World Green Building Council Response to the Global Stock Take

March 2023

Executive Summary

The Global Stock Take (GST) offers the global community a chance to reflect on progress towards collective goals agreed under the Paris Agreement, highlighting areas of progress and identifying key gaps before counties submit updated Nationally Determined Contributions (NDCs) in 2024.

With this in mind, it is key that the GST process accurately reflects both the impact — but also the opportunity — that an integrated and holistic approach to action in the **built environment can play in closing the gap to 1.5°C**. Worldwide, **buildings are responsible for 37% of global emissions, 34% of energy demand and 50% of materials consumption**. Other environmental impacts of buildings include **resource depletion, air, water and land pollution and biodiversity loss**.

With such a significant impact, the GST process must recognise the built environment as a key cross-cutting sector that can deliver the transformative change needed to decarbonise the global economy; but also address other pressing societal issues, including: energy security, resilience, health, biodiversity whilst supporting the move to circular and regenerative systems.

As government, industry, and society react to global challenges, they do so in the face of a worsening climate emergency, accelerating urbanisation and population growth. This means a dual challenge for the built environment sector — with markets in Asia and Africa expecting the building stock to double. Other regions are grappling with the challenges of renovating energy inefficient buildings to the required standards to deliver on decarbonisation goals.

As the largest contributing sector to carbon emissions, the built environment can do more and already has the climate solutions that need to be deployed at speed and scale. Collaboration across the sector's fragmented supply chain is key to accelerate actions and showcase the many solutions that exist in the sector. Recognising the need for such collaboration, ahead of COP26 a group of organisations, known as the ‘BuildingToCOP' coalition, formed a partnership alongside the UN High Level Climate Champions to catalyse climate action in cities, regions and the built environment.

Collectively this coalition is showcasing the breadth of solutions that already exist across the sector including the three global programmes run by WorldGBC, Advancing Net Zero, BuildingLife, Circularity Accelerator, as well as outlining what further action is required from both industry and government to close the gap.

Recognising that actions taken to date are simply not enough, this coalition works with political leaders and industry to support them to take bold decisions and actions to unlock

the potential in the sector. This will send a clear signal that enables industry to deliver the innovative solutions needed to de-risk investment and lower the cost of the transition to a decarbonised, circular and resilient built environment.

About WorldGBC

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 (GBCs) 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). Find out more www.worldgbc.org

Buildings and the Global StockTake — Key Messages

The Role of Buildings in Mitigation

This section aims to respond to the guiding questions put forward by the guiding questions by the SB Chairs for the Technical Assessment component of the first Global Stocktake. WorldGBC has answered these questions from the perspective of the built environment sector.

Progress of the Building Sector in keeping to a 1.5°C-degree scenario (Q1 Mitigation Guiding Question)

The world is dangerously off track in a 1.5°C degree scenario and the global economy must reduce emissions by 45% percent in the next 7 years to avert the catastrophic impacts of climate change[1].

Considering that buildings are responsible for 37% of global emissions, 34% of energy demand and 50% of materials consumption, it is imperative that action is taken by stakeholders with decision making power over this asset class to course correct the current trajectory.

[1] UNEP, Emissions Gap Report, 2022

This is particularly important as according to the latest available data, the sector is significantly off course. The 2022 Global Status Report (GSR) states that the buildings and construction sector is not on track to achieve decarbonization by 2050[2] and that the gap between the actual climate performance of the sector and the decarbonization pathway is widening.

The GSR also states that buildings energy demand increased by around 4% from 2020 – the largest increase in the last 10 years, whilst CO2 emissions from buildings operations have reached an all-time high of around 10 GtCO2, around a 5% increase from 2020.

According to the 2022 World Energy Outlook, direct emissions from the buildings sector have risen by 0.5% per year since 2010, driven by rising demand for energy services. The 'State of Climate Action 2022" report states that limiting global warming to 1.5°C requires systems transformations with substantial improvements across the building sector[3].

Emissions reductions needed by 2030 and 2050 to keep within 1.5°C (Q2 Mitigation Guiding Question)

WorldGBC's Embodied Carbon report states that to align with a 1.5°C pathway, by 2025, all countries must have begun regulating embodied carbon and by 2030, all new buildings, infrastructure and renovations require at least 40% less embodied carbon with significant upfront carbon reduction, and all new buildings must be net zero operational carbon. This ambition is echoed by the 2030 Breakthrough for the Built Environment, put forward by the UN High Level Champions on Climate Change[4].

