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A STUDY OF AWARENESS ON GREEN TECHNOLOGY AND SUSTAINABILITY WITH SPECIAL REFERENCE TO COIMBATORE CITY

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ABSTRACT

This article presents findings from a comprehensive study conducted to assess the awareness levels, attitudes, and practices related to green technology and sustainability in Coimbatore City. Coimbatore, known for its industrial and urban landscape, faces environmental challenges that necessitate proactive measures towards sustainable development. Through surveys, interviews, and focus group discussions, data were collected from residents, businesses, educational institutions, and government stakeholders to gauge the understanding and engagement with green technology and sustainable practices. The study revealed varying levels of awareness across different demographic groups and geographic areas within the city. While there was a general recognition of the importance of environmental conservation and sustainable development, significant gaps were identified in knowledge about available green technologies and practical steps towards sustainability. Factors such as education, socio-economic status, and access to information were found to influence awareness levels and adoption of sustainable behaviours. The findings underscore the need for targeted interventions, including education campaigns, policy support, and community engagement initiatives, to enhance awareness and promote sustainable practices in Coimbatore City. The article concludes with recommendations for stakeholders to collaborate towards building a more environmentally conscious and sustainable city.

Keywords: Green technology, Sustainability, Environmental awareness, Coimbatore City, Community study

INTRODUCTION:

In an era marked by environmental concerns and sustainable development goals, the promotion of green technology and sustainability has become imperative. This study delves into the levels of awareness surrounding these vital issues, aiming to identify gaps and opportunities for improvement.

In the contemporary world, where environmental challenges loom large, the imperative for sustainable development has never been more pressing. With concerns over climate change, resource depletion, and pollution escalating, there is a growing recognition of the need for innovative solutions. One such solution lies in the adoption of green technology and sustainable practices. However, the success of these initiatives hinges greatly on public awareness and engagement. This study delves into the level of awareness regarding green technology and sustainability among various demographics, the factors influencing awareness, and strategies to enhance it.

Green technology and sustainability have become pivotal aspects in addressing contemporary global challenges, including climate change, resource depletion, and environmental degradation. In recent years, there has been a growing emphasis on promoting awareness and adoption of green technologies to mitigate adverse environmental impacts and foster sustainable development. This study aims to explore the level of awareness among individuals regarding green technology and sustainability and to identify factors influencing awareness levels.

Understanding Awareness Levels

A critical first step in promoting green technology and sustainability is assessing the current level of awareness among the populace. Surveys conducted as part of this study reveal a spectrum of awareness, ranging from high among environmentally conscious individuals to alarmingly low among certain demographics. Factors such as education, socioeconomic status, and geographical location significantly influence awareness levels. While urban populations tend to exhibit greater awareness, rural communities often lag behind due to limited access to information and resources.

Factors Influencing Awareness: Several factors contribute to shaping individuals' awareness of green technology and sustainability. Education emerges as a key determinant, with higher levels of education correlating positively with greater awareness. Additionally, exposure to media, peer influence, and personal experiences play pivotal roles in shaping attitudes towards sustainability. Cultural norms and values also exert a significant influence, with some communities displaying a deeper intrinsic connection to nature and environmental stewardship.

Challenges and Barriers: Despite growing awareness, numerous challenges impede the widespread adoption of green technology and sustainable practices. Economic factors, such as the perceived high cost of eco-friendly alternatives, pose a significant barrier for many individuals and businesses. Moreover, entrenched habits and resistance to change hinder efforts to promote sustainable lifestyles. Addressing these challenges requires targeted interventions

aimed at debunking misconceptions, providing incentives for sustainable behavior, and fostering a culture of environmental responsibility.

Strategies for Enhancing Awareness: To bridge the gap in awareness and foster a culture of sustainability, multifaceted strategies are imperative. Education emerges as a cornerstone, with comprehensive environmental education programs integrated into school curricula. Leveraging digital media platforms and community outreach initiatives can also effectively disseminate information and inspire action. Furthermore, incentivizing sustainable practices through tax incentives, subsidies, and green certification programs can encourage widespread adoption of green technology.

Literature Review

Ratnasingam and Karl (2009) studied green manufacturing practices among the furniture industry in Malaysia and conducted a survey to find out the status of Malaysia wooden furniture manufacturers to follow environment sustainability. From his study, 54% of wooden manufacturer industries adopt green manufacturing practices.

