with locally available materials and with considerations of cultural norms around construction and housing to ensure appropriateness and longevity in the usage of the building.

Resource Efficiency and Circularity

- Each house was improved via structural improvement interventions, resulting in overall increased reuse of materials where appropriate and safe as compared to new construction.
- Structural retrofits saved up to 69% of embodied carbon, and up to 26% when they included a vertical expansion component.

Economic Accessibility

- Homeowners gained access to a non-mortgage loan to undertake structural improvements, thereby building credit and undertaking incremental improvements in accordance with their resource availability and ability to repay.
- Structural improvements on average cost 23% of the cost of new housing relative to new construction.
- The project was in partnership with microfinance institutions.

Partners:

Build Change, ASA Philippines Foundation, ASKI, Kagana Ka Development Center, Inc. (KDCI) and Kasagana Cooperative (K-Coop)

Awards:

Averted Disaster Award – Intervention of Distinction.

More information:

<https://buildchange.org/locations/the-philippines/>

A zero-water discharge community

Thanisandra, Bangalore, India





The project uses water efficiency and recycling techniques, creating a 30% reduction in freshwater demand and recycling 100% water in a hot and humid climate, all year round.

Habitability and Comfort

- Occupants are motivated to be mindful of their habits through water efficiency and waste segregation practices, becoming a sustainable and major lifestyle change for occupants.

Community and Connectivity

- Diverse and socially active community with residents from over 20 different states of India, bringing varied cultures and traditions displayed in full glory during festivities.
- Greenery connects residents to nature, with amenities such as gymnasium, rooftop pool, meditation rooms, children's playgrounds and recreational areas.
- Well-connected and in close proximity to parks, play grounds, schools, restaurants, transport and supermarkets, as well as the city's largest technological park.

Resilience and Adaptation to Climate Change

- Heat reflective paint on the roof and external walls as well as high-performance glass for windows, reflecting 80% of the heat.
- Drought-tolerant native species to reduce water consumption and water storage tanks in which the sizes were optimised for lower freshwater handling at design stage, reducing concrete, cost and carbon emissions.

Resource Efficiency and Circularity

- Zero-electricity waste converters on site, converting wet waste to organic manure used for landscaping, while dry waste is further segregated and sold to scrap dealers.
- Sewage treatment plants are used that do not contain pumps or motors and work by biomimicking the cow's digestive system.

- Grey and black water separation on-site and recycled through flushing and irrigation.
- Electricity is generated through wind turbines and solar panels, with excess sold to the grid and electric vehicle charging points provided.
- Annual reduction of operational carbon by 242 tonnes and embodied carbon by 1,738 tonnes.
- Efficient plumbing fixtures are used, reducing freshwater demand by 30%.
- 100% recycling of water, resulting in net savings of 65% amounting to 25.2 million litres of water saved annually.

Economic Accessibility

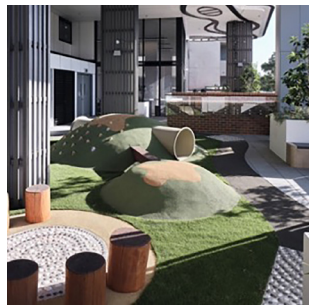
- Energy conserving features such as reflective paint and glass, LED lights and sensors, saves more than 300,000 units of electricity annually for the community occupants.
- The zero-electricity STP and the zero-energy organic waste converter save significant operational costs, having no pumps or motors and requiring minimal manpower.
- Monthly rental costs range from \$250 USD for one-bedroom units to \$625 USD for three-bedroom units.
- Purchase costs range from \$56,250 USD for one-bedroom units to \$150,000 USD for three-bedroom units.
- Average annual earnings for the community are approximately \$37,500 USD per household.

Developer:
CoEvolve Estates

More information:
<https://coevolvegroup.com/northern-star-apartments-in-thanisandra/>
<https://www.youtube.com/watch?v=oJvVfZhcyas>

Promoting affordable housing for indigenous populations, while standing the test of time

Gibbons Street, Redfern, Australia



The development is a modern and secure 18-storey building, comprising 162 residential units of which 40 are social housing and 122 are affordable housing units. In addition, 40% of the units are allocated to First Nations households, recognising the cultural significance of the indigenous Australian people. The developer employed an Aboriginal Affordable Housing Engagement Coordinator (AAHEC) to promote affordable housing for Indigenous Australians.

Habitability and Comfort

- Designed to a Liveable Housing Silver Standard, championing safer, more comfortable and easier access homes for changing needs and abilities of people over lifetime.
- Fresh air ventilation system and addresses outdoor city noise.
- Partnership with Civic Disability on My Home to coordinate and provide drop-in support to help disabled occupants meet their housing and wellbeing goals - supporting five National Disability Insurance Scheme participants.

Community and Connectivity

- Access to quality services and facilities including post offices, supermarkets, retail centres, employment, education hubs and medical centres.
- Community Hub available to external community organisations, promoting inclusion and delivering benefits for the wider community.
- Safe recreational grounds, including children's playground, barbecue areas, rooftop terrace, tree canopy and a community room with a kitchen.
- Culture incorporated into illuminated artwork titled "The Way Home", symbolising 'connection and country' for the community and reflecting history and traditions.

Resilience and Adaptation to Climate Change

- Double glazing and low-e glass, LED lights, ceiling fans, high performance floor and wall insulation and trickle vents to allow airflow control.



- Rainwater collection tanks and rooftop garden spaces with drought-tolerant planting.
- Building's exterior is unpainted or Nawkaw coloured concrete adhesive.
- 40-year forward Whole of Life (WOL) assessment, influencing material selections to ensure longevity and maintenance considerations, aligning with expense management with anticipated life expectancy, operational costs, maintenance costs and replacements.

Resource Efficiency and Circularity

- Recycling and correct disposal on-site.
- High energy efficiency standard, including LED lighting, rooftop solar panels and battery storage.
- 48% saving on heating and cooling energy demand when compared with other buildings in the area with an average 8-star rating under the Australian Nationwide House Energy Rating Scheme (NatHERS).

Economic Accessibility

- Originally financed through the Clean Energy Finance Corporation and refinanced to National Housing Finance and Investment Corporation (NHFIC).
- SGCH also secured a grant of \$104,000 USD from the City of Sydney to fund a AAHEC role to achieve a minimum allocation target of 25% for indigenous Australians for new developments within the city.
- Negotiated a discount to market land sale with the City of Sydney, with an additional fee dependent upon the final yield. The site was purchased for \$10 million USD – a slightly smaller neighbouring site sold privately for \$36 million USD in the same year.
- Residents for the 40 social housing tenancies were drawn from the NSW Department Communities and Justice Housing Register, with rents based on percentage of household income.
- The remaining 122 affordable housing units were marketed to low-to-moderate income working individuals and families who are eligible for affordable housing under NSW Affordable Housing Guidelines.

- Average rental rates for the affordable housing units are: \$260 USD for one bedroom, \$310 USD for two-bedroom, \$370 USD for three-bedroom.
- Occupants are offered tailored financial and individual support to identify and achieve housing and wellbeing goals.
- Savings on electricity costs of \$340 USD a year for a two-bedroom unit and \$240 USD a year for a one-bedroom unit as a result of the thermal efficiency.

Partners:

St George Community Housing (SGCH) (Developer), DKO Architecture (Architect), Keylan (Planner), WT Partnership (Quantity Supervisor), Lendlease (Builder), Northrop (Consultant), ABC Consultants (Consultant), In View (Consultant), Steve Watson Partners (Consultant), National Housing Finance and Investment Corporation (Current Financier) and Clean Energy Finance Corporation (CEFC) (Original Financier)

Awards:

- Urban Taskforce 2021 – Development Excellence Awards, Affordable Development.
- Best Accommodation Provider 2021 in the Australian Disability Service Awards.
- UDIA NSW Crown Group Awards for Excellence – Winner of Affordable Development 2022.
- Master Builders Awards – Winner Affordable Housing 2022.

