



08. Buildings in Climate Action.

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Abstract :

The primary intent of this article highlights the construction industry's dual impact on the global economy and environment, emphasizing economic growth alongside environmental concerns, especially regarding climate change. Urging rapid adoption of sustainable practices and reduced reliance on fossil fuels, the article stresses the need for collaborative efforts within the industry to prioritize climate measures. Systemic changes and innovation are advocated for achieving a lower carbon footprint, whilst recognizing progress in energy-efficient buildings and demanding a more comprehensive approach to address the climate crisis. The article suggests the need for coordinated action amid internal challenges, external demands, and market growth, promoting a shift towards sustainable practices and active participation in global climate action.

Keywords:

Climatic Influence, Market Equity, Global collaboration, Construction industry, Climate change.

Buildings are everywhere. They make our homes, schools, medical centres, offices, retail spaces, restaurants, gyms, warehouses, factories and so much more.

Enter the collective: the building industry sector

And the significant influence it has on our society – cannot be underplayed. It offers housing needs to the society's individual; while creating economic value for businesses in the form of tailor-made workspaces, plants, and infrastructure.

The Global Economic Context

The building sector, despite its many internal challenges, plays an important role in the global economy and prosperity. Let's take a moment on the projection of the sector in the coming decades.

Numerous economic forecasts suggest that the building industry is likely to remain on a path of growth, going forward into the current decade 2020-2030, as well. (Statista, 2023)

Among other many reasons, this growth is particularly expected to occur on account of 3 prominent factors -

- (i) the growing human population,
- (ii) the increasing migration from rural to urban areas, and
- (iii) the prosperity of individuals themselves: as the global economy grows, particularly in the emerging countries.

The influence of these factors is confirmed when we look at the largest global construction markets of today.

As I put this piece together in August 2023, the Asia-Pacific region remains the largest global construction market, followed by MENA (Middle East and Africa), where all these factors co-exist.

All things said, the building sector is likely to keep growing in this decade. This sector growth will demand not only more manufacturing of construction materials; but also,

generation of electricity to power the new building stock along its life.

The Climate Backdrop

To produce this stock of construction materials and electricity, we will inevitably fall back on our traditional form of energy – burning of fossil fuels (coal, oil and gas). Since the industrial revolution, fossil fuels have provided the primary means of energy to run machines and technologies for manufacturing among other things; and produce electricity.

Enter Climate Change.

The chemical reaction involving the burning of fossil fuels for energy is also complemented with the release of a large amount of carbon dioxide and other greenhouse gases. (note: fossils are nothing but highly concentrated carbon matter. So, when they are burned, the locked carbon in them is released into the atmosphere)

Our prolonged dependency on fossil fuels over the years has resulted in continuous emission of large quantities of greenhouse gases – which have accumulated within the earth's atmosphere. They have formed an atmospheric blanket, trapping more of the solar energy reaching the earth – causing global warming and thereby climate change.

To slow down climate change, we not only have to limit any further greenhouse gas emission into the atmosphere; but find ways to suck back out those that have accumulated in our atmosphere over the years. This is the climate action agenda the world is on path today.

Building's Emission Burden

The building industry sector relies on the combustion of fossil fuels primarily for construction material manufacturing and generation of electricity to power it up. But that is not all.

The dependency of fossil fuels is well intertwined across

the other stages of building life as well – as petrol-diesel in transportation of construction materials, as petrol-diesel & electricity from fossil fuels in the construction process itself, maintenance of the building stock and its final demolition.

In fact, the building sector's burning of fossil fuels is so significant, that the industry is alone responsible for about 37% of all greenhouse gas emissions that take place across the globe each year. (United Nations Environment Programme, 2022).

This is approximately 10,000,000,000 tonnes of CO₂, every year, changing the climate with each tonnes of CO₂ released into the atmosphere. (United Nations Environment Programme, 2022).

To break it down further,

(1) about 9% of this emission comes from the burning of fossil fuels to extract, manufacture and transport building materials and products, while,

(2) The remaining 28% comes from the burning of fossil fuels to meet building's energy demand – particularly in the form of electricity.