Looking to 2050,WorldGBC calls for all new buildings, infrastructure and renovations will need to be zero embodied carbon, and all buildings, including existing buildings, must be net zero operational carbon[5].

Achieving the above requires significant emissions reductions from the buildings sector. This is even more challenging to achieve given that floor area in the buildings sector worldwide is expected to increase 20% between 2021 and 2030, of which 80% is in emerging market and developing economies[6]. This presents a dual challenge for the sector — how to decarbonise an already high emitting sector, whilst simultaneously building a city the size of New York City every month.

Achieving the required emissions reduction requires a systemic approach that considers the total environmental and carbon impact of our sector. The UNEP Emissions Gap Report outlines four major shifts necessary to align with 1.5°C:

1. Excess floor area must be minimised

[2] GlobalABC, Global Status Report, 2022
[3] World Resources Institute, State of Climate Action Report, 2022
[4] 2030 Breakthrough, Built Environment
[5] WorldGBC, Bringing Embodied Carbon Upfront, 2019
[6] IEA, World Energy Outlook, 2022

2. Energy to decrease globally by 10–30 per cent in commercial buildings and 20–30 per cent in residential buildings, relative to 2015 levels, by 2030
3. Emissions intensity needs be reduced by 45–65 per cent for residential buildings and 65–75 per cent for commercial buildings compared to 2015 levels by 2030, and 95–100 per cent by 2050
4. Dramatically reducing the 'embodied' carbon associated with materials and construction processes throughout the whole lifecycle of a building or infrastructure.

According to the State of Climate Action Report[7], systemic change is required in the buildings sector. This report tracks three key indicators for the sector with sobering results. This finds that the energy intensity of building operations indicator is well off track, and that the carbon intensity of buildings indicator cannot be adequately tracked due to insufficient data. The report also attempts to track progress on how the global deep retrofitting rate of buildings can accelerate to 2.5-3.5% but also cites insufficient data to adequately track this figure.

How is the building sector accelerating action to achieve the goals of the Paris Agreement? (Q3 Guiding Question)

As the largest contributing sector to carbon emissions, the built environment can do more and already has climate solutions that need to be deployed at scale. However, owing to the fragmented nature of the supply chain, collaboration across the value chain is key to accelerating efforts to achieve the goals of the Paris Agreement.

Recognising the need for such collaboration, ahead of the UN Climate Summit COP26 a group of organisations the 'BuildingToCOP' formed a partnership alongside the UN High Level Climate Champions, with the goal of catalysing climate action in cities, regions and the built environment.

Collectively these organisations are working together to drive action and recognise the potential of buildings as outlined below:

World Green Building Council (WorldGBC)

WorldGBC and our network of Green Building Councils run a number of different initiatives to accelerate decarbonisation efforts.

WorldGBC Advancing Net Zero Programme

Advancing Net Zero is WorldGBC's global programme working towards our North Star Goal for Climate Action - total sector decarbonisation by 2050. The Advancing Net Zero team collaborate with 34 Green Building Councils across the network to:

[7] State of Climate Action Report, 2022

- Increase awareness and education of the urgency and achievability of net zero carbon buildings;
- Achieve alignment and commonality between GBC approaches and certification schemes;
- Expedite uptake in global markets by sharing market leadership examples.

Across our five Regional Networks we are delivering programmes to accelerate the uptake of Net Zero to meet our ambitious global goal. Our Asia Pacific Net Zero Readiness Framework (currently also being implemented in our MENA and Americas regions) outlines clear milestones for government, industry, finance, as well as data and mindset to reach net zero and facilitates the development of national decarbonization roadmaps.

WorldGBC Net Zero Carbon Buildings Commitment

The Net Zero Carbon Buildings Commitment is developed to recognise and promote advanced climate leadership action from businesses, organisations, cities and subnational governments in decarbonising the built environment, to inspire others to take similar action and remove barriers to implementation. The Commitment considers the whole lifecycle impact of buildings and builds on WorldGBC's Whole Life Carbon Vision and best practice principles for implementation.

Business signatories are required that by 2030, existing buildings reduce their energy consumption and eliminate emissions from energy and refrigerants, removing fossil fuel use as fast as practicable (where applicable). Where necessary, signatories must compensate for all residual operational emissions. For new developments and major renovations, they are built to be highly efficient, powered by renewables, with a maximum reduction in embodied carbon and compensation of all residual upfront embodied emissions.