More information and awards:

<https://www.sgch.com.au/projects/gibbons-street-redfern/>

<https://new.gbca.org.au/green-star/rating-system/homes/>

https://www.cefc.com.au/media/2vqg5rly/cefc_investmentinsights_communityhousing.pdf

Reducing costs through cooperative housing

Stavnsholthave 1-51,
Farum, Denmark





The project follows a cooperative housing scheme, in which it is financed, developed, maintained and owned by the residents of the co-housing, creating an increased sense of ownership. About 7% of the Danish population live in a form of cooperative owned housing, accounting for one-third of the housing stock in Copenhagen.

Habitability and Comfort

- Area is optimised for a functional and pleasant low-density structure with its large, green common areas.
- Creates a net positive whole life impact on ecological health, indoor and outdoor environmental quality.

Community and Connectivity

- Developed in close collaboration with its residents in initial programming, district planning, mediation with authorities and the detailed design.
- Easy access to a private entrance yard on one side and a terrace towards the common meadow, where social mingling and liveliness is encouraged.
- A common house for activities with communal kitchen, dining rooms, laundry rooms and extra rooms for the resident's guests, saving space in the individual houses.
- Close proximity to public transport and bike paths, with EV charging stations provided.

Resilience and Adaptation to Climate Change

- Green rainwater system, preventing flooding throughout the area and creating a natural habitat for flora and fauna.

Resource Efficiency and Circularity

- Low CO₂-footprint of 8,7kg CO₂-equivalent/m²/year where the limit in Denmark in 2023 is 12.
- Garden equipment and other sharable tools are provided and shared, reducing household clutter, need for storage spaces and excess waste.

- Use of prefabricated local timber and heat-treated wood construction for improved durability to climate change impacts.
- The limit decreases every second year, enabling the project to pass the Danish limits of 9kg CO₂, equivalent/m²/year in 2027.

Economic Accessibility

- A homeowner purchases a share of their own unit, common house and common areas of the co-owned estate for an average cost of \$234,000 USD (for 135m²). The rest of the estate is shared and rented, with a monthly rental cost of \$1,092 USD.
- Maintenance, social events and administration is done on a voluntary basis by residents to keep expenses down.
- Prices of cooperative housing have not increased much since founded in 1975, meaning deposits and subsequent mortgage instalments are affordable even for those earning below the median income.

Partners:

Urban Power (architecture and landscape), Rasmus Friis A/S (contractor), Wissenberg (consulting engineer), A/B Stavnsholt (client) and Plan 1 (client advisor)

Certification:

DGNB building

More information:

<https://urbanpower.dk/project/stavnsholt/>
<https://www.abf-rep.dk/om-os/about-abf/>

Creating adequate, sustainable, and affordable housing through pension fund capital

Diepeveen, Rotterdam,
Netherlands





The project is a primary example of how adequate, sustainable and affordable housing could be created with pension fund capital. The project is also alleviating the severe housing shortage, especially for the middle-income segment. The Netherlands is set to build approximately one million homes by 2035.

Habitability and Comfort

- Focuses on inclusion and social equity.
- The blend of mid-range and upmarket rental apartments, alongside owner-occupied properties, is helping create a diverse residential quarter, while allowing for ongoing improvements with increased household savings.

Community and Connectivity

- A distinctive neighbourhood at the tail end of a rooftop park and nestled in the middle of a new emerging district.
- Located with great accessibility to transport, services and public amenities such as parkings, parks and libraries.

Resilience and Adaptation to Climate Change

- Use of tailor-made geographic information system (GIS), determining that the long-term climate risks are limited for the development.
- Various factors considered such as location and nature of operations and vulnerability from environmental disturbances.
- Raising the terrain to mitigate flood risks.

Resource Efficiency and Circularity

- The roof is fully equipped with solar panels, with homes connected to Rotterdam’s district heating system.

Economic Accessibility

- This project adds 187 owner-occupied and rental properties to the shortage of Rotterdam housing market, spread over 5 buildings.
- More than 80% of the 90 rental units fall under the mid-range rental segment, with average rental cost at \$1,054 USD and average purchase cost at \$335,535 USD.
- Dutch institutional investors, including pension funds, are helping alleviate the housing shortages.
- The project generates a stable return for the Dutch pension funds who are shareholders of the project.

Partners:

Bouwinvest Real Estate Investors in partnership with Dudok Real Estate B.V. and developer Dura Vermeer Bouw Zuid West B.V. on behalf of its Dutch Residential Fund

More information:

<https://www.bouwinvest.com/news/latest-news/2021/bouwinvest-buys-mid-range-rental-complex-in-rotterdam>

Measuring everything to achieve sustainable and affordable social housing

Kilbride Lane, Bray,
County Wicklow, Ireland



A 40-unit multi-award-winning scheme. The first multi-unit development in Ireland to be awarded a gold award under the Home Performance certification system developed by the Green Building Council (IGBC) for quality and sustainability in new developments.

This is based on five categories of indicators and a point scoring system for environment, economy, health, quality assurance and sustainability. This is based on 35 point-based indicators. This is based on 9 further innovative indicators for a total of 74%, well above the target to obtain gold certification. This is based on one practice on a single project to transform the industry.

Habitability and Comfort

- Terrace houses, duplexes, and a density of over 54 units per hectare.
- Uses a 10-step measure to assess biodiversity which are achieved in cases with minimal cost up to no maintenance uplift.
- Indoor environmental quality is monitored for CO₂, relative humidity and internal temperature.

Community and Connectivity

- The development is assessed for sustainability of the location based on accessibility measures relating to public transport, amenities.
- Achieved 87% in sustainability and 76% in universal design.



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Resilience and Adaptation to Climate Change

- COADY Architects worked with a list of manufacturers, encouraging them to get independently valid audits of the overall environmental impacts of their products. This enabled 62 products being used, having Environmental Product Declarations (EPDs) to EN15804 and ISO14025, which included EPDs for precast concrete planks, concrete thermal blocks and PIR insulation, all with higher order embodied carbon emissions.
- Used a national water calculator to achieve a consumption of 79 Litres/person/day with a low flush toilet at 4/2.5 litres flush volumes and 5 litres/minute shower restrictors.
- Enhanced biodiversity for plants and animals using a 10-step plan. This involved assessing and calculating the ecology of the area before and after the development, using IGBC's ecology calculator, scoring -11.2.

Resource Efficiency and Circularity

- Measurable indicators applied to a range of areas, including not only operational carbon, embodied carbon, biodiversity, density and water use, but also land use, design team skills, contractor team skills, services commissioning and others.
- The 40 units achieved an average energy performance coefficient of between 0.19 and 0.21, representing between 79-81% reductions in calculated energy demand compared to Ireland's 2005 regulations.
- Post Occupancy Evaluation is being carried out on 11 units to determine actual energy consumption, with occupiers to be informed on further energy saving measures once the analysis is complete in June 2023.
- Used 81% FSC/PEFC - certified timber by volume.

- The 62 products with Environmental Product Declarations (EPDs) and/or Product Environmental Passports (PEPs) provided a more accurate Life Cycle Assessment, which calculated Whole Life Carbon of 1728 kgCO₂e/m² and Embodied Carbon of 718kgCO₂e/m².
- Logged construction waste to input into the Life Cycle Assessment (LCA).
- Built using block-cavity wall on strip foundations, meeting the minimum building regulations brief from the local authority this demonstrated meeting the RIAI Climate Challenge 2025 using business as usual construction.

Economic Accessibility

- Monthly energy bills estimated at a minimum of \$48 USD for one-bedroom unit, to a maximum of \$100 USD for a 4-bedroom unit.

Architects:

COADY Architects with Wicklow County Council

Awards and Certifications:

- Gold certification under the Home Performance Index (HPI).
- Winner of 'Green Construction and Infrastructure Project Award' 2023.
- Winner of Irish Building And Design (OBDA) Awards 2022 - Public Sector Housing Project Of The Year.
- Winner of Irish Construction Industry Awards (ICIA) 2022 - Green Project Of the Year.
- Net Zero Construction Awards 2022 Housing Category.

