



## RESEARCH ARTICLE

### GREEN ECONOMY AND SUSTIANABLE DEVELOPMENT

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#### ABSTRACT

The development should be always for the betterment of people without affecting the environment, it should not harmful to the earth. This initiative is called Green Economy Development. But real-world concern is how to make development without depleting the resources, especially scarce resources. So, finding an optimum level is the need of the hour. Nowadays Green Economy, Sustainable Development are the buzz words, thanks to SDGs. In 2015 all UN member nations were adopted the 17 world Sustainable Development Goals. The purpose of this article is to present and analyse how to reduce the gap in Green Economy and Sustainable Development. Here we require the fostering development must not deplete the natural resources. Even in marketing we adopt societal marketing concept, selling a product must be beneficial for at least three parties, it should give profit for the producer, value for the buyer and benefit for the society. So, in every development, society must get its share. This paper focuses its attention on the Green initiatives taken by the Kerala Government and its impact on Sustainable Development.

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## INTRODUCTION

We are in Gen-Z world, the world of ICT, the increase of the population's standard of living, intensive urbanisation, the generation of not ready to own anything, use and throw model-shows the reducing responsibility towards the SDGs. A significant reduction in natural resources and product life cycle is also evident. Complexity is considered with reconsideration of unsustainable consumption and production. In SDG, the goal 12 specifies "Responsible consumption and production" aiming to ensure sustainable patterns of production and consumption. This includes halving global food waste, managing chemicals and waste sustainably, and promoting resources efficiently. It also seeks to encourage companies to adapt sustainable practices, inform consumers about sustainable lifestyles and eliminate harmful subsidies, promote sustainable resources use - decouple economic growth from environmental degradation. Out of five methods of productivity, the sustainable production can be highlighted

change have been the main drivers of green economy. Based on this sustainable development, Trivandrum Corporation's green intervention under its Carbon, Neutral city project includes converting street lights to LEDs, installing solar panels on public buildings, transiting to electric public transport and improving waste management system. Smart road programs, prioritizing pedestrians and cyclists are developed. The Corporation also develops action plans for sustainable building environment, which includes "Net Zero Carbon" guidelines in new public buildings and develop a decentralised system for construction and demolition waste segregation. The term green growth is an economic growth by using natural resources in sustainable manner. It is an alternative concept to classical, industrial economic growth. The goal 17 of SDGs has raised the public awareness regarding green economy and sustainable development. Therefore reducing the excess use of resources, especially scarce resources which starts from extraction, production, encouraging reuse, recycle and reduce can be implemented through technological innovation and awareness of the society.

$$Productivity = \frac{output}{input} \text{ (Sustainable Development)}$$

Developing initiatives to reduce and manage waste by 3 R technique—Reduce, Reuse and Recycle Optimise resource usage, reduce pollution and combat the effect of climate

## LITERATURE REVIEW

This chapter discuss about the review of related literature and researches carried out in sustainable development, green economy and green entrepreneurship. Literature from various

resources were reviewed to study the current trends in the said area. The different categories of this study are tabled into Sustainable development, Green economy and Entrepreneurship. For sustainable growth the developments must not harm the society, the myths against the green economy are economic growth and environmental sustainability are negatively related and shift to green economy is costly for developing countries. Nowadays, many developing countries have targeted green economy as a new economic growth model to achieve sustainable development. Green economy generates more jobs, by which it found a solution for reduction of unemployment and decreases poverty. Green economy contributes to the creation of many new investments and sectors such as Green technology, Green transport, Green cities etc., this sustainable development and green economy minimize environmental deterioration, adapting and mitigating the impact of climate warnings and other challenges faced by developing countries.

