

# High-level Review of the Barriers and Drivers for Sustainable Buildings in Developing Countries

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**Abstract:-** Sustainable buildings are one of the most significant drives for sustainability, that can introduce a range of positive influences when done properly. In developing countries, sustainable buildings can certainly have the same positive impact. This paper observes the situation of sustainable buildings in the context of developing countries, where a variety of static and emerging risks, and fragmented perceptions tend to make reality much more complex. It also takes into account the challenges and the influential factors in those countries and provides an overview of the situation with environmental consciousness as an overarching theme.

**Keywords:-** Sustainability, Developing Countries, Barriers and Drivers for Sustainable Buildings.



**Figure 1: Sustainable Building**  
(Source: Shutterstock, 2021)

## I. INTRODUCTION

In the city-centric civilisation of today's densely populated world, urbanisation is often seen as the way towards living a better life. As a result, the importance of the construction industry and buildings have increased considerably. However, in recent years due to climate change and overall degradation of the environment, a public discourse consisting of environmental consciousness has formed (Lin & Niu, 2018). This discourse has paved the way for the concept of sustainability to materialise and sustainable buildings is now a reality.

## II. IMPORTANCE OF SUSTAINABLE BUILDING IN DEVELOPING COUNTRIES

The idea of sustainability has materialised in the form of sustainable buildings and eco-neighbourhoods, that aim to reduce greenhouse emission and energy consumption at an observable level (Pearce & Ahn, 2017). Building and construction is a massive industry and the traditional mode of construction along with conventional energy strategies incur significant energy consumption and environmental pollution. Sustainable buildings are created with the goal of solving these problems.

Developing countries suffer a range of complexities when it comes to providing the citizens with adequate housing facilities. These countries generally have a pronounced disparity of income in its population which often leads to significant fluctuations between lifestyles and affordability in various areas of the country (Alvaredo & Gasparini, 2015). Buildings are one such area, and sustainable building practice, although a popular concept, is not a widely practiced reality in developing countries. Establishing sustainable buildings will not only increase the living standard of the people, but it will also bring in a sense of progress and increase affordability to some extent. Due to the energy efficiency of these buildings, the reliance on traditional fuel will decrease over time and renewable energy sources will be prioritised.

Financial condition of developing countries is quite disproportionate, with high income inequality and lower per capita income. As such, the initial higher cost of sustainable building adoption might negatively impact their appeal (Chan, *et al.*, 2018).

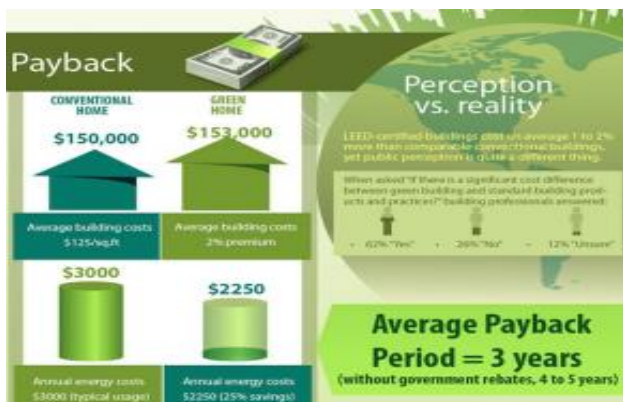


**Figure 2: Housing Problems in Developing Countries**  
(Source: Bloomberg - 2021)

However, as time progresses, the higher cost benefits in sustainable buildings becomes apparent, especially when considering eco-neighbourhoods with huge potential for long term self-sufficiency and energy efficiency. Developing countries will benefit from a strategic adoption of sustainable building practices as it will also introduce much more safe and inclusive housing prospects for the long run. Water pollution and waste management are two very real issues in the developing countries. Sustainable buildings, especially as part of ecological neighbourhoods has the capability of processing waste and treat water as part of the building itself, therefore reducing pollution at the very early levels. Utilising sustainable buildings as part of this strategy will ensure that there is a strategic foundation, on which future development can take place.

**III. BARRIERS AND DRIVERS**

Sustainable buildings, although looked at as the way towards future, are not the most adopted approach when it comes to the reality of the situation, especially in developed countries. The most common perception is that of incurring a higher capital cost, which is a significant barrier when it comes to the adoption of sustainable buildings.



**Figure 3: Cost perception vs reality**  
(Source: Gloede, 2021)

Apart from that, developing countries have a fluctuating market situation which cannot always be relied on for generating enough profit for green buildings. The lack of strategic models that can be used to assess the costs of sustainable buildings is also another hindrance.

Ecological consciousness, in today’s business environment is often becoming more of a branding and marketing aspect of a product, when compared to the actual application of the product. In case of sustainable buildings too, this mentality is present, which has resulted in a lack of data regarding how efficient it will be in the context of a developing country (Nguyen, et al., 2017). The lack of any standardisation of certain performance metrics also creates confusion regarding what should be the ideal performance of sustainable buildings when compared to traditional buildings in developing countries.

In the developing countries, there is also an observable lack of education regarding environmental consciousness in the broader public context. Income inequality and poverty are very real issues that require substantial resources to mitigate, and sustainable buildings are not often the first priority when it comes to the governments (Cobbinah, Erdiaw-Kwasie & Amoateng, 2015). Apart from that, corruption is also an issue to some extent in most developing countries which results in the creation of further challenges when creating a sustainable building or ecological neighbourhood.

Despite the challenges, there are some significant motivating factors when considering sustainable buildings. Environmental consciousness is a substantial international discourse in today’s world. As a result, developing countries adopting these strategies often create a good public image of themselves, which further results in them reinforcing their efforts in creating sustainable infrastructure.

Fuel economy is expensive and sustainable infrastructure; for example, sustainable buildings and ecological neighbourhoods; generally, reduces the reliance on fossil fuel. Regardless of the widespread perception of higher cost in sustainable buildings, the actual lower cost combined with well-thought plans can significantly decrease energy consumption. If implemented from a fundamental structural level, renewable energy infrastructure can also reduce dependence on fossil fuel rich countries (Balaban & de Oliveira, 2017).

Quality of life is not always up to the par in the context of a developing country. Drastic income inequality and lack of government efforts often put the citizens at a disadvantage. Sustainable buildings can reduce this disadvantage by introducing self-sufficient affordable housing to the wider population.

#### IV. CONCLUSION

There are a range of challenges and drivers when it comes sustainable buildings. However, above all, the overarching truth remains that these buildings are the way towards the future of humanity, and only with the strategic adaptation of sustainable practices, humanity can move forward as a whole.

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