

# Can We See Electric Vehicles as A Solution towards Sustainability?

– Divya Sharma\*

Assistant Professor, Department of Commerce, Bharati College, Delhi University, New Delhi  
✉ [divyasharmatomar@gmail.com](mailto:divyasharmatomar@gmail.com)  <https://orcid.org/0000-0003-0967-9390>

– Kalpana Kataria

Associate Professor, Department of Commerce, Bharati College, Delhi University, New Delhi  
✉ [kataria.kalpana@gmail.com](mailto:kataria.kalpana@gmail.com)  <https://orcid.org/0000-0003-4638-302X>

– Harikishni Nain

Professor, Department of Commerce, Bharati College, Delhi University, New Delhi  
✉ [harikishni@gmail.com](mailto:harikishni@gmail.com)  <https://orcid.org/0000-0002-2068-8928>



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## ABSTRACT

**Purpose:** To evaluate the effect of electric vehicles on environment throughout their life cycle, considering influences for instance raw material, battery production, electricity generation sources and end-of-life disposal, To detect the challenges associated with electric vehicles such as such as environmental implications of lithium-ion battery production and To compare the environmental influence due to electric vehicles with that of typical internal combustion engine vehicle, considering factors like air pollutants and energy efficiency. The efficacy of electric automobiles on the environment is examined in this research. Concern and interest in the subject are developing because of the rapidly rising daily pollution levels. Any technology whose operation is entirely dependent on energy can be beneficial to the environment in the current context, when the production of power itself is a polluting entity. Furthermore, are we functionally, legally, and infrastructure ready to meet the difficulties brought on by the usage of new technology? Furthermore, the weight of EVs is a practical problem that affects things like consumption of energy and road infrastructure. This research examined the influence of these concerns on environmental sustainability while elucidating them.

**Design/Methodology/Approach:** This paper synthesizes references from various research studies indicating that electric vehicles are not a sustainable solution for achieving environment protection goals. Many literature were identified and gathered relevant research studies. Analyzed the findings from the collected research studies to identify common themes, contradictions and limitations regarding the electric vehicles and its relationship with environment sustainability.

**Findings:** Shifting from internal combustion vehicles to electric vehicles is unlikely to improve air quality and can provide a sustainable explanation to the problem of air pollution. But with strategic changes, electric vehicles may offer promising avenues for reducing carbon emissions and addressing climate change. It is also crucial to acknowledge and address the environmental challenges allied with its production, use, and disposal. Mitigating these challenges requires a multidimensional approach, involving advancements in technology, sustainable resource management, and thoughtful policy measures. Striking a balance between the environmental benefits and challenges of electric vehicles is critical to ensure a genuinely sustainable future for the transportation sector.

**Originality/Value:** The present study contributes in creating awareness regarding the usage of electric vehicles and its adoption benefits for the environment. This research would help the policymakers to introduce some significant changes in strategies so that electric vehicles could be more convincing and affordable along with environmental sustainability. Therefore, the current study proposed to make a balance between the environmental benefits and sustainability and usage of electric vehicles.

**Paper Type:** View Point.

**KEYWORDS:** Electric Vehicle | Internal Combustion Engine | Battery | Lithium | Environment | Pollution

\*Corresponding Author (Divya Et. Al)

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## Introduction

In recent years, the increasing concern over environmental issues has prompted a shift towards more sustainable practices, with a particular focus on reducing pollution. Electric vehicles (EVs) have arisen as a capable solution to address the pollution problem, offering an environmentally friendly alternative to traditional combustion engine vehicles. With zero tailpipe emissions, potential integration with renewable energy sources, energy efficiency, and ongoing advancements in battery technology, they hold great promise for reducing the environmental impact of transportation. In this study the researcher will explore the environmental impact of Electronic Vehicles (EV's).

While electric vehicles offer a cleaner alternative to traditional combustion engine vehicles during their operational phase, it is essential to recognize the environmental challenges associated with their production, disposal, and the broader implications of increased electricity demand. Striking a balance between promoting sustainable transportation and addressing the environmental concerns related to electric vehicles is crucial for achieving a truly eco-friendly and responsible approach to mobility in the future, it's essential to acknowledge that their adoption is not without environmental concerns. This article explores some of the potential drawbacks and unintended consequences associated with electric vehicles and their impact on the environment.

