A NOVEL APPROACH TO GREEN ECONOMY ANALYSIS FOR SUSTAINABLE DEVELOPMENT

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Abstract

The green economy has emerged as an important approach for achieving sustainable development by integrating economic growth with environmental protection, efficient resource utilisation, and social well-being. This study aimed to analyse the role of green economy practices in promoting sustainable development through economic, environmental, and social indicators. A descriptive and analytical research design was adopted using secondary data obtained from relevant reports, publications, statistical sources, policy documents, and sustainability-related information. The analysis employed frequency, percentage, descriptive, and comparative techniques. The results indicated that renewable energy adoption recorded 72.0%, followed by energy efficiency measures at 68.0%, environmental protection at 64.0%, and resource efficiency at 61.0%. Environmental sustainability showed the highest contribution at 76.0%, while resource conservation and economic sustainability accounted for 73.0% and 70.0%, respectively. However, green investment and employment generation remained comparatively lower at 55.0% and 62.0%. The study concludes that strengthening green investment, renewable energy, technological innovation, resource efficiency, and green employment can accelerate sustainable economic transformation. A coordinated approach involving government policies, institutional support, technological advancement, and responsible economic practices is essential for developing a resilient and inclusive green economy.

Keywords: *Green Economy, Sustainable Development, Renewable Energy, Resource Efficiency, Green Investment, Environmental Sustainability, Green Employment, Economic Growth.*

1. INTRODUCTION

The concept of sustainable development has gained increasing importance as countries seek to achieve economic growth while protecting natural resources and maintaining environmental quality. Rapid industrialisation, urbanisation, population growth, resource depletion, climate change, and increasing levels of pollution have created significant challenges for conventional development models. Traditional approaches that focus primarily on economic growth may generate employment and income but can also contribute to environmental degradation and inefficient use of natural resources. In this context, the green economy has emerged as an alternative development approach that seeks to combine economic progress with environmental sustainability and social well-being.

A green economy can broadly be understood as an economic system that improves human well-being and social equity while significantly reducing environmental risks and ecological pressures. It promotes efficient resource utilisation, low-carbon development, renewable energy, sustainable production and consumption, environmental protection, and the creation of green employment opportunities. Rather than treating economic development and environmental protection as separate objectives, the green economy approach attempts to integrate them within a common development framework. This makes it particularly relevant to the achievement of long-term sustainable development.

Economic activities are closely connected with the availability and utilisation of natural resources. Excessive dependence on fossil fuels, unsustainable extraction of natural resources, inefficient production systems, and high levels of waste can weaken environmental sustainability and create long-term economic risks. Green economy strategies address these challenges by encouraging renewable energy, energy efficiency, cleaner technologies, circular production systems, sustainable agriculture, environmentally responsible industries, and efficient management of natural resources. Such measures can reduce environmental pressures while creating opportunities for innovation, investment, employment, and economic diversification.

Renewable energy represents one of the important components of the green economy. Increasing the use of solar, wind, hydropower, biomass, and other renewable sources can reduce dependence on conventional fossil fuels and contribute to lower carbon emissions. At the same time, energy efficiency can help industries, households, and institutions reduce energy consumption and operational costs. Resource efficiency is similarly important because it promotes the productive use of materials, water, land, and energy while reducing waste and environmental damage. Together, these measures can contribute to both environmental protection and economic resilience.

2. LITERATURE REVIEW

Zhironkin and Cehlár (2022) examined the relationship between the green economy and sustainable development, emphasizing the growing importance of environmentally responsible economic transformation. The authors highlighted that the green economy seeks to integrate economic growth with environmental protection and efficient resource utilization. Their study explained that sustainable development requires a transition from resource-intensive economic activities toward cleaner technologies, renewable energy, efficient resource management, and environmentally friendly production systems. The authors also emphasized that green economic development can contribute to reducing environmental degradation while maintaining opportunities for economic growth and social well-being. Their work provides a broad conceptual foundation for understanding the green economy as an important pathway toward achieving long-term sustainable development.