### Sustainable development

- Michael Carley, Ian Christie (2017), e-book on Managing Sustainable Development, this book examines the developed ideas about the forms of organisation for environmental management which were suited to the challenges posed by the pressing need for sustainable development. The book examines the main institutional constraints on managing for sustainable development.
- Y. Vertakova *et al.* (2017), Problems of sustainable development worldwide and public policies for green economy to level undesirable effects. This paper suggests to systemize the main challenges in the area of social, economic and environmental development while taking into account their specific features and provide recommendation relevant to the guidelines for public policies related to reduction of the impact of economic activities on the environment. This article reveals the high importance of the development of green economy for ensuring economy stability.
- Timothy O. Olawumi *et al.* (2018), A Scientometric review of global research on sustainability and sustainable development, this study uses scientometric review of global trend and structure of sustainability research in 1991-2016. It discusses about emerging trends in sustainability research were sustainable urban development, sustainability indicators, water management, environmental assessment, public policies.
- Sandhya G (2020), Understanding the purchase intention and willingness to pay for organic apparel, This study had modeled two aspects of the consumer willingness to pay for organic apparel – the overall willingness to pay; and the willingness to pay a price premium
- Padma P(2020), Sustainable consumption for sustainable development, the findings are unsustainability of humn development activities is mainly due to over consumption of natural resources. Wise and conscious consumption will sustain the consumption which in turn sustains production.
- Inese Mikhno *et al.* (2021), Green economy in sustainable development and improvement of resources efficiency discusses about the direction and principles of a green economy functionality as the basis for further development of society. The use of indicators that take into account negative externalities: such as Pigouvian Tax. The aim is to contribute to the development of green economy as a part of a policy aimed at reducing environmental risks in the process of economic growth.
- Nourhane Houssam *et al.* (2023), This study assesses the role of green economy on sustainable development in developing countries. The findings showed a positive relationship between green economy and GDP per capita and level of unemployment and negative relationship between green economy and the poverty rate in developing countries. Concludes green economy can be seen new economic paradigm and key factor in economic development, job creation and poverty reduction.
- K. Katini (2023), Role of financial literacy and digital financial inclusion on sustainable development among the mao nag tribe of northeast India, the empirical results showed a positive corelation between financial literacy and sustainable development. This study further reveals that digital financial inclusion positively affects sustainable development, and the use of digital finance is the pinnacle of inclusive digital finance.
- Srivastava, Ashutosh (2024), A study of the awareness of UN SDG and an analysis of the organisational social sustainability measures on supply chain performance, this evaluates the top and middle management in the supply chain to assess their comprehension of social sustainability measures and their correspondence with the United Nations SDGs.

### Entrepreneurs and Green economy

- Marina KAIM. *et al.* (2020), The development of green entrepreneurs in the modern work economy, which explores the significant increase in popularity and profitability of green entrepreneurs throughout the world. It also discusses the main trends in the development of green enterprises in modern world economy through a wide range of aspects: as a megatrend in global economy, its share in foreign direct investment (FDI), international trade and consumption, its role and impact. Concludes with green entrepreneurship is a megatrend in the global economy that is reshaping the latter at a growing pace.
- Miguel- Angel *et al.* (2020), The relationship between green innovation, social entrepreneurship and sustainable development, in this article traditional economic growth objective is changed by the sustainable development goal through innovation and entrepreneurship. The findings are Institutions play important role, it would be advisable to establish improvements regarding the rule of law and regulatory quality to increase social entrepreneurship. Sustainable development has higher coefficient with social entrepreneurship.
- Muhammed Sajad N (2023), Green consumption for a Sustainable future in an emerging economy factor influencing the adoption of zero waste, this study provides evidence to connectedness to nature and attitude towards ZWL in both zero waste consumers and general consumers. Connection to nature can positively influence their attitude towards ZWL.
- Xushi Wei *et al.* (2023), Does environmental entrepreneurship play a role in sustainable green development? Evidence from emerging Asian economies. Two different environmental proxies of environmental entrepreneurship are used in this analysis including electricity production from renewable energy and nuclear and renewable energy production. A theory named triple bottom line has emerged, which is a sustainable

development theory and can account for the social, economic and environmental values of firms. The findings are, for green economic growth electricity production from renewable sources and renewable energy production turns out to be important factor. The formulation of appropriate institutions and reforms for good governance can support promoting sustainable growth and improving overall economy.

- K. Vasudha (2023), A study on green entrepreneurship role towards sustainable development of south India, this thesis assesses the role of higher educational institutional governance system practices with particular emphasis on creation of green entrepreneurial drivers among youth in South India towards achievement of sustainable development. It concludes with the green entrepreneurship in India, the stage of infant but the availability of possibilities is high. The success of green entrepreneurship strongly requires effective policy designing, economic assistance, green living and innovation centres for testing eco-innovations, training and government intervention towards sustainability.
- Diksha Gariya (2024), Carbon negative pathways for resource efficient translation of agro residues sustainable initiatives towards green economy, the researcher's finding says evolution of industry 4.0, which focuses on integrating digitalization and circular economy principles to conserve materials and energy, fostering sustainability.
- Mondal, Sourav (2024), Green entrepreneurship circular economy and sustainable development a study of Indian MSMEs, this study identifies enablers of green economy and categorized into technology-commercial-organizational-environmental-social contexts. We have prioritized the enablers because implementing all of them are not easy. It also encourages the creative industries, which generates more economical and competitive advantages besides sustainable developments.
- Aziz, Farhat (2025), Exploring the retail investors perception towards investments in green bonds in Indian context, the findings suggest there is a need for targeted initiatives to encourage women and younger investors in the green bond market. Policy measures such as the implementation of preferential capital treatment for low-carbon assets have the potential to provide additional incentives for investment in green bonds.
- Damen Jeet *et al.* (2025), A book on sustainability and sustainable development, looks at business initiatives that aim toward corporate strategies for social responsibility, the use of technology in human resource management toward sustainable efforts, adopting industrial policy to sustainable development goals, developing sustainable green banking initiatives.