Another study by Fatoki (2018) on environment sustainability practices among SME of South Africa whereas claim that SMEs involvement in environment-friendly products and environmental management policy is inadequate.

Trandafilovic et al. (2017) mentioned that environmental education has positive correlation with environmental awareness that inspires people to recycle and use energy and water more efficiently and protect the environment. Furthermore, several review study on green entrepreneurial sustainability in SME found a comprehensive overview of the recent condition of sustainable development and focused on few more trends/gaps, which could be practically addressed in future research. Therefore, the role of Corporate Social Responsibility (CSR) in promoting sustainability is one of these gaps.

Hasan (2016) conducted a study on social responsibility of SMEs in Bangladesh. Although his research reconfirms the existence of the so called “attitude-behaviour” gap but in terms of adopting socially responsible business practices by Bangladeshi manufacturing SMEs, the size and type of the business, educational qualification of owner-managers do not influence significantly. Moreover, Rashid et al. (2019), Nguyen et al. (2018), Tang et al. (2018), Stuwig et al. (2017)

Salimzadeh (2016) also conducted their study on environmental sustainability to identify the status and factors that influence the adoption of environmental sustainability in different industries. During the last decade, the SME industry has faced huge challenge and witnessed radical change in response to global competition. The growth of agro-based processing and essential consumer goods products are the major driving force in SME promotion in Bangladesh (Alauddin and Chowdhury, 2015). However, advanced technologies have not been utilized properly for the development of SME sector which has been found from majority of the respondents. The following Waste minimizing and process improvement initiatives are considered as critical to success: total quality management (TQM), business process reengineering (BPR), supply chain management (SCM) and lean manufacturing (LM) by Ratnasingam (2006).

Current status of SME has been analyzed by Zaman and Islam (2011), who found that 98 percent of establishments were micro units having less than 10 workers. Only 13 percent were in manufacturing, while remaining 87 percent were involved in trade and services. Moreover,

SMEs employ 1.3 million people, constituting 44 percent of the total 10+ units' employment (Zaman and Islam, 2011).

Sustainable green practices encompass a wide range of strategies aimed at reducing environmental impact and promoting long-term ecological balance. Here are some key practices:

1. **Renewable Energy**: Utilizing renewable energy sources such as solar, wind, hydro, and geothermal power can significantly reduce carbon emissions and reliance on finite fossil fuels.
2. **Energy Efficiency**: Implementing energy-efficient technologies and practices in buildings, transportation, and industrial processes can lower energy consumption and greenhouse gas emissions.
3. **Waste Reduction and Recycling**: Minimizing waste generation through recycling, composting, and waste reduction strategies helps conserve resources and reduce landfill pollution.
4. **Water Conservation**: Implementing water-saving technologies and practices in agriculture, industry, and households can help conserve freshwater resources and protect ecosystems.
5. **Sustainable Agriculture**: Practices such as organic farming, crop rotation, and agroforestry promote soil health, biodiversity, and resilience to climate change while reducing reliance on synthetic fertilizers and pesticides.
6. **Forest Conservation**: Protecting and restoring forests helps mitigate climate change, conserve biodiversity, and provide valuable ecosystem services such as carbon sequestration and water purification.
7. **Green Transportation**: Encouraging the use of public transportation, cycling, walking, and electric vehicles can reduce air pollution, congestion, and greenhouse gas emissions from transportation.
8. **Circular Economy**: Transitioning from a linear "take-make-dispose" model to a circular economy based on reuse, repair, remanufacturing, and recycling helps minimize resource extraction, waste generation, and environmental impact.
9. **Sustainable Urban Planning**: Designing cities and communities with efficient public transportation, green spaces, energy-efficient buildings, and mixed land use can promote sustainable development and improve quality of life.
10. **Environmental Education and Advocacy**: Raising awareness about environmental issues and advocating for policy changes and sustainable practices can foster a culture of environmental stewardship and collective action.

These practices are interconnected and require collaboration among governments, businesses, communities, and individuals to achieve meaningful progress towards environmental sustainability.

Understanding Awareness:

Awareness of green technology and sustainability encompasses knowledge about environmentally friendly practices, renewable energy sources, waste management, and conservation efforts. It extends to understanding the interconnectedness between human activities and the health of the planet.