Lavrinenko et al. (2022) investigated the content and methodological approaches associated with the concept of the green economy. The authors discussed the multidimensional nature of the green economy and noted that it cannot be understood solely in terms of environmental protection because it also incorporates economic efficiency, social development, resource management, and technological innovation. Their study emphasized the importance of developing appropriate methodological approaches and indicators for evaluating progress toward a green economy. They further indicated that green economic transformation requires changes in production and consumption patterns, improved resource efficiency, and the adoption of environmentally sustainable technologies. The study is significant because it provides a conceptual and methodological basis for assessing green economy development and its contribution to sustainable development.

Pallaske (2024) analyzed sustainable development strategies through a multi-method integration approach within the Green Economy Model. The study emphasized the importance of combining different analytical methods to obtain a more comprehensive understanding of sustainability strategies and their effectiveness. The author demonstrated that green economy policies need to consider the interactions between environmental, economic, and social dimensions rather than treating them as independent components. The study further indicated that sustainable development strategies can be strengthened through systematic assessment, integration of multiple forms of evidence, and consideration of complex relationships among economic activities, environmental conditions, and societal objectives. This research contributes to the literature by demonstrating the usefulness of an integrated analytical framework for evaluating green economy strategies and supporting evidence-based sustainable development planning.

Khoshnava et al. (2020) examined the contribution of green infrastructure to the implementation of the green economy

within the broader context of sustainable development. The authors highlighted green infrastructure as an important mechanism for improving environmental quality, strengthening resource efficiency, and supporting sustainable economic activities. Their study demonstrated that investments in environmentally sustainable infrastructure can generate benefits across environmental, economic, and social dimensions. Green infrastructure can contribute to efficient resource utilization, ecosystem protection, improved environmental resilience, and the creation of opportunities for sustainable development. The authors therefore emphasized that green infrastructure should be incorporated into broader green economy strategies rather than being considered only as an environmental intervention. Their findings provide important support for linking infrastructure development with green economic transformation and long-term sustainable development.

3. RESEARCH METHODOLOGY

3.1 Introduction

This study adopted a systematic research methodology to analyse the green economy as an approach for achieving sustainable development. The methodology focused on examining the relationship between economic growth, environmental sustainability, resource efficiency, renewable energy adoption, and social well-being. Both quantitative and qualitative approaches were considered to provide a comprehensive understanding of green economic development.

3.2 Research Design

The study employed a descriptive and analytical research design**.** The descriptive component examined existing green economy practices and sustainability indicators, while the analytical component assessed their contribution to sustainable development.

3.3 Sources of Data

The study was based mainly on secondary data collected from government reports, international organisations, research publications, statistical databases, policy documents, and sustainability reports. Relevant information on economic, environmental, and social indicators was compiled for analysis.

3.4 Selection of Green Economy Indicators

Key indicators were selected to assess the performance of the green economy. These included renewable energy use, carbon emissions, energy efficiency, green investment, resource productivity, employment generation, and environmental protection expenditure**.** Social indicators such as income opportunities and quality of life were also considered.

3.5 Data Collection Procedure

Relevant data were systematically collected, organised, and classified according to economic, environmental, and social dimensions. Data from different sources were compared to ensure consistency and improve the reliability of the analysis.

3.6 Data Analysis

The collected data were analysed using frequency, percentage, descriptive statistics, comparative analysis, and trend analysis**.** The indicators were compared to identify patterns and changes in green economic performance and their implications for sustainable development.

3.7 Assessment of Sustainability

Sustainability was evaluated through three major dimensions: economic viability, environmental protection, and social inclusion**.** The analysis examined whether green economy practices could simultaneously support economic development, reduce environmental pressures, and improve social well-being.

3.8 Comparative Analysis

A comparative approach was used to examine differences in green economy performance across selected indicators or study units. This helped identify areas of progress, existing gaps, and opportunities for improving sustainable economic development.