As of 28 February 2023, there are 172 signatories, which includes 137 businesses and organisations, 29 cities, and six states and regions. The businesses and organisations signed up to the Commitment account for approximately 7.3 million (tCO2e) of portfolio emissions annually, nearly 20,000 assets and $400 billion annual turnover.

WorldGBC Circularity Accelerator

The WorldGBC's Circularity Accelerator Programme was set up to catalyse action towards our North Star Goal for Resource Efficiency and the Circular Economy, by convening our network to work towards a built environment with net zero whole life resource depletion, and the restoration of resources and natural systems within a thriving circular economy. With a Steering Committee of 20+ Green Building Councils around the world, the Programme is facilitating knowledge exchange of best practice around the world, leading the development of thought leadership and frameworks to accelerate the transformation of the sector, and collaborating with leading industry actors to leverage and scale market action.

WorldGBC BuildingLife Campaign

As part of the #BuildingLife project, WorldGBC launched an EU Whole Life Carbon Roadmap for the building sector, with the support of a coalition of over 35 leading industry

bodies. This was complemented by national Whole Life Carbon roadmaps developed by ten Green Building Councils across Europe, with input from over 600 experts and organisations. #BuildingLife is delivering a step change in climate action in the built environment and galvanising action and support for action across a buildings total lifecycle.

WorldGBC Built4People Partnership

In 2021, WorldGBC entered into a strategic partnership with the European Commission and the European Construction Technology Platform (ECTP) to develop the topics and funding calls for allocating €380 million to advance sustainability in the European built environment. This year the first group of innovation projects were awarded. On 1 June 2022, WorldGBC hosted the inaugural Built4People Stakeholder Forum, bringing together almost 200 innovators from across the region to communicate the work of the partnership and how businesses and organisations can get involved.

Africa Manifesto for Sustainable Cities and the Built Environment

The Africa Manifesto was launched ahead of the UN Climate Summit COP27 in Egypt, articulating policies related to energy, water, materials, finance and infrastructure that African business leaders, city and government officials must support to deliver the 'Africa We Want': a net zero carbon, healthy, resilient, equitable, socially and economically inclusive built environment for everyone, everywhere. The Manifesto is a collaborative piece of work developed with 15 African Green Building Councils (GBCs), WorldGBC and the BuildingToCOP Coalition partners (High Level Climate Champions, We Mean Business, C40 Cities).

Green Building Council Ratings Tools

Over half of World Green Building Councils member GBCs administer a sustainable buildings rating tool. These tools are used to assess and recognise buildings which meet certain sustainability requirements or standards, recognising and rewarding companies and organisations who build and operate greener buildings.

They kick-start the market by setting standards that in turn elevate the ambition of government building codes and regulation, workforce training, and corporate strategies. In 2022 the collective floor space certified by these tools totalled 4.31 billion metres squared.

Green Building Policies

According to the Global Status Report, 80 percent of countries now refer to buildings as part of their NDC action plans and 40 percent of countries have mandatory or voluntary regulations or codes for building energy performance.[8]

[8] GlobalABC, Global Status Report, 2022

In 2022, saw some key policy developments — often supported by local GBCs — which recognised the role of Green Building Council. Progress from two key markets is highlighted below with further detail contained in the annex:

- **Europe: Ongoing Revision on the Energy Performance of Buildings Directive (EPBD).** In 2021, the European Commission put forward a proposal on the EPBD which called for greater action on operationald carbon and also recognised the need for policy to address the embodied impact of the buildings. This is currently being debated in the European Parliament. Further details on the EPBD and WorldGBC's advocacy efforts can be found here.

- **US: Inflation Reduction Act.** In 2022, President Biden revealed the Inflation Reduction Act (IRA). This briefing from USGBC outlines the provisions related to green building and sustainable communities in the IRA.

Adequacy and effectiveness of current mitigation towards achieving the goals of the Paris Agreement (Q4 Guiding Question)

Despite some positive progress, the rate and depth of action taking place is not sufficient to bridge the gap between the status quo and the decarbonisation trajectory needed by 2050.

In particular, many countries expecting to see growth do not have any building policies in place, and those that do have policies are not ambitious enough to achieve performance levels to keep in line with the goals of the Paris Agreement.

What further action is required and how can barriers at the national, regional and international level be addressed? (Q5 A & B Guiding Question)

The built environment can do more and already has climate solutions — but two key issues need to be overcome including the lack of data and lack of political ambition to implement and scale these solutions.

