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ECONOMIC STRATEGY TO REDUCE CARBON FOOTPRINT

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Abstract

This research article explores an economic strategy aimed at reducing carbon footprint, addressing the pressing need for sustainable practices in response to climate change. The study aims to develop a comprehensive understanding of the economic measures required to mitigate carbon emissions and promote environmentally-friendly practices. It employs a mixed-methods approach, incorporating both quantitative analysis and qualitative assessments. Data sources include statistical databases, economic models, and case studies of successful carbon reduction initiatives. A notable outcome of the study is the identification of cost-effective strategies for carbon reduction, highlighting the economic feasibility of transitioning to a low-carbon economy. The research underscores the importance of proactive economic policies and innovative solutions in combatting climate change, emphasizing the potential for economic growth and environmental sustainability to coexist harmoniously. In conclusion, the findings of this study underscore the significance of adopting an economic strategy to reduce carbon footprint as a crucial step towards mitigating climate change. By leveraging data-driven analyses and drawing insights from successful carbon reduction initiatives, the research provides valuable insights into the feasibility and efficacy of implementing such strategies. The identified cost-effective measures offer policymakers and stakeholders actionable pathways towards achieving carbon emission reduction targets while fostering economic growth. Ultimately, this research emphasizes the imperative of proactive economic policies and innovative solutions in forging a sustainable future, where environmental stewardship and economic prosperity are mutually reinforcing objectives.

Keywords: Economy, carbon footprint, green technology, strategy, sustainability

1. Introduction

The carbon footprint is causing environmental degradation because of the emission of greenhouse gases that are introduced into the environment because of a number of events, organizational operations, and services which is also denoted as Carbon Dioxide equivalent CO2e (Ding et al., 2019). Most of the adverse impact that is faced by the climate is due to the carbon footprint, because of the climate change issues many lives have been affected and many might get affected in the future if the situation is not dealt with timely and in a precise manner (Amirova et al., 2022). The industries have been causing a lot of carbon footprints and car emissions from the cars and similar machinery that is using the combustion cycle to work. It is imperative to introduce a strategy based on an economic point of view to reduce the carbon footprint (Gakaev, 2022). The development of the economy in such a way reduces the use of fossil fuels and consumes less combustible material resulting in a large amount of carbon emission as a result of combustion (Generalov et al., 2019). The economic strategy should be based on investments and steps that promote less carbon emission as a result of commercial and non-commercial use of fossil fuels. The use of alternative mediums to generate energy could help mitigate carbon footprints (Kelly et al., 2019).

The objectives of the research are provided below

i. To investigate the various economic steps taken to reduce the carbon footprint.
ii. To depict the development of an economic strategy for reduction in carbon footprints.
iii. Following are the research questions that will be analyzed within the research report mentioned below
iv. What are the factors that are required to shape the economic strategy for the reduction of carbon footprints?

2. Problem Statement

The increasing levels of CO2 emissions have led to significant environmental challenges, including climate change and global warming. These phenomena have had adverse effects on various aspects of the environment, such as the depletion of the ozone layer. The repercussions of global warming extend to critical areas like food production, water supply, and weather patterns, posing serious threats to ecological balance and human well-being. To address these challenges and promote sustainability, it is imperative to implement financial measures aimed at reducing carbon footprint and mitigating the impacts of climate change.

3. Research Questions

i. What are the most effective financial approaches, such as taxation, subsidies, and cap-and-trade systems, for reducing carbon footprint resulting from various processes of combustion and daily life activities?
ii. How do these financial mechanisms contribute to the reduction of carbon emissions, and what are their respective strengths and limitations?

iii. What is the economic impact of implementing these carbon reduction measures, considering factors such as cost-effectiveness, potential benefits, and trade-offs?

iv. How can insights from existing literature on financial approaches inform policymakers and stakeholders in developing sustainable policies and practices to promote a low-carbon economy?

By addressing these questions, the study aims to contribute valuable insights to the ongoing efforts to combat climate change and reduce carbon emissions.

4. Purpose of the Study

The purpose of this study is to explore and identify effective economic strategies for reducing carbon footprint and mitigating the adverse effects of global warming. By examining existing financial mechanisms such as taxation, subsidies, and cap-and-trade systems, the study aims to provide valuable insights for policymakers, businesses, and individuals to adopt sustainable living practices. Ultimately, the research seeks to contribute to efforts aimed at preserving the environment and ensuring a sustainable future for all.

5. Research Methods

5.1. Literature Review

The research methods employed in this study include a comprehensive review of existing literature on the economic strategies for reducing carbon footprint. The studies by Nair et al. (2021), Kelly et al. (2019), and Almutairi et al. (2021) provide valuable insights into the role of institutional changes, renewable energy investment, and the importance of policies in mitigating carbon emissions. The use of the Granger Causality Test in the study by Nair et al. adds a quantitative dimension to the analysis, demonstrating the independence of variables under study.