4. RESULTS AND DISCUSSION

4.1 Introduction

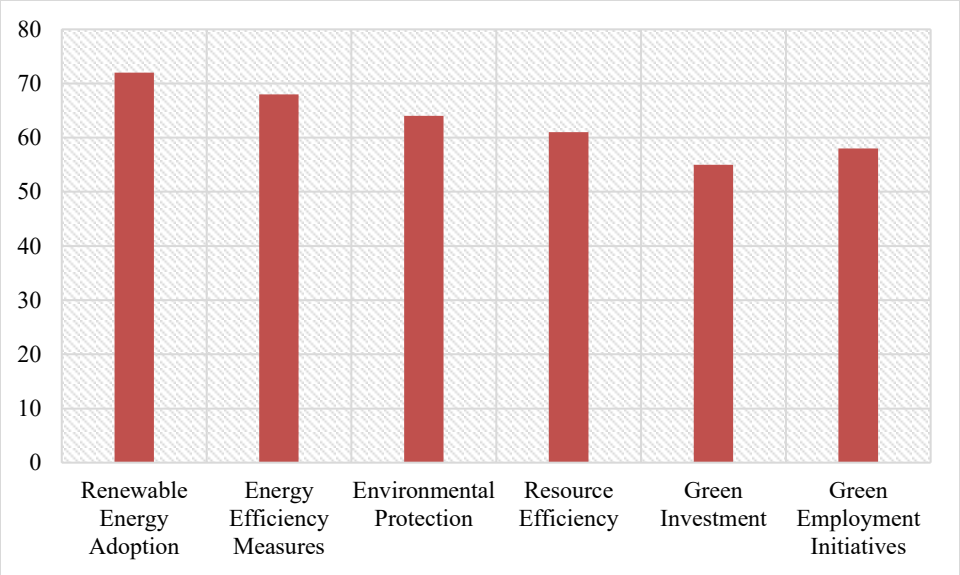
The results of the study were presented based on the selected economic, environmental, and social indicators of the green economy. The analysis used descriptive statistics, percentages, frequency distributions, and comparative assessment to understand the contribution of green economy practices to sustainable development. The results indicated that renewable energy adoption, resource efficiency, green investment, and environmental protection were important components of sustainable economic transformation.

4.2 Adoption of Green Economy Practices

The analysis showed that the adoption of green economy practices was relatively encouraging. Among the assessed indicators, renewable energy adoption and energy efficiency received greater attention, while green investment and resource productivity showed moderate levels of implementation.

Table 1. Status of Selected Green Economy Practices

Green Economy Practice	Frequency (n)	Percentage (%)
Renewable Energy Adoption	72	72.0
Energy Efficiency Measures	68	68.0
Environmental Protection	64	64.0
Resource Efficiency	61	61.0
Green Investment	55	55.0
Green Employment Initiatives	58	58.0



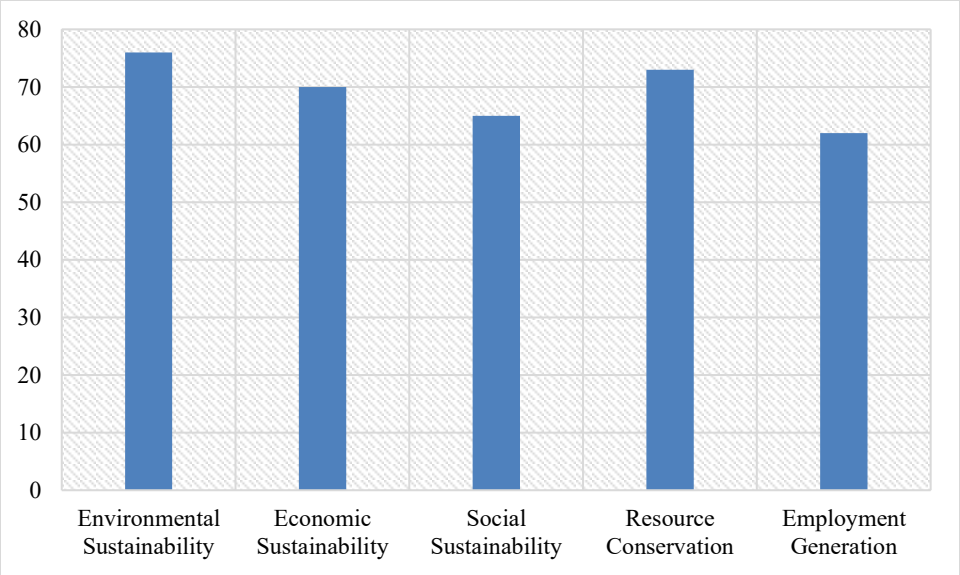
The results demonstrated that renewable energy adoption had the highest proportion at **72.0%**, followed by energy efficiency measures at **68.0%**. Environmental protection and resource efficiency accounted for 64.0% and 61.0%, respectively. Green investment recorded the lowest proportion at 55.0%. This suggests that although environmental practices are receiving increasing attention, greater investment and financial support may be required to accelerate the transition towards a green economy.

