

## **1. Introduction**

The increasing average atmospheric temperature has led to global warming, which drives a set of changes to the Earth's climate and weather systems. These swift changes are happening as humans continue to emit heat-trapping greenhouse gases (GHG) to the atmosphere. Among these emissions, carbon dioxide (CO<sub>2</sub>) is the critical anthropogenic greenhouse gas due to its abundance and its ability to remain in the atmosphere for thousands of years.

CO<sub>2</sub> emissions can be from natural and human sources. One of these sources originates from the urbanization process. Urbanization is a dynamic process that changes rural areas into urban areas with an increasing number of people and the expansion of the built environment horizontally and vertically. The built environment is the anthropogenic surroundings that provide infrastructure and facilities for human activities, and they are the fundamental components of the economy and social development of a nation. Thus, the acceleration of urbanization played a considerable role in rising CO<sub>2</sub> emissions in the building sector.

In general, the building sector ranges from construction to operation, which can be further divided into residential and non-residential buildings. These include the processes of adding structures to areas of land and the operation, service, and maintenance of the building. With the building sector facing a resurgence in growth, a massive direct and indirect impact on the environment has been reported. It is considered as one of the significantly consuming and waste generating sectors of the economy. The environmental impact of this sector can be categorized into ecosystem impacts, natural resource impacts, and public impacts. This sector is also responsible for significant energy consumption and emission production, such as GHG emissions, particulate matter, sulphur dioxide, carbon monoxide, and nitrogen oxide. As a result of the energy consumption from this sector, the ambient CO<sub>2</sub> level has increased, which generates enormous proportions of CO<sub>2</sub> emissions. Sources of CO<sub>2</sub> emissions in this sector can be from the energy utilization required for the manufacturing and transportation of the building materials to the processing of resources, construction waste disposal, and the demands of construction equipment.

The building sector consumes a substantial portion of non-renewable energy and prompts the emission of a significant amount of CO<sub>2</sub>. Building contributes approximately 39% of the annual global CO<sub>2</sub>. It has been reported that more than a third of the usage of total energy and CO<sub>2</sub> emissions is a result of the building sector in the developed and developing nations. Therefore, CO<sub>2</sub> emission mitigation measures are crucial. To promote CO<sub>2</sub> emission mitigation, planning on conservation of energy, and implementation of strategies to reduce potential emission mitigation should be prioritized. This paper aims to provide an overview of the issues, impacts, and mitigation strategies in the building sector to reduce and control CO<sub>2</sub> emissions. Carbon dioxide causes 80% of global warming.

## **2. overview**

Global warming is the long-term heating of Earth's surface observed since the pre-industrial period (between 1850 and 1900) due to human activities, primarily fossil fuel burning, which increases heat-trapping greenhouse gas levels in Earth's atmosphere. This term is not interchangeable with the term "climate change."

## **3. purpose**

The data throws light onto how much fossil fuels are burnt, per year per nation, which amounts to an increase in CO<sub>2</sub> every year. This will help researchers and environment experts to predict global warming. So countries should set a goal to decrease this amount year.

#### **4.Definition**

Carbon dioxide emissions or CO<sub>2</sub> emissions are emissions stemming from the burning of fossil fuels and the manufacture of cement; they include carbon dioxide produced during consumption of solid, liquid, and gas fuels as well as gas flaring.

#### **5.Advantage of CO<sub>2</sub> Emissions**

- The Arctic, Antarctic, Siberia, and other frozen regions of the earth might experience more plant growth and milder climates.
- The next ice age could possibly be prevented
- The Northwest Passage through the formerly icy Canadian Arctic Archipelago could arguably open up to transportation.
- Fewer deaths or injuries would occur due to arctic conditions.
- Longer growing seasons could mean increased agricultural production in some areas.
- Previously untapped oil and gas reserves might become available.

#### **6.Disadvantages of CO<sub>2</sub> emissions**

- Changes in ocean circulation and the resulting warmer temperatures disrupt the world's normal weather patterns, bringing about more extreme weather and an increased frequency of severe and catastrophic storms, such as hurricanes and typhoons. The increase in severe storms leads to a more frequent occurrence of such things as "hundred-year floods," decimation of habitats and property, not to mention, loss of life—human and otherwise.
- Higher sea levels lead to flooding of lowlands. Islands and coastlines are engulfed by water leading to death and disease due to flooding.
- The acidification of warming oceans leads to a loss of coral reefs. Coral reefs protect shorelines from heavy waves, storms, and floods and while they only cover about 0.1% of the ocean floor, reefs provide a habitat for 25% of the ocean's species.<sup>2</sup> Demolished reefs lead to increased erosion and coastal property damage and the extinction of species.
- Warming ocean waters means increased melting of glaciers and ice sheets. Smaller ice sheets form each subsequent winter, which has a devastating impact on the habitat of cold-climate animals and the Earth's reserves of freshwater.

#### **7.Conclusion**

In conclusion, climate change is the most significant problem facing the world. Global warming is increasing day by day. If we cannot prevent it as soon as possible, our world will face undesirable consequences.