More information:

<https://passivehouseplus.ie/magazine/feature/measure-everything>

Renovating 32 terraced houses, enhancing satisfaction and comfort

Rue d'Auvergne and Rue Maurice Suard, Angers, France



The EnergieSprong project has a strong focus on satisfying the needs of the inhabitants. The project's approach aims to reduce costs through mass production and industrialisation of components, a more mature market for energy operations to achieve better value. The replicability of the project is a key factor in improving the energy performance of the renovation.

Habitability and Comfort

- Integration of renewable energy sources and challenges is addressed by consulting the residents from the beginning of the project.
- Thermal comfort is ensured by maintaining a temperature of 20°C in the living room for more than 10 hours per week.
- Guaranteed indoor air quality is achieved through mechanical ventilation for all units. Measurements show an air renewal rate of 1.5 per hour, an air velocity in living rooms of 0.15 m/s, and ventilation noise levels below 25 dB(A).
- Occupants are satisfied with the energy performance and in understanding the benefits to their health and the environment.

Community and Communication

- Occupants were involved in the renovation process from the beginning into the upstream consultation and decision-making processes.
- Prior to the renovation, a community association carried out a technical diagnosis. Before the renovation, a community workshop was held to discuss the project and remote intervention.



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and first three years, respectively, to
provide specific support for long-term
and new occupants.

- The project provided occupants with an increased sense of belonging and equality within the community by: allowing residents to be responsible for their energy consumption, training occupant ambassadors to act as referents for their neighbours and promoting the benefits of the renovations to all, with particular attention to the quality of the relationship between the landlord and the tenants.

Resilience and Adaptation to Climate Change

- Off-site prefabrication of the façade components allows for adaptability, enabling the renovated buildings to be integrated into their neighbourhood.
- Resilience and adaptability are at the heart of the renovation project respecting the constraints of the EnergieSprong approach.
- The E=0 level, balance between production and consumption of the building, has been achieved as a result of the renovations and is guaranteed for 30 years, with the assurance of comfort to cope with climatic variations, limiting the impact of heat waves in particular.

Resource Efficiency and Circularity

- Due to the off-site prefabrication and the industrialisation of processes, the waste generated during the renovation project has been greatly reduced.
- The choice of a biobased insulation material reduces the overall impact of the façades on the environment.

Economic Accessibility

- Allow for long-term savings and a shield against energy price increases, with 32% reduction in occupants' annual expenses.
- Most of the cost of the renovation was financed by the homeowners and landlords.
- Public aid and subsidies were made available. Fundings were provided through the Energy Savings Certificates (ESC) and valuation through an Energy Performance Contract (EPC), for an amount of approximately \$10,600 USD per dwelling, as well as various additional regional and national grants.

Partners:

EnergieSprong France(facilitator),
Podeliha (housing association),
Alterea, Pouget Consultants,
Bouygues and Johanne San

Certification:

ISO 50001

More information:

<https://www.energiesprong.fr/projet/renovation-32-logements-individuels-angers/>
<https://www.podeliha.fr/actualites/energiesprong-une-demarche-vertueuse-qui-vise-le-niveau-energie-zero-pour-les-logements-en-renovation/>

Strengthening the community through retrofits and word-of-mouth

Jordan





The Affordable Housing Project retrofitted 48 homes and built three new homes across five different districts in Jordan, demonstrating that sustainable housing is affordable, with fast pay back periods. The project created an opportunity for cohesion between locals and refugees through their engagement and involvement, with notable change in “a greener way of thinking within the society”.

Habitability and Comfort

- 10-25% increase in mental performance and memory.
- 5-14% higher grades in schools and students learning 20-26% faster.
- 6-12% faster responding to communication.
- 18% higher activity in workers.
- 15-40% sales increase.
- 8.5% shorter stays in hospitals.

Community and Connectivity

- 288 people of low-income households from 5 local communities participated in the project, including men, women, children and disabled individuals.
- 20 local refugee builders were trained on green practices, concepts and standards.
- 44 local women were trained and supported to develop eco-friendly and economically beneficial upcycling products.
- Awareness was raised amongst more than 9,000 people, which created significant word-of-mouth and interest on the financial and health benefits of ‘green homes’. This created further job opportunities for the locally trained builders and increased the uptake of sustainable housing in the communities.

Resilience and Adaptation to Climate Change

- A focus on installing thermal insulation, double-glazed windows, rainwater harvesting systems and eco-friendly, nontoxic and zero-VOC paint.

Resource Efficiency and Circularity

- Shading devices have been produced from locally-sourced recycled materials.
- Solar water heaters installed.

Economic Accessibility

- 60% reduction in monthly electricity costs, 50% less energy used for heating and cooling.
- 30% reduction in water usage, 49% savings in drinking-water consumption.
- 5 months total average payback period of all fixtures (e.g. kitchen and shower faucets).
- An analytical study conducted on the development and operation of 9 sustainable homes in Jordan, indicated that the extra cost needed to build sustainable homes compared to non-sustainable homes was only 0-4% higher, with a payback period of 3-5 years and a 15-20% investment return considering the default age of the housing being 20 years.

Partners:

JordanGBC in cooperation with Habitat for Humanity Jordan and funded by the UK’s Department for International Development through the Moving Energy Initiative (MEI).

Awards:

Finalists of 2020 Ashden Awards

More information:

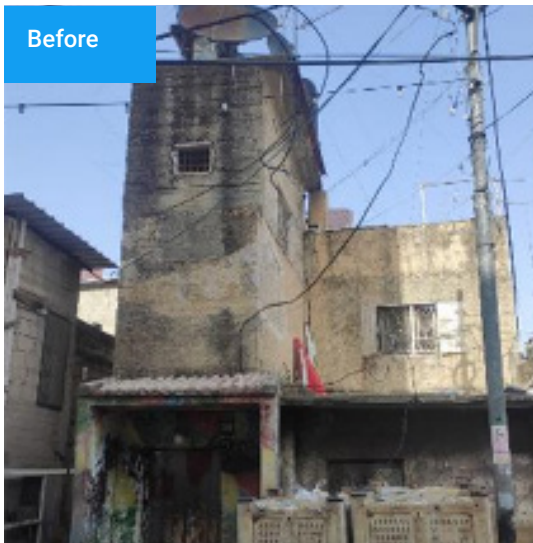
[Guidelines for Green Affordable Homes’ booklet available via JordanGBC](#)
<https://www.youtube.com/watch?v=l7J7idG6CXg>
https://www.facebook.com/Jordan.Green.Building.Council/photos/a.213994035321742/2307673005953824?_rdc=1&_rdi
<https://jordantimes.com/news/local/right-green-home-project-builds-energy-water-efficient-houses>

Enhancing lives of refugees, one retrofit at a time

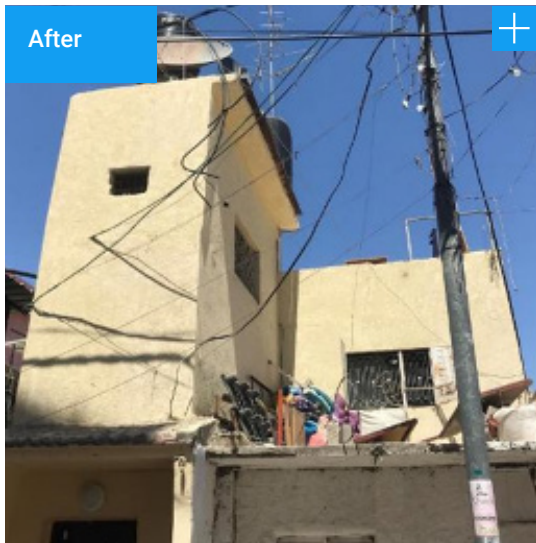
Qadura refugee camp,
Ramallah, Palestine



Before



After





The project contributed to sustainable housing and the wellbeing of refugees and underprivileged communities, by offering 'home retrofitting' measures to support the implementation of economically and environmentally friendly practices. This was done through a bottom-up approach, taking into consideration the occupants' need and designed in a participatory manner, while involving all key partners.