## Understanding Air Pollution

Air pollution in India has industrialized as a pressing environmental concern, posing significant threats to public health, economy, and overall well-being. All Indians are uncovered to air pollution. The very tiny particles of air pollution (less than 2.5-micron diameter) are the most dangerous pollutants that may cause deadly illnesses such as lung cancer, stroke, heart attack etc. (The World Bank, 2023) in 2019 around 1.67 million deaths attributable to air pollution, it is 17.8% of total death. The influence of death on the economy is counted as a loss of \$36.8 billion in the year 2019. It is 1.36% of India's gross domestic product. Following are considered main causes of air pollution:

- **Industrial Emissions:** Rapid industrialization has led to increased emissions of pollutants such as particulate matter, sulfur dioxide and nitrogen oxides.
- **Vehicular Exhaust:** The surge in the number of vehicles, especially in urban areas, contributes significantly to air pollution with emissions of pollutants like carbon monoxide and volatile organic compounds.
- **Biomass Burning:** Traditional practices of burning biomass for cooking and heating release harmful pollutants, contributing to indoor and outdoor air pollution.

- **Construction Activities:** Dust and pollutants released during construction activities contribute to particulate matter in the air.

The transportation sector contribution to air pollution to PM 2.5 varies from 20-35% across Indian cities (The Wire, 2023). Well said by Aiden Farrow, senior air quality scientist, greenpeace International that the people are not aware of the fact that we are breathing polluted air. The Government of India is taking many positive steps in response to the problem of increasing air pollution. Among others, expansion of renewable energy, promoting electric vehicles and supplying LPG to households are prime initiatives. Air quality is not a one time effort. It is an ongoing process. It must be assimilated into the capacities of the state and molded into the conduct of organizations and people alike. Global emission of greenhouse gasses is mostly caused by the transportation sector, particularly internal combustion engine vehicles. Electric vehicles have potential to diminish greenhouse gas emission and not to be a participant in air pollution. (Veza et al., 2023) Government and stakeholders may expedite electric vehicle mobility and build a further sustainable and environment friendly future.

## Positive Effects of Adoption of Electric Vehicles as a Solution to Sustainability

An environmentally friendly substitute for traditional automobiles with internal combustion engines is the electric vehicles. We all believe that use of electric vehicles will help us to contribute to reducing the level of air pollution. Mr. Piyush Goyal, power minister declared in 2017, "the idea is that by 2030, not a single petrol or diesel car should be sold in the country". Electric vehicles (EVs) have emerged as a transformative force in the transportation sector, playing a crucial role in addressing environmental concerns and fostering sustainability. As the world grapples with the impacts of climate change and strives to reduce carbon emissions, the adoption of electric vehicles stands out as a significant step towards a greener and more sustainable future.

- **Reducing Carbon Footprint:** From the list of the primary environmental assistances of electric vehicles lies in their aptitude to pointedly reduce carbon emissions. Contrasting traditional internal combustion engine vehicles that rely on fossil fuels, EVs are powered by electricity, which can be sourced from renewable energy. This shift away from conventional fuel sources plays a pivotal role in mitigating air pollution and curbing the greenhouse gas emissions responsible for climate change.
- **Energy Efficiency:** Electric vehicles are inherently more energy-efficient than their traditional counterparts. The renovation of electrical energy into motion is far

more efficient than the combustion process in internal combustion engines. This increased efficiency translates into reduced overall energy consumption and a smaller environmental footprint, contributing to the sustainable use of resources.

- **Promoting Renewable Energy Integration:** The widespread adoption of electric vehicles creates opportunities to further integrate renewable energy sources into the power grid. By coupling EV charging infrastructure with renewable energy generation, such as solar and wind power, we can establish a cleaner and more sustainable energy ecosystem. This collaboration between electric vehicles and renewable energy aligns with the broader goal of transitioning towards a low-carbon energy system.
- **Economic and Health Benefits:** Beyond environmental considerations, the evolution to electric vehicles offers economic and health-related advantages. Reduced dependence on fossil fuels can enhance energy security and decrease vulnerability to oil price fluctuations. Additionally, the decreased air pollution associated with electric vehicles contributes to improved public health by lowering respiratory and cardiovascular diseases, resulting in potential cost savings in healthcare.
- **Challenges and Future Outlook:** Although electric vehicles present a promising solution to environmental challenges, there are still hurdles to overcome, including the need for widespread charging infrastructure, advancements in battery technology, and considerations for the environmental impact of battery production and disposal. However, ongoing research and innovation in these areas indicate a positive trajectory for the future of electric vehicles as a cornerstone of sustainable transportation.

