



## THE GREEN TRANSITION: OPPORTUNITIES AND CHALLENGES

Sachin Mandle<sup>1</sup>, Dr. Ritu Bhattacharyya<sup>2</sup>

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### Abstract

The globe is under growing strain from environmental factors such as pollution of the air and water, climate change, extinction of species, and waste production. Several worldwide laws and initiatives have been developed in response to these issues, but more needs to be done to achieve a swift transition to a green economy and a cleaner environment for everybody. These adjustments will need to be made in the context of other significant structural changes, such as the economic convergence of developed and emerging nations, the growth of urbanisation, and the adoption of automation and digitalization. Several economic sectors are involved in the green transformation. Determining the scale of the business opportunity brought on by the change is so challenging. Recent projections show, however, that the green economy is expanding quickly and may account for 10% of global market capitalization by 2030. In order for the commercial prospects connected with the green transition to materialise, there are a number of obstacles hindering the development and transmission of green technologies. This paper makes an effort to investigate the potential benefits and drawbacks of the transition to a greener economy.

**Keywords:** Pollution, Green Economy, Green Transition, Global Market, Technology.

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<sup>1</sup>Research Scholar - University of Mumbai

<sup>2</sup>Principal, Sasmira's Institute of Commerce and Science

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## 1. Introduction

During the past few decades, environmental problems have gotten much worse. Despite the predicted effects of unabated climate change, such as the possibility of desertification or rising sea levels rendering certain areas of the world uninhabitable, the likelihood and intensity of extreme weather events increasing. Climate change is inextricably linked to other environmental issues, such as the ongoing loss of biodiversity and ecosystem services. These environmental issues have prompted global efforts to step up policy action, such as the Paris Agreement on climate change, the United Nations 2030 Sustainable Development Goals, and the Aichi Biodiversity Targets; regional efforts to combat air pollution, such as the Convention on Long Range Transport of Air Pollutants; and regional resource efficiency and circular economics initiatives. These initiatives demonstrate the pressing need for a structural change in the world economy. The shift to a cleaner environment must be made in the upcoming decades, but these adjustments must take place with other significant structural changes. The environment will be under more strain as the global GDP is expected to double over the next 20 years while urban populations are expected to quadruple over the next 40 years. Production systems and labour markets are about to undergo significant change as a result of automation and digitization. Today's economic growth is mostly driven by innovation. This suggests that making the shift to a greener economy not only supports long-term economic development but also provides enterprises with a wide variety of new prospects. Instead, much

like all other industrial revolutions the world has seen, the green transition's forced structural restructuring of the economy offers market and commercial possibilities in all sectors. The green economy is clearly expanding quickly across a wide range of industries, and this trend is only expected to intensify in the coming years.

**Based on a study of the literature and current empirical data, this paper's objective is to answer these issues:**

1. What is the size of this business opportunity?
2. What types of innovations are required across industries?
3. What challenges and obstacles can impede such opportunities from implementing?

**Latest advancements in green technology development:**

The majority of the technologies that are now in use to reduce greenhouse gas emissions, as well as technology for managing waste, water, soil, and air pollution, adapting to climate change, and monitoring the environment. These particular technologies are included:

- Transportation with low carbon footprints, such as fuel efficiency technology, electric, hybrid, and fuel cell cars.
- Insulation, energy-efficient lighting and heating, and energy efficiency in the construction industry.
- Recycling materials and energy-efficient industrial processes are two examples of energy efficiency in the manufacturing industry.

- Climate change adaptation, such as sea walls and tidal barriers, flood forecasts, reforestation, storm shelters, and medical treatment of waterborne infections.
- Waste management includes solid waste collection, material recovery, recycling and re-use, waste fertilisers, and energy recovery from waste incineration.

The green transition will require a combination of green technology and a number of non-green technologies. This covers, in particular, digital technologies like blockchain, the internet of things, and artificial intelligence. The future of artificial intelligence is promising. In order to reduce system intermittency issues and boost energy efficiency, AI can anticipate weather and power costs. The application of AI for real-time decision assistance is possible for transmission and distribution system operators. Moreover, AI might enhance emergency decision support systems and assist in identifying ocean oil spills using satellite photos. AI might potentially help biodiversity, for example, by enhancing satellites' ability to detect changes in land use. There are new potential to address environmental issues thanks to the Internet of Things (IoT). Buildings might adjust in real time to pricing changes and weather conditions, improving their energy efficiency. In a few places, intelligent lamps that adjust to the weather and traffic are now being used. Smart traffic signals can adjust to the flow of traffic, cutting down on air pollution and improving the energy efficiency of transportation. Blockchain make it simpler to maintain supply chain transparency,

which helps fight deforestation and illegal fishing.