Habitability and Comfort

- Increased thermal comfort and preventing cold and hot airflow, as well as dampness.

Community and Connectivity

- The project trained and built the capacity of local contractors with key retrofitting concepts and trained local engineers and workers on-site on the quality of implementation.
- Raised awareness to the community on the impact of every intervention on comfort and energy efficiency, creating a long-term impact on occupants and their future decision-making regarding rehabilitation and energy management behaviour.

Resilience and Adaptation to Climate Change

- Increased the resilience of occupants by enhancing their living conditions and reducing their energy bills, which raised their ability to cope, adapt and transform against chronic and acute shocks they encounter.
- The project was designed to be replicated in any low-income household.

Resource Efficiency and Circularity

- Replacement of single-glazed to double-glazed windows and insulating the roof and envelope.
- Replacing appliances and lighting to energy efficient equipment.
- Installing solar water heaters instead of electric boilers.

Economic Accessibility

- \$7,000-\$11,000 USD retrofit investment per house, contributing to 30% reduction and savings in electricity bills.
- Institutional resilience and fiscal sustainability were enhanced through collaboration of multi-level institutions that share the benefit of reducing public debts from communities, who are now committed to paying bills.
- An incentive package was designed where the occupants' living conditions would be improved via building renovation for agreeing to install prepaid electricity metres. This also helped reduce the national electricity debt.
- The funds are part of the Transition to Solar Energy programme, supporting transitions to solar energy in Education and improving energy efficiency in Refugee Camps. The funds covered all the retrofitting expenses except for replacing some appliances such as refrigerators, these appliances were conditioned by 50% cost-sharing by households.

Partners:

Palestine Green Building Council (designer, developer and supervisor), UNDP (implementer), Government of Japan (funder) and Palestinian Energy and Natural Resource Authority (PENRA) (home audits and data, and savings validator)

More information:

<https://www.youtube.com/watch?v=tDayMbl2LmE>

Africa Regional Snapshot

CHALLENGES FACING THE HOUSING SECTOR

Africa is the most rural region in the world, with incredible diversity across its landscapes. It has centres of wealth and urbanisation, but it is also at the frontline of climate change, with such as droughts and expanding

The African continent is experiencing rapid urban growth in the world, with the population expected to grow 63% by 2040 and double in some areas. Two-thirds of this growth will be in urban areas, with cities becoming the home of 40,000 people every day and a billion people in the next 30 years²⁹. A significant proportion of people live in slum conditions, with inadequate, under-serviced, substandard and informal housing that is disconnected from livelihoods and economic opportunities.

In some areas of Africa, particularly in sub-Saharan Africa, there is little formal urban planning, with some countries having overlapping markets for land, housing, finance and services such as water and sewerage. These challenges compound with major issues on inadequate infrastructure supply capacity, with a lack in financial strength to construct large-scale

DRIVING THE UPTAKE



Public-private partnerships stimulating international investment across **Africa**

Housing shortages and informal settlements in South Africa

South Africa has a population of 60 million, and GDP of \$418 billion USD. The country is a large economic hub within sub-Saharan Africa, attracting many migrants looking for economic opportunity. A myriad of factors has led to housing shortages of approximately 3.7 million houses, which is estimated to be growing at 178,000 annually. Despite supplying approximately three million state-sponsored homes to low-income households since 1994, the government hasn't kept up with the metropolitan population's housing needs³².

Today, around 20% of urban households reside in informal settlements with income poverty at 41%, and rural income poverty at 81%. The population continues to face serious challenges with adequate and affordable housing for much of the low-income population, while being threatened by extreme weather and climate change. Flooding and landslides in Kwa-Zulu Natal harmed 40,000 people in April 2022 alone, and natural disasters are expected to cost the government and economy 37% by 2025³³.

Source: Green Building Council of South Africa

Community-based finance initiatives and improved legal frameworks in **Senegal, Mozambique and Zimbabwe**

Increase in housing shortages and informal settlements in **South Africa**

Accessing financial relief through commercial banks in **South Africa**

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DRIVING THE UPTAKE



Public-private partnerships stimulating international investment across **Africa**

Expensive housing in low-income areas of Angola and Cameroon

In Luanda, the capital of Angola, apartment costs could start from \$84,000 USD, where incomes per person per year is just over \$4,000 USD. In Cameroon, the government social housing scheme is out of reach for 80% of the population.

Community-based finance initiatives and improved legal frameworks in **Senegal, Mozambique and Zimbabwe**

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In some areas of Africa, particularly in sub-Saharan Africa, there is little urban planning, with some cities having overlapping markets for land, finance and services such as water and sewerage. These challenges are compounded with major issues on inadequate supply capacity, with a lack in the strength to construct large-scale housing projects.

DRIVING THE UPTAKE



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Public-private partnerships stimulating international investment across **Africa**

Community-based finance initiatives and improved legal frameworks in Senegal, Mozambique and Zimbabwe

Initiatives for community-based finance for affordable housing in Africa are beginning to include vulnerable communities for sustainable development³⁵. Community financing mechanisms from the Centre for Affordable Housing Finance in Africa include:

Senegalese Revolving Fund for Urban Renewal: A financing tool created to finance the rehabilitation of unreliable housing in the suburbs, through accessible loans for vulnerable populations³⁶.

Mozambique's Casa Real: A combination of mortgage loans and grants that make climate-smart affordable homes a reality, while allowing families to initially rent affordable homes through Casa Real with a plan to eventually buy them³⁷.

Zimbabwe's Gungano Urban Poor Fund: A fund created to bring together women-led, local savings groups from low-income urban areas, to collect community savings and provide accessible finance, with the opportunity to access loans and financial assistance³⁸.

There has also been improved legal frameworks around women's rights and land administration, such as the Tanzania Land Act of 1999 that have increased women's access to housing³⁹.

Community-based finance initiatives and improved legal frameworks in **Senegal, Mozambique and Zimbabwe**

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Africa Regional Snapshot

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In some areas of Africa, particularly in sub-Saharan Africa, there is little formal urban planning, with some competing and overlapping markets for land, housing, finance and services such as water and sewerage. These challenges compound with major issues on inadequate infrastructure supply capacity, with a lack in financial strength to construct large-scale

DRIVING THE UPTAKE



Public-private partnerships stimulating international investment across **Africa**

Public-private partnerships stimulating international investment in some markets across Africa

Public-private partnerships has been increasing across Africa, with the aim to work with local housing companies to develop affordable housing projects, pushing down affordability and pushing up green standards. IFC and Chinese multinational construction and engineering company, CITIC Construction, launched a \$300 million USD investment platform to develop affordable housing in multiple African countries such as Kenya and Nigeria. The platform will partner with local housing developers and provide long-term capital to develop 30,000 homes over the next five years, while creating nearly 150,000 new jobs¹⁴.

Community-based finance initiatives and improved legal frameworks in **Senegal, Mozambique and Zimbabwe**

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In some areas of Africa, particularly in sub-Saharan Africa, there is little urban planning, with some cities having overlapping markets for land, housing, finance and services such as water and sewerage. These challenges come with major issues on inadequate infrastructure, supply capacity, with a lack in financial strength to construct large-scale housing projects.

DRIVING THE UPTAKE



Public-private partnerships stimulating international investment across **Africa**

Accessing financial relief through commercial banks in South Africa

South Africa has a well-developed banking system, with 15 mortgage finance institutions. Compared to the rest of the continent, South Africa's rate of financial inclusion is at a high rate of 90%. Commercial banks have implemented affordable housing measures by introducing instalment reductions, interest and fee deferrals, extensions of loan terms, and debt relief packages.

