

# Green Buildings: Their Impact on Economics and Their Market Potential

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## ABSTRACT

**This paper explores the economic impact and market potential of green buildings. It highlights their role in promoting sustainability, reducing energy consumption, and mitigating climate change. The study emphasizes green buildings' contributions to economic growth through energy savings, enhanced worker productivity, public health improvements, and job creation in specialized sectors. The increasing urban population and environmental concerns are driving the demand for green infrastructure, positioning it as a viable market with significant growth prospects. The research concludes that green buildings not only support environmental goals but also offer substantial economic benefits and market opportunities, underlining their importance in sustainable development.**

**Keywords:** Green buildings, economic impact, sustainability, energy efficiency, market potential, sustainable development

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## INTRODUCTION

Green buildings are a sustainable form of infrastructure that has been gaining relevance in many countries around the world and are popularly operated by companies such as LEED and BREEAM. Their foundational purpose is combating climate change by simulating a natural environment while being a useful infrastructure model (Ries et al., 2006). They guarantee the minimization of energy and water consumption, reduction of pollution, protection and maintenance of natural habitats, and more. With this in consideration, it is safe to say that the concept of green buildings may be applied to solve multiple global goals, such as sustainable cities and communities (UN SDG 11); climate change (UN SDG 13); life on land (UN SDG 15), etc. This investigation specifically will focus on the impact of green buildings on decent and economic growth (UN SDG 8).

### **The Demand for Green Buildings**

Along with the preservation of the environment and green buildings' huge improvement in regard to pollution, there is another important factor to consider when exploring the need for green infrastructure – energy efficiency. According to the United Nations (2018), it is reported that by 2050, 68% of the world's population will live in urban areas and cities. That puts huge pressure on infrastructure and population density overflow, risking absurd prices and extremely high usage of energy and resources. According to the World Resources Institute (2022), buildings are already responsible for  $\frac{1}{3}$  of global energy demand and  $\frac{1}{4}$  of all greenhouse gas emissions. Consequently, governments are and will be looking to target the energy consumption issue by looking for more energy-efficient strategies to implement. Fortunately, green buildings are a solution and already focus on stopping fossil fuel dependency and making way for green energy. Some ways that demand is targeted is a passive design, which is a strategy that focuses on using ambient energy instead of purchased energy, and some examples of that are wind catchers, solar chimneys, evaporative cooling, and more. Famously, there are also solar panels and green roofs, which absorb heat from the air, provide shade, and reduce the temperatures of the surrounding air. An astonishing example of one of the top energy-efficient buildings in the world, according to EEWa (2023), is the Empire State Building in NY. In 1991, when its 6,514 windows were replaced with double-pane thermal-glass windows, it cut the building's energy spending by around \$400,000 yearly. However, its main transformation occurred in 2011, earning a LEED gold certification. It was powered with 100% renewable wind energy, covering all energy usage. The renovation of the building reduced the energy spending by \$4.4 million annually and reduced its carbon footprint by 110,000 tons. To conclude, it is evident that energy-efficient green buildings have already saved millions of dollars worldwide, and with population density growing, their amount will continue to rise as well.

### What improvements do Green Buildings bring to the Economy?

The possibilities of economic improvement green infrastructure can offer are endless. Along with the millions of dollars it saves governments annually due to energy efficiency, it also stimulates huge economic growth.

One of the ways is through boosting worker productivity. According to a comprehensive study on the economics of green buildings, published by The Engineering Economist, employees who transitioned into working office jobs in green buildings were much happier with the IEQ of the building and green scenery, which influenced more labor hours. In addition, sustainable infrastructure has been shown to affect public health, which consequently also ameliorates worker productivity. Another study by Singh (2011), published in the American Journal of Public Health, proved that improved IEQ resulted in a smaller number of absences due to health issues, such as asthma, depression, and stress. It was also calculated that such improvements in worker health may result in an additional 38.98 working hours annually from each employer.

Speaking on a larger scale, green buildings also create new, sustainable, job opportunities and open the way for a new sphere of specialized labor. Specialized labor is well known to improve the standard of living and stimulate economic growth, especially in creative fields that require innovation, which is prominent in green infrastructure. The lifecycle of a green building includes its design, construction, renovation, and maintenance, all of which demand skilled workers since the process follows new techniques and technologies (Ries et al., 2006). Sustainability analysts, specialized architects, different types of urban planners, civil engineers, and more – are all core members in the making of sustainable infrastructure. Considering the rapid development and need for green infrastructure, soon enough the demand for specialized workers will rise as well, which consequently would leave an imprint on building a stronger economy.

### Potential as a Market

Taking into account the previously identified demand for green infrastructure and its undeniable impact on economic growth, it is safe to assume that its market will only grow from now on. Statistically, it is estimated that the green construction market is to reach USD 610.61 billion by 2027, at a CAGR of 11% (Emergen Research, n.d.) As mentioned previously, this market's potential foundationally stands on the increasingly high demand for green infrastructure due to its benefits for the environment, economic growth, and high money savings due to energy efficiency which leads to profit. As governments are starting to get increasingly concerned with climate change, it is without a doubt that soon enough new laws and regulations will be imposed on specific infrastructure — where green buildings can save the day. It is profitable for investors and construction companies to invest in sustainable building, because not only does it attract economic benefits, but it also saves considerable money in the long run and contributes to creating a healthy environment.

### CONCLUSION

While green buildings' primary aim is to improve the environment, they also offer an immeasurable amount of benefits, such as energy efficiency, which results in government budget savings, economic growth, higher worker productivity, public health, and many more. Furthermore, due to its huge demand, it has a bright future as a market and continues to grow at a CAGR of 11%. Therefore, green infrastructure has shown potential to lead the sustainable development of our societies and expand as a market, whilst creating a strong and healthy economy.

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