Level of Awareness

The environmental performance of an SME is exceedingly reliant on the owner's environmental awareness alongside with relevant stakeholders proactiveness. Education develop the level of awareness and concern. There are numerous studies find that education and training help to increase awareness and knowledge of practicing sustainability in SMEs (Trandafilović et al., 2017, Tilbury, Adams, & Keogh, 2005; Katos & Nathan, 2004; Yacob & Moorthy, 2012). Likely, creating awareness among SMEs will help to make competitive position in the global. The majority of the SMEs have limited knowledge about environmental sustainability (Sudath Weerasiri, Zhang Zhengang, 2012), and they think their ecological impact is insignificant. Due to this ignorance, level of awareness of SMEs is very low. Nulkar (2019) find that 98% respondents agreed that owner's awareness on SMEs needs to be enhanced. On the other hand, 95% agreed that they don't have adequate knowledge on green benefits. The main focus of SMEs is sustaining today. As a result, they fail to realize the intangible longterm benefits of environmental management. Unfortunately, the lack of proper waste emission daily data, less pressure from stakeholders, preference of informal communication (del Brío, J.Á. and B. Junquera, 2003) and insufficient resources (Yadav et al, 2018) are responsible for SMEs apathy. Policy makers, trade associations, environmentalists and chambers of commerce have responsibility to bring the changes in the ecosystem. Strenuous efforts to diffuse environmental awareness among SMEs are obligatory. When all these stakeholders plan aligned with the similar goal, it will be accelerated (Nulkar, 2019). The results of (Yacoob et al, 2019) reveal that the managers' environmental concern have indirect influence on green initiatives and sustainable green practices.

Thus, we hypothesize that: H1: Level of Awareness has significant relationship on green practices

Green Technology Usage

Green technology, also known as clean technology or eco-friendly technology, refers to the development and application of innovative solutions that aim to address environmental challenges while promoting sustainable development. Here are some examples of green technology usage across various sectors:

Renewable Energy: Green technology plays a crucial role in harnessing renewable energy sources such as solar, wind, hydro, and geothermal power. Solar panels, wind turbines, hydroelectric generators, and geothermal power plants are examples of green technologies used to generate electricity without emitting greenhouse gases.

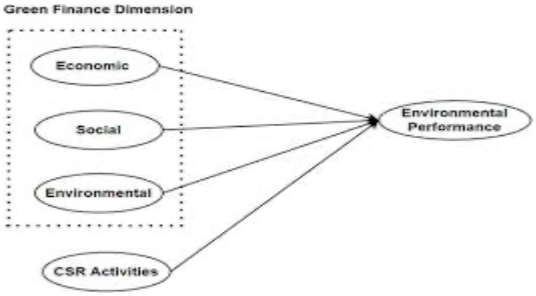
Energy Storage: Advanced battery technologies, such as lithium-ion batteries, are essential for storing energy from renewable sources for later use, thus enabling the integration of intermittent renewables like solar and wind into the grid.

Energy Efficiency: Green technologies improve energy efficiency in buildings, transportation, and industries. Energy-efficient appliances, LED lighting, smart thermostats, and building insulation are examples of technologies that reduce energy consumption and lower carbon emissions.

Electric Vehicles (EVs): EVs, powered by electricity instead of fossil fuels, are a key technology for reducing greenhouse gas emissions from transportation. Advancements in battery technology and charging infrastructure are making EVs more accessible and practical for consumers.

Green Building Materials: Sustainable building materials such as recycled steel, bamboo, reclaimed wood, and eco-friendly insulation help reduce the environmental impact of construction projects while promoting energy efficiency and indoor air quality.
Waste Management: Green technologies for waste management include recycling facilities, composting systems, anaerobic digesters, and waste-to-energy plants that convert organic waste into renewable energy or valuable resources.
Water Treatment and Conservation: Innovative water treatment technologies, such as membrane filtration, ultraviolet disinfection, and advanced oxidation processes, improve water quality and reduce water consumption in industries and municipalities.
Precision Agriculture: Green technology in agriculture includes precision farming techniques such as GPS-guided tractors, drones, sensors, and smart irrigation systems, which optimize resource use, minimize chemical inputs, and reduce environmental impact.
Green Chemistry: Sustainable chemical processes and materials, such as biodegradable plastics, bio-based fuels, and environmentally friendly solvents, promote the use of renewable resources and minimize pollution and toxicity.
Smart Grids: Smart grid technologies enable efficient management and integration of renewable energy sources, demand response programs, and energy storage systems, enhancing grid reliability, resilience, and sustainability.
These examples demonstrate how green technology can contribute to mitigating climate change, reducing pollution, conserving natural resources, and promoting sustainable development across various sectors of the economy

Conceptual Framework Figure 1: Conceptual Framework of the study



METHODOLOGY:

This research employs a mixed-method approach, combining surveys, interviews, and focus group discussions. A diverse sample of participants from various demographics, including age, education level, and occupation, is recruited to ensure comprehensive insights.