In the 2021-2022 financial year, 5 billion South African Rands (approximately \$294,000,000 USD) was allocated to human settlements. This included a new conditional grant for municipalities to support the involvement of communities and community-based organisations in informal settlement upgrading. Targets include the upgrading and formalisation of 400 informal settlements each year over the next three years, and the delivery of 180,000 serviced sites⁴⁰.

Source: Green Building Council of South Africa

Community-based finance initiatives and improved legal frameworks in **Senegal, Mozambique and Zimbabwe**

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Americas Regional Snapshot

CHALLENGES FACING THE HOUSING SECTOR

The Americas region is the second-most disaster-prone region in the world, with over 1,200 people affected by over 1,200 natural disasters from the years 2000-2019; including hurricanes, droughts, wildfire and extreme weather.

In Central and South America, a large proportion of people live in cities under an ageing and exclusive urbanisation process, with a high proportion of urban homes being insufficient and the right to adequate housing has not been provided amongst women, ethnic minorities and other disadvantaged groups. This is often supported by the legislation in place, which has often resulted in low-quality housing facilities or without any permanent tenure for vulnerable populations across the region. Informal settlements are a persistent issue in Latin America, with approximately 10% of the urban population living in informal settlements.

North America is the third-largest region in the world, home to approximately 500 million people. The region is not only suffering from the effects of climate change, but is a disproportionate contributor to climate change, producing a significant amount of greenhouse gas emissions over the last century⁴⁵. The US alone has the highest GDP per capita in the world⁴⁶, yet suffers from a housing shortage of between 5.5 million units to seven million units and severe inner-city poverty, with about 1 in 10 homes impacted by natural disasters⁴⁷. Inner cities represent 10% of the population in the US, 16% of unemployment, 22% of poverty and 32% of minority poverty⁴⁸.

DRIVING THE UPTAKE



Housing disparity for minority group households

Systemic racism is widening the housing gap, with overall disparities in the wealth gap between homeowner households. Yet even minority homeowners face challenges.

Jobs and income disparities are affecting millions of households post-pandemic, with a significant loss of income on the part of minority households, causing severe financial strain for minority households and renters than homeowners.

Among factors contributing to this are restrictive zoning laws and priced housing policies.

Source: US Census Bureau

Housing disparities on minority group households in the **US**

Policy strategies for healthy and efficient affordable housing in the **US**

Housing disparities on minority households in the US

Housing discrimination has prevented many minority groups from buying homes, contributing to the homeownership gap^{49,50}. The recent equity gains have also increased the disparities in wealth between white households and minority households. In addition, the wealth gap between homeowners and renters has widened, with the median wealth of homeowner households about 40 times higher than the median wealth of renter households. Minority households that own homes have far less housing wealth than white

households. Economic losses early in the pandemic increased the affordability challenges for households already struggling to pay for housing, with many experiencing on-going evictions⁵¹. Currently one-third of households in the US spend more than 30% of their income on housing costs, and 14% of households spend more than half of their income, with the housing cost burden, with shares among lower-income households and minority households disproportionately high. The cost-burdened shares are up far more for minority households, and more for minority households than for white households.

Factors such as disparities, chronic labour shortages, increase in building materials prices, and local land use regulations, have made it difficult for developers to build modestly priced housing⁴⁹.

Source: World Green Building Council

Accessible governmental subsidies in **Colombia**

Upfront subsidies and increased housing credit in **Brazil**

Quantitative housing deficit in **Chile**

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Housing disparities
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Lack of attention to existing housing in Costa Rica

In Costa Rica in the 1980's, the government launched an ambitious initiative, building 80,000 houses as a way to resolve the housing shortage that the country had faced⁵². However, the houses were built outside cities, which caused a lack of adequate services, eventually creating deterioration of communities, and resulted in informal settlements seen today. In recent years, instead of focusing on retrofits and existing housing, there has been an overemphasis in home ownership and on new housing. The housing bond market has also been insufficient, with lack of consideration for the expansion of families, transformation of houses including retrofits, and a lack of participatory approaches⁵³.

Source: Green Building Council Costa Rica

Accessible
governmental subsidies
in **Colombia**

Upfront subsidies and
increased housing credit in
Brazil

Quantitative housing
deficit in **Chile**

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Speed of urbanisation pressurising urban housing supply in Guatemala

In rural areas of Guatemala, a significant number of households have inadequate access to basic infrastructure such as water, sanitation, and transportation. This has created high levels of urban centralisation, with a 2.2 million housing unit deficit. Although the government has been working to address such challenges, it has only managed to deliver 200 houses a year⁵⁴.

As a result, internal organisations have been intervening to deliver emergency model housing, but such models have been not fit-for-purpose when considering long term sustainability or climate change resilience. Furthermore, there has been vital income flowing into the country as remittances from the US, including development schemes dubbed as “Remittance architecture”, where housing models of the US are replicated to create spacious homes⁵⁵. However, such models are not necessarily the best solution when considering the various weather conditions experienced in Guatemala.

Source: Guatemala Green Building Council

Accessible
governmental subsidies
in **Colombia**

Upfront subsidies and
increased housing credit in
Brazil

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Quantitative housing deficit in Chile

Chile has experienced a noticeable rise in quantitative housing deficit since 2015, with 392,000 homes in deficit. In 2022, according to data reported by the government, the figure has risen to 650,000, which represents an increase in the deficit of 66% in seven years.

Informal settlements have also grown exponentially, with self-constructed homes on illegal land, with no formal access to basic services such as electricity and sewerage. Data collected in February 2023 revealed a new rise in families living in informal settlements reaching 113,887 households, 39.5% more than the years 2020-2021.

Source: [Interferencia.cl](https://interferencia.cl) and [Techo.org](https://techo.org) provided by Chile GBC

Accessible
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Housing disparities
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Accessible governmental subsidies in Colombia

In Colombia, there are government subsidies for social housing and low-income households through compensation funds. These subsidies are available at accessible levels for homes that do not exceed \$30,000 USD in large cities such as Bogota, Calu, or Medellin, or \$28,000 USD in smaller cities. Interest rate coverage will also allow a reduction in the monthly instalments to be paid to the bank for the mortgage loan. The reduction may be around 30% of what is normally paid⁵⁷.

Source: Colombia Green Building Council

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governmental subsidies
in **Colombia**

Upfront subsidies and
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Quantitative housing
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Upfront subsidies and increased housing credit in Brazil

Brazil has been implementing an ambitious national social housing programme: My House, My Life Programme (Minha casa, Minha vida). This programme has targeted to build 3.4 million new homes across Brazil and has now provided decent housing for over 6.8 million Brazilians⁵⁸.

The programme had set its foundation on a strong policy of upfront subsidies and increased housing credit. This had been possible due to Brazil's consistent economic growth and well-focused social agenda. The programme created special mechanisms to mobilise private sector housing production and provided for innovative arrangements of subsidy and finance for a large range of income groups to acquire new homes⁵⁹.

Source: Green Building Council Brasil

Quantitative housing
deficit in **Chile**

Accessible
governmental subsidies
in **Colombia**

Upfront subsidies and
increased housing credit in
Brazil

Americas Regional Snapshot

CHALLENGES FACING THE HOUSING SECTOR

The Americas region is the second-most disaster-prone region in the world, with over 1,200 people affected by over 1,200 natural disasters from the years 2000-2019; including hurricanes, droughts, wildfire and extreme weather.

In Central and South America, over 80% of people live in cities under an ageing model of exclusive urbanisation, with a high proportion of urban homes being insufficient. The right to adequate housing has not been fully provided amongst women, ethnic minorities and other disadvantaged groups. This has often resulted in low-quality informal settlements or without any permanent facilities for vulnerable populations across the region. In Latin America, with approximately 60% of the urban population living in informal settlements.

North America is the third-largest economy in the world, home to approximately 350 million people. The region is not only suffering from the effects of climate change, but is a disproportionate contributor to climate change, producing a significant amount of greenhouse gas emissions over the past century⁴⁵. The US alone has the 14th highest GDP per capita in the world⁴⁶, yet suffers from a housing shortage of between 5.5 million units to seven million units and severe inner-city poverty, with about 1 in 10 homes impacted by natural disasters⁴⁷. Inner cities represent 10% of the population in the US, 16% of unemployment, 22% of poverty and 32% of minority poverty⁴⁸.

