Effects of Climate Change in the Construction Industry

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Abstract

Climate change is one of the greatest existential threats humanity has faced, and its source is the result of human actions. The construction industry has played a role in contributing to the issue and is responsible for large amounts of emissions. Policies enacted by the government and its agencies have sought to remedy this by reducing the impact construction has on the environment. This paper will explore some of these policies, their reception, and suggest potential options for the future.

Introduction

Climate change has been a prevailing global issue for well over a century, and with each passing year, the consequences grow more dire. The impacts of climate change are already being felt worldwide from droughts in China (Gunia, 2022), flooding in Pakistan (UNICEF, 2022), and crop failures across Europe (Mendes, 2022). The United States have also felt the repercussions of climate change in recent years with rampant wildfires in numerous western states, flooding in Appalachia, and increased intensity of hurricanes along the Gulf and East Coasts. There has never been a point in history where the effects of climate change have been more evident than as they are right now.

The construction industry has been notorious for its impact on the environment and is responsible for up to 38% of global greenhouse gas emissions (Neill, 2020). While this figure is contested by other sources (Architecture 2030, 2022), all believe that the industry is one of the largest contributors to global emissions. Construction processes like land clearing, use of gasoline-powered equipment, use of toxic or hazardous building materials, and erosion caused by construction all contribute to climate change. As demand for new projects continues to rise, the climate impact caused by construction will rise in turn.

Climate Change Policies

All is not lost with the fight against climate change. Countries around the world have committed to combatting the issue along with the United States. Policies have been implemented at both the state and federal level targeting to cut the construction sector's emissions.

The EPA has been steadily introducing regulations that target many construction related polluters. For instance, emission standards were set by the agency for nonroad diesel engines for the first time in 1994 (DieselNet, 2022). This marked the start of a phase-based implementation of emission regulations for new nonroad diesel engines. A total of 4 tiers were planned, though the 3rd was never implemented. These regulations restricted the amount of harmful chemicals that nonroad diesel engines could release. EPA Regulation 62.5 Air Control Standards highlights many regulations that cut back emissions from many sectors including construction. Section No. 4 specifically targets process industries, which includes emission standards for hot mix asphalt (HMA) manufacturing as well as on-site dust control (EPA, 2018).

Federal agencies aren't the only ones implanting policies that target construction emissions. Anti-idling regulations for large or diesel-powered vehicles have been introduced in 9 different states. While specifications vary, these laws seek to minimize the amount of time a vehicle can have its engine running without moving. This helps restrict fuel usage and carbon dioxide emissions. Many states also have their own sets of laws regarding construction processes, like acceptable water runoff levels, erosion control standards, and more.

Other Factors

Many other sources outside of government regulations are helping to reduce the construction sector's climate change impact. Perhaps the biggest of all is public perception. Being considered an environmentally friendly company is now a vital part to being held in a positive light by the public. When news of environmental malpractice by a construction company breaks, public backlash can be immense.

With the advent of social media, this information can be disseminated faster than ever and to a much broader audience. Backlash can cause economic losses for a company, as well as the potential loss of future work.

"Company Culture" is a buzzword that means the principles, ideas, and ways of doing things a company deems as integral to the way they conduct business. Company culture has been identified as one of the key factors in attracting new talent (Thompson, 2018). Many companies are now making building green as a key tenet in their culture, as many young workers entering the workforce believe environmental protection to be extremely important.

Construction Industry's Response to Policies

The construction industry is famously slow to adopt modern technologies and ideas, and its response to climate change policies is no different. It is easy enough for companies to circumvent regulations like anti-idling and runoff laws without oversight. Despite being behind other industries and struggling to adapt to policy changes, the construction sector has still seen massive progress in reducing its carbon footprint. Green buildings like those with LEED and WELL ratings have become increasingly more common with each year. Thanks to policies like engine emission regulations, the amount of pollution any given piece of equipment has been reduced. Public opinion has also pressured companies into being more welcoming to climate change policies.

My Suggestions

I firmly believe that more comprehensive policies need to be introduced to help progress the construction industry to being greener.

While the current policies are working, they haven't encompassed many parts of the construction process that generate pollution. One possibility is continuing the trend of lowering the maximum permissible emissions of new combustion engines. Large construction projects require many pieces of equipment, many of which generate emissions. Even a slight reduction to their emissions can remove significant amounts of greenhouse gases from entering the atmosphere. I also believe that the government should invest more into inspections. While very unpopular with construction firms and subcontractors, more inspections will keep companies accountable.

There are many steps I believe individual companies should take to help decrease their own environmental impact. Investing in research and development for new materials and processes that provide greener alternatives to existing methods can help greatly. In my personal experience, I have been able to see the benefits of companies experimenting with systems like prefabrication. Prefabrication can reduce the amount of equipment needed on a jobsite for specific tasks as well as the amount of personnel required. Most workers commute to jobsites via car or bus, and most heavy equipment runs on diesel. With prefabrication, the total energy expended can be reduced. As stated before, having a company culture of building green can help reduce a given company's climate impact. If being environmentally responsible is at the forefront of every employee's mind, then positive results can be expected.

AGC's Role

The Associated General Contractors of America has already helped to make progress in helping the construction industry reduce its climate impact.

It holds discussions with industry leaders to communicate how companies can align themselves to build greener and has implemented a Climate Task Force (AGC, 2021). The Climate Task Force seeks to educate and influence the industry to building more sustainably. Going forward, AGC should seek to do multiple things. The first being to continue their current efforts of educating. This helps keep everyone in the industry stay informed on current climate issues and how they relate to the industry. The second is to advocate for more climate related policies. AGC already advocates for many different ideas and lobbying the government to implement more solutions is entirely within AGC's power. Lastly, AGC should celebrate the achievements of its members who complete green projects or have a history of being environmentally friendly. This will help motivate its member organizations to build green with positive reinforcement.

Conclusion

The construction industry is one of the major contributors to global emissions and has been slower than expected to adapt to climate-conscious ideas. However, progress is still being made. Policies are being introduced by the government to help bring down emissions and companies are looking to build greener for ulterior reasons. Organizations like AGC also continue to advocate and educate, further helping the industry progress towards becoming cleaner. Much progress has been made in the construction industry against climate change, but there is still a long way to go.

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