## OBJECTIVES

The objective of this study is to break some myths related to green economy and entrepreneurship. There is an inescapable trade-off between environmental sustainability and economic growth. Green economy is a luxury thing and only developed countries can only afford and also the developing countries and third countries thought the developed countries impose these restrictions on developing nations and by the way imposing poverty there.

- To identify the trade-off between environmental sustainability and economic growth

- To identify the impact of green economy on employability.

## METHODOLOGYS

Optimum use of natural resources, especially scarce resources for the economic growth of present while some must be left for future generation also (WCED,1987). The most sustainable development is through green economy and entrepreneurship. In India the start-ups success rate is below 20%, the reason for this may be due to lack of education, skills, inventiveness, experience, networks, finance and market access. Green practices in different sectors like renewable energy, agriculture, waste management and so on. In this article, we investigate the government policy makers effort for green economy both creating employment opportunity and educating the school children the need for sustainable growth. We analyse the secondary data available in the three corporation sites for testing is there is any trade-off between environmental sustainability and economic growth, is the green economy is costly affair in the long run, whether any positive relation between the green economy and employment.

## RESULTS AND DISCUSSION

In this conceptual analysis, when we go through the findings of some researchers in the area of green economy and sustainable development, the need for interventions of policy makers, educating the public about sustainable development, new technological invention towards green economy, conscious consumption and production which leads to zero waste lifestyle are some of the points to be discussed.

## MANAGEMENT IMPLICATIONS

### TRIVANDRUM CORPORATION GREEN INITIATIVES

In 2020, Local Body Election paved way for a new Gen Mayor, the development angle tilted from what we can do to how we can work for the benefit of a society.

### Achievements

**Interventions under the Carbon-neutral city project:** Trivandrum has network of electric public transport buses including both regular city service and special open top double-decker buses for site seeing. The regular fleet acquired under the smart city project with 115 buses operating on 48 different routes replacing many diesel buses serving new routes connecting interior areas of the city. Chalo App is used to get live location of the buses.

**Solar panels installed on several government buildings in Trivandrum:** Initiative of Smart city project and programmes led by the Agency of Non-conventional Energy and Rural Technology (ANERT). Spaces of government buildings already or soon to be equipped with solar panels. This including legislative assembly complex, Kerala University library Attakulangara Government high school and Government women's college. This initiative aims to produce Carbon footprint and energy bills of these institutions, with a goal to generate significant solar energy to power the city. Targeted buildings – government schools, police stations, civil stations, KSRTC bus depots, Kerala Water Authority building. Objectives are to generate renewable energy and reduce carbon

emission, low energy bills and aim to make Trivandrum as one among India's largest solar cities.

- **Seed ball campaign:** Trivandrum Corporation conducted a major seedball campaign in August 2025, as a part of its green budget 2025 initiative. It received world book of records for its scale and efficiency. The campaigns are over 7000 students create and dispose 5 lakh seedballs in a single event in Puttharikandam Maidan, aim to provide reforestation and urban greenery.
- **Carbon Credit Trading:** This initiative is to reduce emission and potentially generate revenue. The government already running the "Non-zero carbon Kerala" campaign, which provides training for residents and has led to several institutions becoming carbon negative. The cities 2023 budget propose this project to carbon neutrality by 2040. 152 local bodies and 55 institutions are participating in carbon account and reduction program.

Energy management centre (EMC) has been conducting training for residence association, farmers, students and others on how to reduce their carbon footprint. Apps are developed to help to calculate greenhouse gas emission. In September 2025, 11 institutions in the state have achieved carbon negative status based on the audit conducted by Haritha Kerala Mission.

## GREEN INITIATIVES OF KOCHI CORPORATION

Some of the Green initiatives taken by Kochi corporation for sustainable development which includes waste management programme like "Towards plastic less Kochi Campaign" and a division-wise clean-up drive to make Kochi clean city. This attracts tourists and the tourism related business grows.

**Sustainable celebrations:** Partnering with waste management company like Green Worm, the corporation ensures waste is segregated and managed sustainably during events like Cochin Carnival- a major tourist attraction.

**Kochi APP:** Installation of QR codes in household and in establishments to link for the Kochi App for waste management purpose, it gives schedule for the inhibits.

**Green space and Afforestation:** A public initiative inviting citizens and institutions to provide land for developing "Kawaki Forest", Pachathuruttu Project, "EnteKochikkuoru Maram" (A Tree for my Kochi) are some of the initiatives taken by Kochi.