DRIVING THE UPTAKE



Policy Efforts

All levels of government are working to address housing challenges.

- **Q**ualitative data collection
- **E**conomic analysis
- **L**egal framework
- **L**aboratory research
- **L**aboratory research
- **P**olicy development

Sources

Housing disparities
on minority group
households in the **US**

Policy strategies for healthy
and efficient affordable
housing in the **US**

Policy Strategies for Healthy and Efficient Affordable Housing in the US

Levels of government can adopt a range of policies and programs to encourage healthy and efficient affordable housing developments⁶⁰. Including:

Qualified Allocation Plans: Each state's housing financing authority outlines criteria to help determine funding priority of Low-Income Housing Tax Credits⁶¹.

Efficiency Requirements: States can require all publicly financed affordable housing to be certified under ENERGY STAR, among other efficiency standards.

Loans and Grants: Governments can instill green building certification requirements on funding or make the award of competitive funding incentivize certification to encourage green affordable housing projects.

Local Permit Fee Waivers: Local governments may waive development fees, such as fees for permits, construction, inspection, and others, for affordable housing projects meeting specified efficiency or green certification conditions.

Property tax incentive structures: to encourage retrofitting of existing homes with more efficient appliances, renewable energy generation, and better insulated and air-tight envelopes.

Source: US Green Building Council

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A large industrial refinery or chemical plant at dusk. The facility is filled with tall distillation columns, complex piping, and storage tanks, all illuminated by warm artificial lights. In the background, a city skyline and distant mountains are visible under a dramatic, cloudy sky.

Asia's reliance on fossil fuels and environmental damage

Asia's reliance on fossil fuels and environmental damage

One of the most visible side-effects of Asia's rapid growth has been environmental damage. Asia's reliance on fossil fuels has degraded air quality and eco-systems, and reduced clean water supply, making its cities the most polluted in the world, with severe vulnerability to extreme weather events. Furthermore, the richest 1% of households account for close to 10% of total resource consumption, and the top 5% account for more than 20%⁶⁶.

Addressing sustainable
housing to industry leaders
in the Philippines

Improving the
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sustainable and
affordable housing for the
Singaporean population

Prioritising social and
affordable housing in
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Change in management
and ownership of public
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CHALLENGES FACING THE HOUSING S



Asia's reliance on fossil fuels and environmental damage

Addressing sustainable housing to industry leaders in the Philippines

In the Philippines, a social housing developer often builds outside of the city due to cheaper land and resources, pushing informal settlements out of the city, and creating unsustainability in terms of transportation and resources. It has been a challenge to tackle the question of how developers could be encouraged to build within the city and make communities more inclusive regardless of economic status.

To add to this challenge, the Philippines has two types of building codes; one for social housing and the second for all other buildings. This has been sending a message that some design aspects are only acceptable for affordable housing, creating difficulty in discussing 'green' and 'sustainable' housing aspects to leaders and policy makers.

Source: Philippine Green Building Council

Change in management and ownership of public housing in **Australia**

Addressing sustainable housing to industry leaders in the **Philippines**

Accessibility of sustainable and affordable housing for the **Singaporean** population

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Asia's reliance on fossil fuels and environmental damage

Overbuilding and re-thinking property investments in China

In China, the government has prioritised properties for economic growth, with approximately 30% of the country's GDP in property. This has led to a crisis of over building, and including the accessibility of land and pricing⁶⁷. However, while the national government speaks of diversifying the economy and thinking broadly to address the housing crisis, the local municipalities are dependent on selling land for revenue. Hence, encouraging citizens to invest in housing, some yet to be built, is causing major implications on sustainability, affordability, and accessibility. The national government proposed plans of action, but the issue of how to create a financial mechanism to support social housing remains a concern⁶⁸.

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Asia Pacific Regional Snapshot

CHALLENGES FACING THE HOUSING SECTOR

The continent of Asia is experiencing rapid demographic changes, with the rapid urbanising populations of Asia presenting an urgent demand for affordable housing. Across the continent, the physical impacts and risk of climate change have already been realised⁶².

Asia is the most populous continent with a population expected to reach 5 billion by 2050⁶³. By 2030, India will need 100 million homes and China will have 1 billion people moving into its cities. This is also seen in Vietnam, Indonesia and many parts of Asia with a population⁶⁴.

Asia's rapid economic growth has lifted hundreds of millions out of poverty but the gap between Asia's rich and poor has widened alarmingly. Asia accounts for 60% of the world's poor, with more than 1.7 billion people surviving on less than \$2 a day⁶⁵.

DRIVING THE UPTAKE



Asia's reliance on fossil fuels and environmental damage

Change in management and ownership of public housing in Australia

From 2006 to 2021, Australia's social housing stock increased by 31,400 units. However, during this period, there had been a transfer of ownership or management of public housing stock to community housing organisations. Such changes created fluctuations in the numbers of State Owned and Managed Indigenous Housing (SOMIH) and Indigenous community housing units, with many ending up living in low-quality, unsanitary, and cramped conditions⁶⁹.

In addition to the reduction in sustainable and affordable quantity, Australia is currently suffering from an increase in floods, with grounds saturating and many losing their homes, resorting to living in caravans⁷⁰.

Source: Green Building Council of Australia

Change in management and ownership of public housing in **Australia**

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CHALLENGES FACING THE HOUSING SECTOR



Asia's reliance on fossil fuels and environmental damage

Accessibility of Sustainable and Affordable Housing for the Singaporean population

Singapore's housing development board (HDB) has been focusing on sustainable and affordable housing for its population, providing heavy subsidies for middle to low-income households, as well as loans with very low interest rates⁷¹. 'HDB homes' of 2-5 bedrooms are accessible for young couples with limited years of employment and savings. More than 50% of the population in Singapore stay in 'HDB homes'⁷².

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Asia's rapid economic growth has lifted hundreds of millions out of poverty, but the gap between Asia's rich and poor has widened alarmingly. Asia accounts for 60% of the world's poor, with more than 1 billion people still living on less than \$2 a day. 1.7 billion people surviving on less than \$1.25 a day⁶⁵.

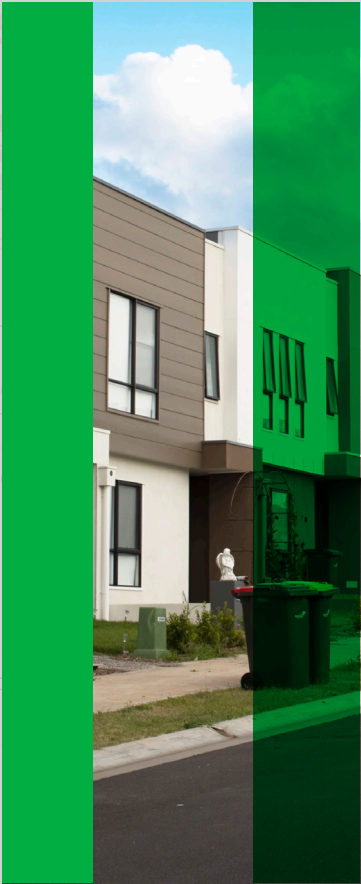
DRIVING THE UPTAKE

Prioritising social and affordable housing

In Australia, the government is a key funder of social and affordable housing. The Affordable Housing Bond Aggregator (AHBA), a federal government organisation, provides low cost and long-term loans to registered community housing organisations and non profit organisations that build and manage social housing^{73,74}.

At the state level, state agencies are responsible for providing and managing social and affordable housing. This is achieved in partnership with registered Community Housing Organisations (CHOs) who build, manage, and maintain the housing.