Finally, Electric vehicles are pivotal in promoting environmental sustainability by reducing carbon emissions, enhancing energy efficiency, and fostering the integration of renewable energy sources. As technological advancements continue and infrastructure develops, the role of electric vehicles in shaping a cleaner and greener future becomes increasingly significant. Embracing this transformative shift in transportation is essential for achieving a sustainable and resilient global ecosystem.

## Challenges in Adoption of Electric Vehicles as a Solution to Sustainability

Although electric vehicles are often hailed as a solution to environmental problems, it is crucial to recognize that their widespread adoption comes with its own set of challenges. Despite their potential benefits, there are environmental concerns associated with the production, use, and disposal of electric vehicles that warrant careful consideration.

- **Battery Production and Raw Materials:** Electric vehicle batteries rely on scarce and environmentally impactful resources, such as lithium, cobalt, and nickel. The extraction and processing of these materials can lead to habitat destruction, water pollution, and other environmental degradation. (Murray, 2022) miners frequently work in hazardous and polluted small scales mines. The labor-intensive process of mining and refining is frequently linked to health issues, exposure to harmful gases and chemicals. Addressing the environmental impact of battery production remains a significant challenge in making electric vehicles truly sustainable. (Millan, 2019) Pointed put in bloomberg that Lithium may be a green source of energy but its mining damaging the environment and resulted in destruction of the ecosystem. In an interview Cristino dorador, a chile based biologist (Galaz, 2021) told “The Lithium fever should slow down because it’s directly damaging salt flats, the ecosystem and local communities. Lithium mining is not only dangerous for water animal but crating water and air pollution too.”
- **Energy Intensive Manufacturing:** The manufacturing process of electric vehicles, particularly the production of batteries, is energy-intensive. This reliance on energy, often derived from non-renewable sources, contributes to carbon emissions and environmental stress. Striking a balance between the energy demands of EV manufacturing and the environmental benefits during their operational phase is a challenge that requires attention. Creating a new EV can result in around 80% higher emission than creating a Gas-powered vehicle due to the extensive manufacture of batteries<sup>1</sup>. (Miri, Fotouhi, & Ewin, 2020) Claimed that since battery is the main component of an electric vehicle, producing an electric automobile often uses more energy than producing a car with a traditional internal combustion engine. A study by (INSNET Editor, 2019) explained that electric cars and hybrid cars produce more CO<sub>2</sub> during their production than traditional internal combat vehicles. Before an electric vehicle has driven a single mile, 46% of its carbon footprint has been produced in the manufacturing.
- **End-of-Life Management:** The disposal and recycling of electric vehicle components, especially batteries, pose challenges. Inefficient recycling processes and the potential for hazardous waste from used batteries can contribute to environmental harm. Developing effective strategies for the responsible end-of-life management of electric vehicles is imperative to prevent negative environmental impacts. Safe recycling of lead-acid batteries and Li-ion batteries is a challenge. If we check the data of EV units sold, we found that in the financial year 2019 around 7.5 lakh units were sold. As per research by (Prescient & Strategic Intelligence: Indian



Electric Car Market, 2023) the Indian EV car market is expected to grow at 33.3% during 2022-2030. This growth will lead to stockpiles of waste batteries. India is not ready to handle this problem. Currently highly polluting techniques are adopted by waste dealers to extract the metal and lead from lead-acid batteries. India is yet to introduce any formal recycling system as desired under India's Batteries Rules 2001. Recycling of Li-ion batteries at global level is very low and India's capacity is almost negligible. The India's Batteries Rules 2001 do not cover management and handling of Li-ion batteries. Even the informal sector is not ready with any techniques for recycling of Li-ion batteries. The developed countries where EVs are in trend are struggling with their Li-ion waste. Li-ion batteries are basically recycled for materials like cobalt and lithium. In India those who are recycling these batteries are more interested in cobalt than lithium. Because lithium is a poisonous, highly reactive, and combustible element, its potential for recycling may be limited. Due to poor battery maintenance and handling legislation and extremely low collection rates, it usually winds up in landfills or is burnt. An estimate of 5% of lithium is collected from used batteries in the European countries, otherwise most of the lithium is either dumped on land fill or incinerated (Zacune, 2013).