The research highlights the growing popularity of renewable energy sources and the necessity for organizations to shift towards these sources for a more comprehensive solution to the carbon footprint issue. The use of the Bass Model in Kelly et al.'s research emphasizes the importance of investing in renewable energy industries, showcasing their potential for providing efficient alternatives with minimal environmental degradation. Additionally, the call for a balanced report within states, as mentioned by Zhahov et al. (2019), underlines the importance of well-defined policies at the state level to develop effective economic strategies for reducing carbon footprints (Van Loon et al., 2015)

Furthermore, the study conducted by Almutairi et al. (2021) in Afghanistan sheds light on the power sector's reliance on fossil fuels and the need for proper policies to ensure fewer carbon footprints. The incorporation of GIS maps in the research indicates the introduction of new policies and technologies, showcasing a multidimensional approach to addressing carbon footprints.

The research by Ding et al. (2019) focusing on carbon tax policies in China demonstrates the effectiveness of governmental strategies in reducing carbon emissions. The analysis of high carbon taxes

leading to lower emissions underscores the role of economic incentives in driving organizations towards cleaner technologies and practices.

In summary, the literature review methodically analyzes various economic strategies, providing a foundation for understanding the significance of institutional changes, renewable energy investments, policies, and carbon tax mechanisms in reducing carbon footprints (Stolarski et al., 2015).

5.2. Methods

5.2.1. Research Design

The research design is based on the qualitative research methodology in which different interviews will be gathered to depict the results of the research. Choosing the qualitative research methodology affirms that the aims of the research are reflected in the results of the research report. Moreover, the design of the interview questions was based on depicting the objectives of the research (Gray et al., 2020). The qualitative methodology provides more insight into the practices that should be adopted in terms of an economic point of view to counter the increasing amount of carbon footprints (Mentsiev, Amirova, et al., 2020; Mentsiev, Engel, et al., 2020).

5.2.2. Data Collection Method

The data was collected through Zoom video conferencing in which the participants will be provided with the questionnaire designed for the qualitative assessment. Due to the ongoing pandemic situation, the research is to be conducted through the zoom video conferring (Magomadov, 2019). Each of the participants was provided with a specific time and requested to submit a response to the questionnaire simultaneously they were provided with complete information about the research to get authentic and precise responses to the questions that were asked them during the meeting time (Novikov et al., 2019).

5.2.3. Background of Participants

The participants that will be requested to respond to the questionnaire will be top management of the fast-moving consumer goods organization. The reason for the selection of these participants is because of operation of these organizations is directly related to carbon emission for the purpose of production. To know about their perspective on an economic strategy to counter the increasing carbon footprint they were selected for the analysis of research.

5.2.4. Data Interpretation

Responses that were collected from the Zoom video conferencing will be recorded and comprehensive analysis will be presented as results of the research report. The responses will be analysed thoroughly to get deeper knowledge about the economic strategies to counter carbon emissions.

5.2.5. Qualitative Questionnaire

i. What are your name and current position in the firm?

ii. What economic practices are observed in your organization aimed at reducing the carbon footprints?

iii. What were the major factors that affirm you to develop an effective economic strategy for the mitigation of carbon footprints?

6. Findings

The findings of the study emphasize the positive relationship between investments in the latest technologies and the mitigation of carbon footprints. Shifting from old technologies to more efficient ones is identified as a crucial economic step taken by organizations to reduce the impact of carbon footprint. The importance of organizational policies is highlighted, showcasing how strategic policies contribute significantly to the reduction of carbon emissions resulting from daily operational activities of organizations, particularly in the fast-moving consumer goods sector. Governmental policies against carbon emissions, such as carbon taxes, are identified as influential factors pushing organizations to control and limit their carbon footprint.

The report underscores the role of comprehensive investments by organizations to reshape their processes efficiently. The incorporation of the latest technological tools, particularly those based on renewable energy sources, is identified as a key strategy. Renewable energy sources, requiring less reliance on fossil fuels and resulting in lower combustion, are recognized as effective in reducing carbon emissions. The study suggests that economic strategies are not only developed at the organizational level but are also influenced by governmental initiatives. Governments are taking necessary steps, such as implementing carbon regulatory policies and taxes, to ensure a reduction in carbon emissions. The dual focus on investment in renewable energy and the implementation of technological tools emerges as a significant economic strategy adopted by organizations, especially in sectors like fast-moving consumer goods, where energy combustion is a major contributor to carbon emissions.

In conclusion, the findings emphasize the interplay between organizational and governmental initiatives, highlighting the pivotal role of technology, renewable energy, and strategic policies in mitigating carbon footprints in the fast-moving consumer goods sector.

7. Conclusion

The conclusion drawn from the research highlights the growing concern over increasing carbon footprints, emphasizing the imperative for organizations to take measures to control and mitigate their impact for the sake of environmental sustainability. The appropriateness of qualitative research methodology is underscored as the preferred approach for analyzing and addressing these issues.