There is a greater focus on social and affordable housing at the federal government level, to support the



Asia's reliance on fossil fuels and environmental damage



housing in Australian government agendas

ustainability of housing by citizens, with agendas including:

The \$6,700,000,000 USD **Housing Australia Future Fund** that will build 30,000 social and affordable housing properties in its first five years. **'Help to Buy'**, a new program allowing cheaper and easier home ownership. **The Regional First Home Buyer Support Scheme.** Establishment of a **National Housing Supply and Affordability Council.** Development of a new **National Housing and Homelessness Plan.**

Sustainable homes are being encouraged and backed by green finance. For example, Green Star Homes provides a simple certification mark for homes that are highly efficient and powered

by renewable energy that are healthy and resilient⁷⁵. Each category contains a number of credits with requirements that must be met to meet the Green Star Homes Standard. Green Star Homes is a recognised pathway for green bonds through the Climate Bonds Institute, with a number of green mortgages being offered for certified homes⁷⁶, such as:

- **Commonwealth Bank:** Australia's largest mortgage holder, offering a reduced rate mortgage for the life of the mortgage which can save tens of thousands of dollars⁷⁷.
- **National Australia Bank:** Offering up to 1% reduction for Green Star certified homes⁷⁸.
- **Bank Australia:** An ethical bank offering a discount for Green Star certified Homes⁷⁹.

Source: Green Building Council of Australia

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Europe Regional Snapshot

CHALLENGES FACING THE HOUSING

The European region has the capita of any continent⁸⁰ and less than 10% of the world's t However, most European cou experience a 20% decline in p

Europe has witnessed the ave in the private sector increasing rents increasing by around 15 2021^{82,83}.

This is due to several factors i growth, increased rents, unreg privatisation of social housing growing prevalence of insecur these factors increase concern income households, as well as with countries seeing an upwa exclusion, urban poverty, and Europe is also being affected extreme weather events such and heat waves are becoming

DRIVING THE UPTAKE



Strong regional financial mechanisms and shift in EU policies

Policy changes creating wealth disparities and unaffordability in the UK

Rising house prices in the UK is rooted in a series of policy changes introduced over many decades. This has sought to promote home ownership as the dominant form of tenure and transform housing into vehicles for accumulating wealth. At the same time, the downward trajectory of interest rates, and the liberalisation of the financial sector has increased the attractiveness and availability of mortgage credit, resulting in a notable growth in home purchasing power.

Although the aim had been to increase homeownership, policy changes created increased structural bias towards housing in the UK economy, transforming housing from a basic right into a financial asset for accumulating wealth⁸⁶. This has created the need for a long-term housing affordability strategy to tackle the systemic causes of unsustainable house price inflation, including bringing the house-price-to-income ratio down to affordable levels over time, and transition housing strategies which slow housing expansion and accelerate low-carbon retrofits^{87,88}.

Contrast in the use of frameworks and targets in the Netherlands

Renovation tax-back mechanisms in Italy

Minimal increase in renovation rate in Italy

Europe Regional Snapshot

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Strong regional financial mechanisms and shift in EU policies

Contrast in the use of frameworks and targets in the Netherlands

In the Netherlands, although home ownership predominates, social housing has been a government priority at 33% of housing stock, the highest percentage in Europe. In cities such as Amsterdam, 48% of housing stock is social housing. The registered social housing organisations in the Netherlands are non-profit private bodies, and their mandate is to give priority to households with lower incomes.

However, although the housing associations work within a legal framework created by the state, they are independent organisations that set their own targets and have their own financial responsibilities that aren't necessarily aligned with the government policies⁸⁹.

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Strong regional financial mechanisms
and shift in EU policies

Minimal increase in renovation rate in Italy

In Italy, many social housing companies that were public entities are selling old properties as maintenance costs become unaffordable. Although the Green Deal and Renovation Wave are generating strong political agreement for energy efficiency and renovation, the national renovation rate is still very low, with minimal rise every year. This has led to a call from industry to double or triple the renovation rate, to try to eliminate the issue⁹⁰.

Contrast in the
use of frameworks
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Minimal increase
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Strong regional financial mechanisms and shift in EU policies

Strong regional financial mechanisms and shift in EU policies

The European region demonstrates that strong regional financial mechanisms present invaluable opportunities to drive sustainability agenda in the residential sector⁸⁹. Agendas such as the European Central Bank (ECB) and the European Regional Development Fund (ERDF) are particularly important mechanisms for increasing urban resilience homes, as they promote sustainable development and address environmental challenges⁹².

A great boost of investment has been seen with social infrastructure and affordable housing in Europe, with policies shifting away from social housing construction and towards housing subsidies for low-income renters⁹³. The main policy drivers under the EU Green Deal include the Renovation Wave strategy that aims to double the renovation rate, and set priorities including decarbonisation of heating and cooling and tackling energy poverty^{90,91,94}. This strategy also aims to break down long-standing barriers to energy and resource-efficient renovation improving reuse and recycling supply chains and by 2030, the construction sector could see 35 million renovated buildings and up to 160,000 additional green jobs⁹⁵.

Contrast in the use of frameworks and targets in the Netherlands

Renovation tax-back mechanisms in Italy

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Europe Regional Snapshot

CHALLENGES FACING THE HOUSING SECTOR

The European region has the lowest GDP per capita of any continent⁸⁰ and less than 10% of the world's total population. However, most European countries have experienced a 20% decline in population since 1990.

Europe has witnessed the average age of the population increasing, with the private sector increasingly struggling to meet demand, rents increasing by around 15% since 2011^{82,83}.

This is due to several factors including low birth rates, growth, increased rents, unregulated housing markets, privatisation of social housing, and a growing prevalence of insecure tenancies. These factors increase concern over the ability of low-income households, as well as those with countries seeing an upward trend in homelessness, exclusion, urban poverty, and social inequality. Europe is also being affected by climate change, with extreme weather events such as floods, droughts, and heat waves becoming more frequent.

DRIVING THE UPTAKE



Strong regional financial mechanisms
and shift in **EU** policies

Increasing affordable housing with laws and regulations in France

France has one of the largest housing stocks in Europe, with affordable housing considered as an essential element for reducing social inequalities and protecting the most vulnerable groups. The Solidarity and Urban Renewal Act sets the obligation of achieving a minimum percentage of 20-25% affordable housing in all municipalities of over 200,000 inhabitants⁹⁶.

Contrast in the
use of frameworks
and targets in the
Netherlands

Renovation tax-
back mechanisms
in **Italy**

Minimal increase
in renovation rate
in **Italy**

Europe Regional Snapshot

CHALLENGES FACING THE HOUSING SECTOR

The European region has the lowest GDP per capita of any continent⁸⁰ and less than 10% of the world's total population. However, most European countries have experienced a 20% decline in population since 1990.

Europe has witnessed the average annual real estate rents in the private sector increasing by around 15% since 2010, with some cities experiencing a 20% increase by 2021^{82,83}.

This is due to several factors including population growth, increased rents, unregulated rental market, privatisation of social housing, and the growing prevalence of insecure tenancies. These factors increase concern among low and middle income households, as well as among young people, with countries seeing an upward trend in homelessness, social exclusion, urban poverty, and inequality. Europe is also being affected by climate change, with extreme weather events such as floods, droughts, and heat waves becoming more frequent.

DRIVING THE UPTAKE



Strong regional financial mechanisms and shift in EU policies

Renovation tax-back mechanisms in Italy

Italy's national priorities for housing are focused towards home renovations and retrofits, rather than new builds, since most of the home renovations and retrofits rather than new builds since most of the needed quantity of housing has already been built. As such, the country offers up to a 110% tax back mechanism for those who renovate their existing homes. However, if a household does not pay taxes due to its low-income status, a tax credit could be accessed through the bank to be used for renovation costs⁹⁷.

Source: Green Building Council Italia

Contrast in the use of frameworks and targets in the Netherlands

Minimal increase in renovation rate in Italy

Renovation tax-back mechanisms in Italy

Middle East And North Africa Regional Snapshot

CHALLENGES FACING THE HOUSING S

The Middle East is one of the cities. As average inhabitants of total inhabitants, approximately result in 70% of land use in m

Climate change is already exa transitions. Climate change of production systems, with aver region⁹⁹.