Key Findings:

1. Varied Levels of Awareness: The study reveals a spectrum of awareness levels among participants. While some exhibit a deep understanding of green technology and sustainability principles, others lack basic knowledge.
2. Education and Socioeconomic Factors: Education and socioeconomic status significantly influence awareness levels. Participants with higher education and income tend to be more informed about green practices.
3. Media Influence: Mass media plays a crucial role in shaping awareness. Participants often cite news articles, documentaries, and social media as sources of information on environmental issues.

4. Government Initiatives: Government policies and initiatives play a pivotal role in promoting awareness and adoption of green technologies. Participants express the need for stronger regulations and incentives to encourage sustainable practices.
5. Corporate Responsibility: Companies are increasingly expected to demonstrate environmental responsibility. Participants emphasize the importance of businesses adopting eco-friendly practices and transparent reporting.
6. Behavioral Change: Despite awareness, translating knowledge into action remains a challenge. Behavioral change requires not only awareness but also access to resources and support systems.

Implications and Recommendations:

Enhancing awareness on green technology and sustainability necessitates a multifaceted approach involving education, policy interventions, corporate engagement, and community participation. Key recommendations include:
- Strengthening environmental education in schools and universities.
- Implementing incentives for green initiatives and renewable energy adoption.
- Encouraging public-private partnerships to drive sustainable innovation.
- Fostering community-led initiatives and awareness campaigns.
- Enhancing accessibility to eco-friendly products and services.

CONCLUSION:

The study underscores the importance of raising awareness on green technology and sustainability to address pressing environmental challenges. By empowering individuals, communities, and institutions with knowledge and resources, we can collectively transition towards a more sustainable future.

REFERENCES

1. Alauddin, M. D., & Chowdhury, M. M. (2015). Small and medium enterprise in Bangladeshprospects and challenges. Global Journal of Management and Business Research, 15(7):1-10.
2. Bovea, M. D., & Vidal, R. (2004). Materials selection for sustainable product design: a case study of wood-based furniture eco-design. Materials & design, 25(2), 111-116.
3. Chan, E. S., Okumus, F., & Chan, W. (2018). Barriers to environmental technology adoption in hotels. Journal of Hospitality & Tourism Research, 42(5), 829-852.
4. Dey, P. K., Yang, G. L., Malesios, C., De, D., & Evangelinos, K. (2019). Performance Management of Supply Chain Sustainability in Small and Medium-sized Enterprises Using a Combined Structural Equation Modelling and Data Envelopment Analysis. Computational Economics, 1-41.
5. del Brío, J. Á., Fernandez, E., & Junquera, B. (2007). Management and employee involvement in achieving an environmental action-based competitive advantage: an empirical study. The International Journal of Human Resource Management, 18(4), 491-522.
6. Economic Census (2013). Bangladesh Economic Bureau. Retrieved from: http://203.112.218.65:8008/WebTestApplication/userfiles/Image/EcoCen13/FinalReport%20Part%201.pdf

7. Eijdenberg, E. L., Sabokwigina, D., & Masurel, E. (2019). Performance and environmental sustainability orientations in the informal economy of a least developed country. International Journal of Entrepreneurial Behavior & Research., 25(1),129-149
8. Fakoti O (2018). Environmental sustainability practices of immigrant-owned small and medium enterprises in South Africa. European Review of Applied Sociology, 11(17):27-43.
9. Foroozanfar, M., Sepasgozar, S. M. E., & Arbabi, H. (2017). Modelling Green Technology Adoption Based on Sustainable Construction Practices. EPiC Series in Education Science, 1, 305-315.
10. González-Benito J, González-Benito Ó (2008). Operations management practices linked to the adoption of ISO 14001: An empirical analysis of Spanish manufacturers. International Journal of Production Economics,113(1):60-73.