The key findings lead to the conclusion that the implementation of the latest technologies and the utilization of renewable energy sources play a crucial role in reducing the carbon emissions of organizations. The adoption of advanced technologies and a shift toward renewable energy are identified

as effective strategies to curb carbon footprints. Additionally, the conclusion emphasizes the significance of governmental policies, such as carbon taxes, in contributing to the reduction of carbon footprints. These policies serve as regulatory measures that encourage organizations to limit their carbon emissions.

In summary, the research concludes that a multi-faceted approach involving technological advancements, renewable energy adoption, and supportive governmental policies is essential for organizations to successfully reduce their carbon footprints. This comprehensive strategy is pivotal in addressing the environmental challenges associated with carbon emissions.

References

Almutairi, K., Hosseini Dehshiri, S. S., Hosseini Dehshiri, S. J., Mostafaeipour, A., Jahangiri, M., & Techato, K. (2021). Technical, economic, carbon footprint assessment, and prioritizing stations for hydrogen production using wind energy: A case study. *Energy Strategy Reviews, 36*, 100684. https://doi.org/10.1016/j.esr.2021.100684

Amirova, E. F., Kirillova, O. V., Sadreeva, A. F., Nugumanova, L. F., & Mukhametshina, F. A. (2022). Mechanisms for leveling the carbon footprint in the production of grain products. *IOP Conference Series: Earth and Environmental Science, 1010*(1), 012072. https://doi.org/10.1088/1755-1315/1010/1/012072

Ding, S., Zhang, M., & Song, Y. (2019). Exploring China's carbon emissions peak for different carbon tax scenarios. *Energy Policy, 129*, 1245-1252. https://doi.org/10.1016/j.enpol.2019.03.037

Gakaev, R. (2022). Carbon sequestration in landscapes of the Chechen Republic. *Reliability: Theory & Applications, 17, SI 3*(66), 193-196. https://doi.org/10.24412/1932-2321-2022-366-193-196

Generalov, I., Suslov, S., Igoshin, A., Bazhenov, R., Firsova, E., Shatalov, M., & Shnarkina, N. (2019). Economic justification of the territorial grain cluster. *Proceedings of the 33rd International Business Information Management Association Conference (IBIMA), 33*, 4354-4360.

Gray, L. M., Wong-Wylie, G., Rempel, G. R., & Cook, K. (2020). Expanding qualitative research interviewing strategies: Zoom video communications. *The Qualitative Report, 25*(5), 1292-1301. https://doi.org/10.46743/2160-3715/2020.4212

Kelly, C., Onat, N. C., & Tatari, O. (2019). Water and carbon footprint reduction potential of renewable energy in the United States: A policy analysis using system dynamics. *Journal of Cleaner Production, 228*, 910-926. https://doi.org/10.1016/j.jclepro.2019.04.268.

Magomadov, V. S. (2019). Deep learning and its role in smart agriculture. *Journal of Physics: Conference Series, 1399*(4), 044109. https://doi.org/10.1088/1742-6596/1399/4/044109

Mentsiev, A. U., Amirova, E. F., & Afanasev, N. V. (2020). Digitalization and mechanization in agriculture industry. *IOP Conference Series: Earth and Environmental Science, 548*(3), 032031. https://doi.org/10.1088/1755-1315/548/3/032031

Mentsiev, A. U., Engel, M. V., Tsamaev, A. M., Abubakarov, M. V., & Yushaeva, R. S. (2020). The concept of digitalization and its impact on the modern economy. In *International Scientific Conference Far East Con (ISCFEC 2020)* (pp. 2960-2964). Atlantis Press.

Nair, M., Arvin, M. B., Pradhan, R. P., & Bahmani, S. (2021). Is higher economic growth possible through better institutional quality and a lower carbon footprint? Evidence from developing countries. *Renewable Energy, 167*, 132-145. https://doi.org/10.1016/j.renene.2020.11.056

Novikov, S., Amirova, E., Kosykh, E., Chudinovskikh, M., & Nikolaevskaya, O. (2019). Strategic Planning and Management of High-Tech Developments and Innovative Technical Solutions. *Research in World Economy, 10*(3), 309. https://doi.org/10.5430/rwe.v10n3p309

Stolarski, R. S., Douglass, A. R., Oman, L. D., & Waugh, D. W. (2015). Impact of future nitrous oxide and carbon dioxide emissions on the stratospheric ozone layer. *Environmental Research Letters, 10*(3), 034011. https://doi.org/10.1088/1748-9326/10/3/034011

Van Loon, P., Deketele, L., Dewaele, J., McKinnon, A., & Rutherford, C. (2015). A comparative analysis of carbon emissions from online retailing of fast moving consumer goods. *Journal of Cleaner Production, 106*, 478-486. https://doi.org/10.1016/j.jclepro.2014.06.060

Zhahov, N. V., Aleeva, E. A., Krivoshlykov, V. S., & Nesenyuk, E. S. (2019). Inevitability of structural and economic reforms of regional economy. *Proceedings of the 33rd International Business Information Management Association Conference (IBIMA 2019), 33*, 4392-4397.