According to the UN High Level Champions, measurement and reporting of whole-life (operational and embodied) carbon data for new projects is not very common and only slightly more so when it comes to operational carbon.

For operational carbon, collection and tracking of in-use data to verify projections is also critical to refine energy efficiency approaches. The lack of measurement of carbon data also creates a gap with regard to fully understanding the contribution of the built environment to the climate crisis and therefore also the potential solutions the sector can offer are unlikely to be implemented..

In parallel to addressing the data gap, all levels of government, politicians and policymakers must address the ambition gap and embrace the potential in our sector and recognise the

built environment as a system that can deliver the transformative change our world needs. WorldGBC has identified impact pathways where further action must be taken at all levels.

Advocate — Advocate for ambitious policies that go beyond carbon and recognise the built environment as a system of buildings, green spaces, infrastructure, transport, water supplies and energy networks.

Such policies must recognise the interdependencies that buildings have on other systems sectors – and focus not just on decarbonisation, but also implementing circular design principles and addressing biodiversity loss.

Collaborate — Organisations across the value chain to unite to establish mutually beneficial sector partnerships that unlock impact. A first step should be collaboration between industry and government to develop national roadmaps for decarbonizing the built environment, based on consistent methodology to measure and report whole-life carbon.

Rate — Leverage the potential of rating tools to drive the change needed in the market.

Communicate — The role of buildings in tackling the climate crisis head on, with all politicians and policymakers acknowledging the built environment sector as a key agent of change to deliver a sustainable and decarbonised future.

Educate — Develop resources, educational tools, events and training to develop market capacity to deliver solutions to achieve sustainability in the built environment.

Innovate — Inspire and deliver new work streams that generate market leading ideas, setting Industry vision and ambition and establishing GBCs as global thought leaders.

Invest — Support development of financial products to enable rapid deployment of sustainable building projects at scale, both at the global level and supporting national GBC programmes.

Delivering the transformative change needed is possible but it can only be achieved via robust policy frameworks that recognise the interdependencies between buildings and other sectors – and that focuses not just on decarbonisation, but also implementing circular design principles and addressing biodiversity loss.

What are the opportunities, good practices, lessons learned and success stories in the built environment sector (Q5 C Guiding Question)

Not only are sustainable built environments a critical solution to climate change, but they also help create resilient, thriving communities that drive economic growth in both western and emerging economies.

The transition to a sustainable and decarbonised future will enable societies to move away

from inefficient practices, increase the autonomy of nations, and provide energy security for the most vulnerable households, while creating large numbers of decent green jobs for local economies.

Examples of key success stories can be found here in WorldGBC's case study library

Buildings and Adaptation

Progress of the buildings sector with regard to adoption to and fostering climate resilience?

In the past 20 years, natural disasters have affected 4.2 billion people, claimed 1.23 million lives, and caused almost $3 trillion USD in economic losses[9]. By 2050, over 970 cities could be subjected to extreme heat, with over 570 cities impacted by sea level rise, to name just two impacts of our changing climate[10].

The reality is that the world is not prepared for these changes and the extreme heat, floods, droughts and wildfires seen in urban hubs around the world has shown how unbearable, and unliveable, life could become – unless we act to build resilience while mitigating further changes.

Two-thirds of the world's population will live in cities by 2060, yet half of the urban fabric to accommodate them has not yet been built. It is critical that design and investment decisions taken today consider the scale, scope and severity of climate change impacts that will affect these built assets.

Coupled with ageing infrastructure and under-investment, these challenges are already having devastating consequences for communities around the globe. The built environment sector has the opportunity to lead the resilience agenda, placing adaptation on par with mitigation through how we design, manage and occupy buildings and infrastructure for the worlds' people.

At the built environment level, delayed action on climate resilience and adaptation will see reduced building performance, resulting in sub-optimal living and working environments. This could spiral to a global decline in health and wellbeing, heightening inequalities and injustice between regions.

The increasing severity of extreme weather events will likely lead to damage of buildings and infrastructure, with heightened risk of stranded assets and higher insurance premiums for owners.

Estimates suggest a $1.8 trillion USD investment by 2030 in early resilience measures (warning systems, resilient infrastructure, dryland agricultural crop production, mangroves, and water resource management) would yield more than $7 trillion USD of benefits in

[9] UN, Human cost of disasters, 2020
[10] C40, The Future we don't want, 2018

avoided costs from climate change effects (Bank of America)[11]. Whereas the delay in implementing mitigation and resilience strategies is costing the global economy an additional $0.3-0.9 trillion USD a year.[12]

What efforts are being undertaken to plan, implement and accelerate adaptation action?