4.3 Contribution to Sustainable Development

The selected green economy indicators were further assessed according to their perceived contribution to economic, environmental, and social sustainability. The results showed that environmental sustainability received the highest proportion, followed by economic sustainability and social sustainability.

Table 2. Contribution of Green Economy Dimensions to Sustainable Development

Sustainability Dimension	Frequency (n)	Percentage (%)
Environmental Sustainability	76	76.0
Economic Sustainability	70	70.0
Social Sustainability	65	65.0
Resource Conservation	73	73.0
Employment Generation	62	62.0



The findings indicated that environmental sustainability was the strongest dimension at 76.0%, highlighting the importance of green economy initiatives in reducing environmental pressure and promoting resource conservation. Resource conservation also recorded a relatively high proportion of 73.0%. Economic sustainability stood at 70.0%, suggesting that green practices can support long-term economic development while reducing dependence on environmentally harmful activities. Social sustainability and employment generation recorded 65.0% and 62.0%, respectively, indicating that the social benefits of green economic transformation require further strengthening.

4.4 Discussion

The overall results suggest that the green economy can provide an integrated pathway for achieving sustainable development. The relatively high level of renewable energy adoption indicates a gradual shift towards cleaner sources of energy, while improvements in energy and resource efficiency can contribute to reduced environmental pressure and better utilisation of natural resources.

The findings also indicate that green investment remains comparatively weaker than other dimensions. Adequate financial resources, technological innovation, supportive policies, and institutional mechanisms are therefore important for expanding green economic activities. Similarly, the moderate level of green employment suggests the need for greater investment in skill development and environmentally sustainable industries.

Overall, the results demonstrate that green economy strategies can contribute simultaneously to environmental protection, economic stability, resource conservation, and social development. A balanced approach integrating economic growth with environmental responsibility and social inclusion can therefore strengthen the long-term sustainability of economic development.

4.5 Overall Interpretation

The study highlights that the transition towards a green economy is not limited to environmental protection but represents a broader transformation of economic and social systems. The results indicate positive progress in renewable energy, energy efficiency, and environmental protection, while green investment and employment generation require greater attention. Strengthening these areas can help create a more resilient, inclusive, and sustainable economic system.

5. CONCLUSION

The study concludes that the green economy provides an effective pathway for achieving sustainable development by integrating economic growth with environmental protection, resource efficiency, and social well-being. The results showed encouraging levels of renewable energy adoption (72.0%), energy efficiency (68.0%), environmental protection (64.0%), and resource conservation (73.0%), demonstrating the positive role of green practices in sustainable transformation. However, comparatively lower levels of green investment (55.0%) and employment generation (62.0%) indicate areas requiring greater attention. Strengthening green investments, technological innovation, renewable energy development, skill creation, and supportive policy frameworks can further accelerate the transition towards a sustainable economy. Overall, a balanced and integrated green economy approach can promote long-term economic resilience, environmental sustainability, efficient resource utilisation, and inclusive development.

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