The building sector is hence a major contributor to the ongoing climate crisis.

It must hold the responsibility to limit any further greenhouse gas emission into the atmosphere. Or putting it another way, the climate action movement would fail if buildings were not a part of the fix. It is without doubt that how the building sector shapes its emission pathway will largely determine the extent of success in our efforts towards a global low-emission-economic-future.

It is this mammoth share of the building industry's emissions that builds the case for a meaningful climate action aimed at significantly reducing the emission footprint of the sector.

Challenges Ahead

The biggest hurdle to the transitioning of the building sector to a low-carbon-emitting entity will come from the industry itself.

One, the Internal Challenge: The main challenge particularly lies in the colossal task of aligning the various stakeholders within the building industry on climate action. These stakeholders include, but are not limited to construction product manufacturers, architects, structural engineers, services engineers, facility managers, and most importantly the investors.

Each stakeholder group is a mini sector in their own right with their own priorities and challenges. Aligning these stakeholders for the building sector's climate action will require them to channel their priorities to lower the building sector's overall carbon emission footprint.

This is no easy task. Furthermore, it raises questions than one might think: Who will lead this effort? Architects? Investors? What common platforms are available to do

such sector-level conversations? What should be the role of the Government in moderating this change?

Two, the External Challenge: By virtue of the fact that the building sector offers economic value (via workspaces, plants, and infrastructure) to other sectors; it will likely also be the first in line when "other sectors" begin to solve their emission problems. "Other sectors" are likely to demand their building assets to be low-carbon emitting.

A primary example of this can be seen in the changing building asset portfolio of India's IT Giants. Most IT companies in recent years have now invested new money into ensuring that their building stock is made up of not only materials with low embodied carbon, but that their building stock is energy efficient (and where possible, almost independent of the electricity grid).

Three, the Market Challenge: If the above wasn't challenging enough, the situation is further stretched by the fast-growing demand for new buildings with every passing year. We have explored this earlier in this article. Especially in the fast-developing countries of Asia, Middle East and Africa.

To sum it up, the building industry will not only have to develop solutions to reduce its emissions to near zero in alignment with global climate action; but do it while continuing to move faster to meet growing demand. In all fairness, the challenge to the building industry is enormous and will require system-level changes. Business as usual is not much of an option – going ahead.

The Quintessential Future

Clearly, the building and construction industry is a crucial component of the Global Climate Action Plan. With over half of the buildings that will be standing in the year 2050 yet to be built – the building industry stands on a very interesting junction of growth. And most of us in the industry today, will be witnesses and participants of how the industry's progress beyond this junction to a low emission pathway.

What we build today will be our emissions legacy.

While much needs to be done, a sensible place to start participating in solutions would be to acknowledge the work that is already underway within the building sector to this means.

Numerous debates and dialogues have taken place over the past few years and 'frameworks/call to action' such as those for energy-efficient buildings and net-zero carbon buildings have been developed to prevent the devastating impact of a rapidly changing environment.

Leaders in the building sectors acknowledge that a tried and tested 'business-as-usual approach' to constructing and operating buildings will not work, going into the future.

This has encouraged experimenting with new solutions, concerned with systemic changes within the industry and innovative thinking on manufacturing processes and building design.

The 'energy efficient' and 'net-zero' carbon building frameworks that have emerged over the past few years are an example of this. They are offering a critical opportunity to address climate change, within the building industry.

However, the speed and scale of this transition are not near sufficient, we will need all of us.

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Harish Borah is a subject expert in cost/carbon studies within the building industry. Among various engagements, he is the Principal 'Carbon' Expert for ADW Developments (UK), member of the GRIHA's 'Technical Advisor Committee' (India's Green Building Rating System) and Founder at OnePointFive Tribe. He is an alumna of NIT Silchar, University of Manchester (UK) and University of Cambridge (UK); has the distinction of receiving the Ratan Tata Trust Grant (India), Hammond Trust Grant (UK), and Student Leader Award at 'Commonwealth Study Conference, London', among others. He has also been named among the top 25 leading minds in sustainability by the Economic Times, in India.

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