Lack of people-centric approach in the Middle East

Roof Over Our Women-centred aiming to deliver low carbon and homes

IMPROVING THE UPTAKE OF SUSTAINABLE AND AFFORDABLE HOUSING



Lack of homeownership and affordable housing in the Middle East

The MENA region has been challenged with a lack of home ownership due to higher cost, with weaker economies and higher inflation rates. Several other challenges include the increase in loans and interest rates and surplus of high-end housing. In addition, despite the clear market need, there has been a lack of supply for affordable housing for low and middle-income families¹⁰⁰.



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Responsibility driving
sustainable and affordable
housing in the **MENA region**

Middle East And North Africa Regional Snapshot

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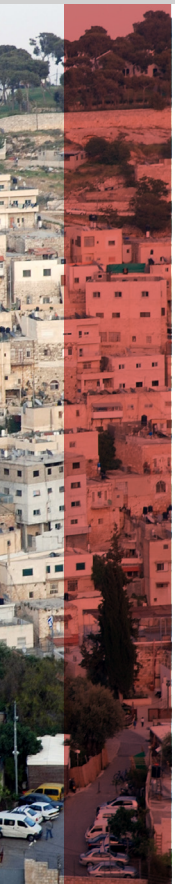
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IMPROVING THE UPTAKE OF SUSTAINABLE AND AFFORDABLE HOUSING



Lack of people-centric approach in the Middle East

The MENA region has suffered from a clear lack of people-centric approach on housing, and improper understanding of the population needs. Poor communication between stakeholders and project implementers has been a challenge, with a lack of effective hand-over process that halt progressions and sustainability of projects. This often creates overcrowding, inadequate habitability, and severe disconnect from socio-economic stability in some areas.

As a result, people take it upon themselves to renovate or build their own housing, without following local standards or regulation. Furthermore, despite the high education levels in the MENA region, there has been a lack of wide adoption in sustainability and environmental oriented applications.

Source: MENA Regional Network



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ESG and Corporate Social Responsibility driving sustainable and affordable housing in the MENA region

Corporate Social Responsibility (CSR) has been a venue for private corporations to tackle community engagement and sustainable development. Regional CSR programmes have integrated sustainability concepts to give back to the community in which they are operating, and those initiatives include health and safety, education, eco-friendly solutions, and community investments.

ESG imperatives are gaining traction among Middle Eastern corporations and governments alike. Environmental issues are increasingly coming to the fore as governments in the region seek to decrease its dependence on oil and gas. Social values such as supporting communities have been a priority for corporations in the region, and governance standards and codes are already adopted in the region and are increasingly an area of focus¹⁰². Awareness is growing that the housing sector can have a significant social impact either through the form of rehabilitation of public spaces, increase of affordable housing and social housing, or through an environmental focus investment on new buildings such as green buildings¹⁰³.

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Uptake of the Sustainable Reconstruction & Recovery Framework

The Sustainable Reconstruction & Recovery Framework helps communities build back better across the Middle East and North Africa. It advances a holistic, inclusive, and resilient approach to reconstruction in the region experiencing natural disasters and conflict. The Framework is structured around six themes which emphasise that disaster risk reduction, and the sustainable urban reconstruction of the physical environment, can restore the wellbeing of communities, revitalise livelihoods, and support social and cultural life¹⁰¹.

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Lack of people-centric approach in the Middle East

Roof Over Our Women-centre aiming to deliver low carbon and homes

ING THE UPTAKE OF SUSTAINABLE AND



of Over Our Heads: Women-centered campaign aiming to deliver resilient, low carbon and affordable homes

of Over Our Heads (ROOH) is a women-centred campaign run by Slum Dwellers International that aims to deliver resilient, low carbon and affordable homes through better design, construction, and access to finance to two billion people by 2030. It encourages retrofits and home improvements, as well as improving public infrastructure to enhance the quality of life within existing communities, particularly those living and working in informality. The campaign seeks to implement a system of solutions from the ground up, beginning with the poorest and most vulnerable neighbourhoods, demonstrating that larger volumes of resources can move with scale to small projects¹⁰⁴.

Stakeholder participation and civic participation is particularly important for informal settlements, as key challenges need to be communicated and understood, and there is a need for the importance to empowering local people to drive solutions. The campaign invites community participation throughout the decision-making process, increasing the sense of ownership and security.

ROOH is one of the five priority areas that was identified by the women federation network across SDI countries in Asia and Africa. The five priority areas labelled as 'What Women Want' includes: A roof over our heads, greens in our meals, taking care of our own health, wheels, and wages, and being able to use their own knowledge and skills to map vulnerability to climate change¹⁰⁵.

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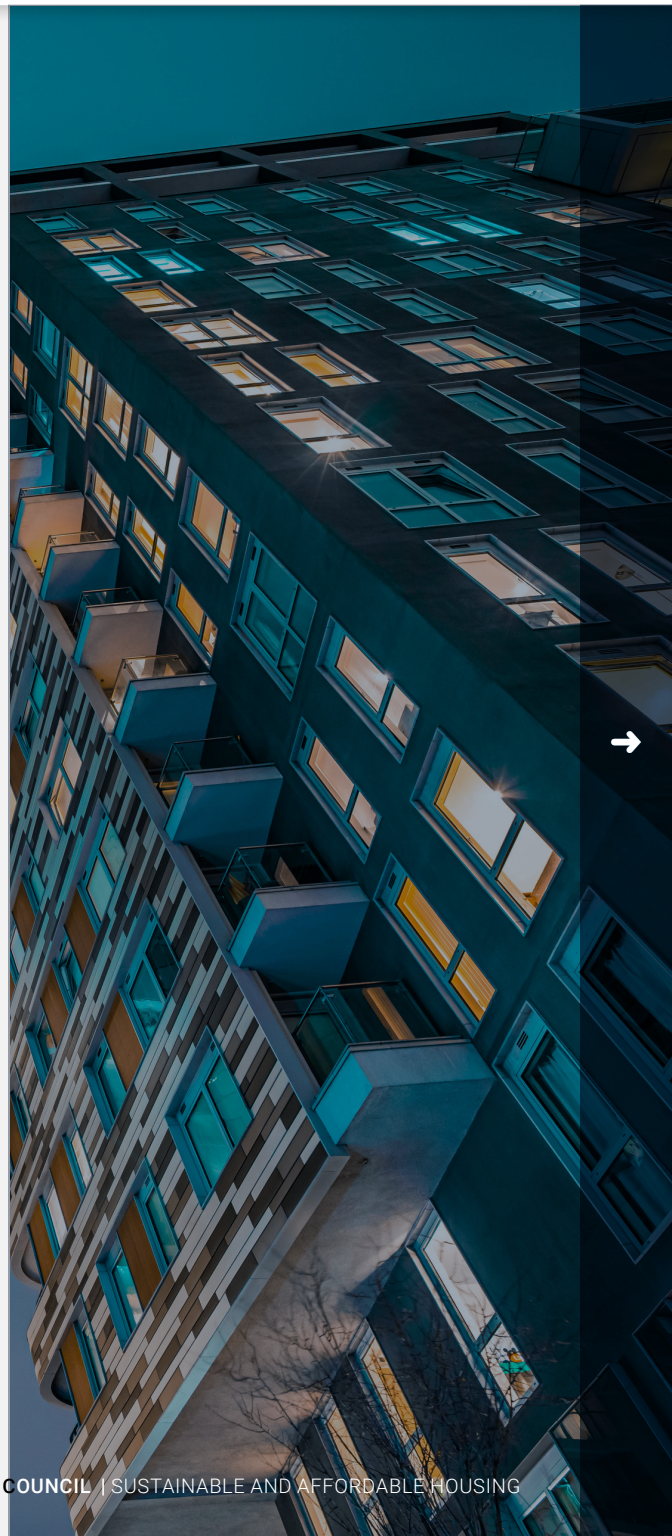
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