**The following are the business/market opportunities resulting from the move to a greener economy:**

By preventing environmental harms including climate change, biodiversity loss, overuse of natural resources, and air pollution, the global economy's transition to a "green growth" model should enhance wellbeing. Over time, a greener economy may simply lead to the substitution of destructive activities with constructive ones, with no quantifiable impact on overall economic production. Nonetheless, the period of transition will undoubtedly bring possibilities and challenges to many industries; certain operations will grow in response to new technical understanding, while others will decrease. Businesses and employees will benefit from a smooth transition to a greener economy. For instance, if customers explore for alternatives to high-carbon items, the demand for products from low-carbon intensity sectors, such as producers of renewable energy, electric automobiles, and so on, would rise. Certain industries will expand more than others, but within every industry, those who use resources more effectively will have an edge. Financial institutions that guide investment towards sustainable initiatives will have a lot of opportunity. The green economy is expanding, according to evidence. Over 3,000 publicly traded firms worldwide have exposure to the green economy, according to the analysis. Based on the worldwide listed market capitalization's 30% share, this amount has increased by almost 20% since 2009. This study estimates that the market capitalization of

publicly traded international enterprises, or around USD 4 trillion, now accounts for 6% of the green economy. This indicates a large investment opportunity that is about equivalent to the size of the fossil fuel industry. By 2030, market capitalization would rise to 10% with faster green investment.

**Global Scenario of a greener economy:**

The green economy offers chances and benefits to every nation, but the majority of nations also confront threats and weaknesses. Based on their existing profile, which has a high concentration of strengths and prospects, several nations, like the US, UK, Canada, China, Germany, Japan, and Korea, appear to be the best positioned to benefit from the green economy. It is intriguing to note that several nations, like Russia, Turkey, and Brazil, have top green innovators in respective industries, indicating that nations may be able to keep their competitive advantages in the green economy. New prospects abound in China, Korea, and Japan. India and Turkey have notable strengths, but they also have a significant perimeter of poor green innovation areas.

**The challenges and obstacles can impede such opportunities from implementing:**

There are several obstacles inhibiting the development and use of new, cleaner technologies, and hence preventing the commercial prospects connected with the green transition from implementing. In order to be produced, disseminated, and supported by new infrastructure, new technologies necessitate the development of new talents. Thus, it is probable that a

successful green transition will involve. Strong innovative skills will be needed more widely. This encompasses not just the education of researchers but also a healthy ecosystem for innovation. When investors lack the information essential to appropriately assess the risk return profile of new technology, financial barriers start to appear. One of the major barriers to the commercialization of research is the lack of proper funding along the whole innovation cycle. Every transformation can be slowed down by obstacles to a dynamic business environment, such as restrictions on competition. Lack of public interaction and acceptability with new technology leads to social hurdles. The implementation and spread of new technologies now depend heavily on communicating, avoiding, correcting, and reducing negative impacts. As inventions get more complicated, this gets harder and harder. Failures in governance and coordination brought on by timing issues or incoherence within policy areas lead to political and institutional impediments. Prices under-incentivize the adoption of low-emission technology as a result of ineffective government subsidies for the wasteful use of fossil fuels and the disregard for environmental externalities. The deployment of low-emission technology may be hindered by regulatory limitations. Another threat is posed by environmental laws that treat newcomers and established players differently.

**2. Conclusion**

While the move to a greener economy represents a clear commercial opportunity given the magnitude of the transformation required, it will also result in restructuring

both between and within economic sectors. Comparing these reallocations to other significant macroeconomic developments like globalisation and the use of cutting-edge information and communication technologies, they likewise seem minor. In order to reduce pollution and overuse of natural resources, green technology must be developed and widely used. They will promote the broad use of cleaner technology as well. Governments have been found to make unambiguous, long-term commitments when supporting policies, giving innovators the assurance they need to make long-term decisions. The incorporation of environmental factors in the innovation strategy may be assisted by environment-friendly mission-oriented policies, demand-side policies, regulation and performance requirements, and public

procurement. Improving coherence and policy alignment requires integrating biodiversity and other environmental concerns across all economic sectors. The performance of innovation may be improved and it can be funded with the aid of specialised platforms that promote collaboration between researchers, businesses, and governments. The shift to a greener economy will need not just domestic policy, but also more cooperation and coordination across nations. Governments must establish incentives for the development and use of breakthrough technology, particularly digital technologies. This not only promotes rapid growth, but also enables a smooth transition to an environmental sustainable, low-emissions economy.