**Sustainable Transportation:** The Ministry of Housing and Urban Affairs awards Kochi "The City with Best Green Transport Initiative" for its efforts in sustainable mobility, driven by the Kochi Metro Rail Ltd., (KMRL), and Cochin International Air-port Ltd.,

**Urban Development:** Projects are underway to address urban saturation and create a climate resilient urban environment, such as sustainable Land Reconstitution Project.

## KOZHICODE CORPORATION GREEN INITIATIVES

Kozhikode, a coastal city in Kerala, has emerged as a hub for sustainable practices, eco-friendly businesses, and environmental conservation initiatives. These efforts align with

global trends toward sustainability and climate action, driven by both government policies and grassroots organizations.

**Malinya Muktha Navakeralam:** The establishments adhere to strict guidelines, including banning single-use plastics, segregating waste, and maintaining organic gardens. The campaign also extends to private and semi-governmental entities in its second phase, emphasizing e-filing systems, clean water access, and waste management protocols.

**Eco friendly business and products:** Smart Solutions: K-smart (Kerala Solutions for Managing Administrative Reformation and Transformation) is a data centric e-governance platform for state's Local Self Government Institutions, they support- Tax payments, Licensing, Permits, Compliant Redressal, File Management etc.,

**Biodegradable Tableware:** This creates new opportunity for local entrepreneurs, were they can use local resources. An eco-friendly disposable solution.

## KERALA INFRASTRUCTURE INVESTMENT FUND BOARD (KIIFB)

A financial institution constituted by the Government of Kerala to raise funds for financing critical and large infrastructure projects in Kerala. Some of the projects in Thiruvananthapuram corporation area are as follows. Urban rejuvenation and city beautification, Kerala Fibre Optic Network (KFON) and Hi-Tech school programme. Some projects in Kochi Corporation are Petrochemical and Pharma Park at Kochi, Integrated Urban Regeneration and Water Transport System(IURWTS) and Road Projects. Some projects in Calicut Corporation were Tourism Development, Agro Parks and Revenue Tower.

## CONCLUSION

To conclude, the economic growth consumes more resources and energy which produce more waste also, that affect the environment. For sustainable development, the output may be reduced by little, if you can hugely reduce the input. The optimum use of resources can be achieved by industrial policy, research and innovation and also with education and creating awareness. Kerala Government taking some extra steps to green initiatives through Haritha Keralam Mission, providing opportunity for Women Self Help Group members to become entrepreneur, infra building projects with green protocol for business development and ease of doing business. More careful steps are adopted for educating students about the green economy and sustainable development. This Green economy as a policy strategy should give awareness to the current generation that resources also belong to future generation. This paper seeks to provide some answers to the conceptual inter relationships between green economy, green growth and sustainable development. The green economy is closely linked to the circular economy and increasing competitiveness, not only benefits but also challenges for all stakeholders. Gig economy is also another concept a freelance labour market which tries to reduce intensive urbanisation. Taxation of Natural Resources consumption can reduce the exploitation of natural resources, which boosts the sustainable development. SDG goals must be widely circulated in each and every programme which should be mandatory to make public

Table 1.

Researcher	Year	Research area
Michael Carley, Ian Christie	2017	Institutional constraints on managing sustainable development.
Y. Vertakova	2017	Importance of the development of green economy for ensuring economy stability.
Timothy O. Olawumi	2018	Emerging trends in sustainability research
Sandhya G	2020	Purchase intention and willingness to pay for organic apparel
Marina KAIM	2020	Explores the significant increase in popularity and profitability of green entrepreneurs
Miguel- Angel	2020	Sustainable development has higher coefficient with social entrepreneurship.
Inese Mikhano	2021	Reducing environmental risks in the process of economic growth.
Nourhane Houssam	2023	Green economy can be seen new economic paradigm and key factor in economic development, job creation and poverty reduction.
K Katini	2023	Digital financial inclusion and sustainable development have positive correlation.
Muhammed Sajad N	2023	People's connection to nature that influence them towards ZWL
Xushi Wei	2023	For green economic growth electricity production from renewable sources and renewable energy production turns out to be important factor.
K Vasudha	2023	The success of green entrepreneurship requires effective policy designing, economic assistance, green living and innovation centres for testing eco-innovations, training and government intervention towards sustainability
Srivastava, Ashutosh	2024	Supply chain and UN SDGs
Diksha Gariya	2024	Evolution of industry 4.0, connection between digitalization and circular economy
Mondal, Sourav	2024	Identifies enablers of green economy and categorized into technology-commercial-organizational-environmental-social.
Aziz, Farhat	2025	Initiatives for targeting women and young investors towards green bond
Damen Jeet	2025	Business initiatives that aim toward corporate strategies for social responsibility

awareness of these goals. We want to emphasise that the green entrepreneurship is not an costly affair in the long run, and moreover it create ample job opportunity which in case eradicate poverty. Overall co-ordination of the government, private institutions, industries and all public involvement is necessary for achieving sustainable development.

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