WorldGBC has launched an industry guide to 'Climate Change Resilience in the Built Environment', which supports the urgently needed global transition towards infrastructure solutions which focus on people.

The guide has been developed in partnership with the *UN High-Level Climate Champions and C40 Cities* and provides effective and practical steps that can be taken on a building, community and city scale to adapt and build resilience for everyone, everywhere.

As impacts and damage from extreme and gradual weather events will occur at building, community, city and even national scale, measures to mitigate damage and ensure recoverability must be implemented at systemic level. To incorporate climate resilience strategies across a series of complex systems, all built environment stakeholders and decision makers will have to engage and take responsibility. In particular, leadership from local and national government is essential to activate meaningful resilience and adaptation solutions.

Other initiatives relevant to the sector include the:

Race to Resilience

The High Level Climate Champions Race to Resilience campaign aims to catalyse a step-change in global ambition for climate resilience, putting people and nature first. The Race To Resilience mobilises businesses, investors, cities and civil society to strengthen the resilience of 4 billion people in vulnerable communities by 2030.

Through a partnership of initiatives, the campaign will focus on helping frontline communities in urban, rural and coastal to build resilience and adapt to impacts of climate change, such as extreme heat, drought, flooding and sea-level rise

Roof Over Our Heads

Launched at COP27, the ROOH aims to improve by 2050 the lives of 2 billion climate vulnerable people living in informal settlements. ROOH was conceived out of a recognition of a collective failure to address the lack of access to safe and decent houses for the most vulnerable communities.

While formal settlements have seen improved construction standards aimed at increasing safety and quality and, more recently, to reduce carbon emissions, this is not the case for

[11] UN, Financing Climate Action
[12] WorldGBC, Climate Change Resilience in the Built Environment Guide, 2022

informal settlements. Instead, the void between the two has widened dramatically, exacerbated by increasing climate impacts.

The campaign will seek to implement a system of solutions from the ground up, beginning with the poorest and most vulnerable neighbourhoods. The idea is to demonstrate that larger volumes of resources can move with ease to small projects.

What are the opportunities, good practices, lessons learned and success stories?

The buildings and infrastructure of our cities can be part of the solution and resilience should be viewed as an opportunity to embed solutions and adaptability into the built environment. In this context, it is fundamental to consider resilience, adaptation, hazard and climate mitigation of our built environment as part of our transition to an equitable and sustainable future

There is a clear value proposition for a resilient and adaptable built environment at regulatory, organisational and owner/occupier scale, which includes drivers and benefits alongside the cost of inaction.

National and local government action and cooperation on resilience can facilitate partnerships with communities and enhance long-term growth prospects by protecting livelihoods of local people and businesses from climate change-related damage. In parallel, private sector organisations can protect their human capital, business operations and supply chains from the physical effects of climate change whilst also responding to evolving consumer demand.

The cost of inaction is a stark reminder of the need to take action, as these costs will be felt financially as well as socially. The difference between inaction on climate change and a rapid transition to resilience is reportedly worth $221 trillion USD to the global economy[13].

Buildings as a Cross Cutting Solutions

Built environments offer an integrated and holistic approach to climate change mitigation and adaptation that cuts across multiple sectors and can deliver

Equity

The decarbonisation of the built environment process provides an opportunity to deliver a just and equitable transition that reduces inequalities across communities. An equitable transition for the built environment sector will:

- Ensure that all citizens have equal access to safe, healthy, sustainable homes and communities.
- Protect human rights relating to health through the building and construction lifecycle
- Protecting health and wellbeing of people in the construction industry

[13] WorldGBC, Climate Change Resilience in the Built Environment Guide, 2022

- Provide long term value to communities and improve local quality of life

Further information on how the sector can deliver an equitable future can be found here.

Biodiversity

The built environment must prioritise nature-based solutions that enhance, expand, and protect the natural environment and restore biodiversity loss.

According to the World Economic Forum (WEF) the built environment sector is one of the top three global factors threatening biodiversity. There is an urgent need to pivot to ensure that the way our sector develops, constructs and operates buildings is done so having biodiversity front of mind.

More must be done to support educational initiatives on the role of biodiversity in response to the climate challenge — from the global scale role of habitats in carbon sequestration to the localised scale of resilience in terms of local climate regulation, shading and water absorption.