- **Indirect Environmental Consequences:** The push for electric vehicles can inadvertently lead to other environmental challenges. For example, improved demand for raw materials may drive deforestation and biodiversity loss, as seen in the quest for lithium and other key components. A holistic assessment of the indirect consequences of the electric vehicle supply chain is necessary for a comprehensive understanding of their environmental impact. (Curley, 2018) Deforestation raises the warmth that radiates from the ground directly along with through the volume of CO<sub>2</sub> in the atmosphere. As per a report in The Hindu<sup>2</sup> in the year 2023, India has lost 668400-hectare forests in five years (Ghosh, 2019). Although there are numerous factors that contribute to deforestation, mining for coal and iron is perhaps the most significant. (Sekhsaria) India has seen a boom in the construction of large-scale projects from major industrial complexes and mines to dams and thermal power plants. There used to be a dense forest where several of these were situated. As a result, forests were cleared for mining operations or for industrialization and for thermal power plants.
- **Emission gets displaced to the Power Generation Stage:** Electric vehicles run on thermal energy and do not contribute to air pollution. But there is only a shift in emission from vehicles to the power generation stage. It does not get eliminated. Today's India is generating

nearly 75% of its energy /power from coal and thermal power plants. In this situation higher demand for power will increase the load on coal and thermal power plants. NITI Aayog cleared that the share of coal-based power will rise to 51% in 2030. Power generation from coal is not an environmentally friendly process. Burning of coal releases very harmful gases such as sulphur dioxide and nitrogen oxide. Coal will remain the principal fuel of choice either for industry or for power generation. More use of EVs will subsequently increase the demand for power and indirectly contribute to air pollution by forming the highest level of nitrogen oxide. The infrastructure needed for EV charging will eventually be dependent on extremely polluting coal and thermal power plants. (Nimesh, Sharma, Reddy, & Goswami, 2020). The emission from coal power plant in India increased from 901.7gCo<sub>2</sub>/kwh in 2005 to 926g Co<sub>2</sub>/kwh in 2012. And the emission from such power plants will indirectly and continuously add air pollution. Schipper, (2024) in ETH Zurich research mentioned that people in India suffer the worst health effects from the pollutants emitted from coal fired power plants. Moreover, mainly in Asia, the local health damage caused by burning of coal in plants without modern flue gas treatment, releases sulphur dioxide and nitrogen oxide. (Ganguly, Khan, & Ganesan, 2021) analysed the data from different sources and concluded that Power Plant and Industry are the leading emitters of multiple pollutants such as SO<sub>2</sub> and NO<sub>x</sub>.

- **Non-Exhaust Emission:** The World Bank, (2023) explained the secondary way of emission. This occurs when certain gaseous pollutants such as ammonia, combine with other gaseous pollutant like sulphur dioxide and nitrogen oxide. India's more than half of total emission of PM 2.5 originate from secondary ways. Secondary PM2.5 is mostly produced by transportation, agriculture, industry, homes and power plant. (Singh, Biswal, Kesarkar, Mor, & Ravindra, 2020) explained that there are majorly four type of non-exhaust emissions: break wear, road wear, tyre wear and dust suspension. Friction is the main cause of road, tyre and break wear and the slit on road, road surface, humidity etc. effect the dust suspension. Moreover, the emission from construction sites and thermal power plants also contribute to such secondary emission. Secondary emission is directly related with the suspension of dust particle in the air. Heavier the vehicle more dust suspension in the air. (R.J.H. Timmers & A.J. Achten, 2016) Electric vehicles are 24% heavier than corresponding internal combustion vehicles. Therefore, use of EV's will not bring down the air pollution with regard to PM<sub>10</sub> emission and PM 2.5 emission were only 1-3% lower for EVs compared to internal combustion vehicles.

## Conclusion

This research evaluates the environmental impact of electric vehicles throughout their life cycle along with consideration of factors like raw materials, battery production, electricity generation and their disposal. It compares the environmental impact of electric vehicles with traditional internal combustion engines with consideration of factors like: air pollution and energy efficiency. The study also explores the challenges and potential benefits of energy-dependent technology as well as the practical implications of electric vehicles' weight on energy consumption and infrastructure. The findings reported that the transitioning to electric vehicles may not improve air quality but with some strategic changes they can reduce carbon emissions and address climate change. However, addressing the environmental challenges requires technology advancements, sustainable resource management and thoughtful policy measures for a sustainable future.

## References

- Curley, J. (2018, May 16). *How Does Deforestation Affect the Air?* Retrieved from Sciening: <https://sciening.com/deforestation-affect-air-10632.html>
- Galaz, F. P. (2021, May 11). *Cristina Dorador: a biologist who wants to help write Chile's new constitution.* Retrieved from Extractive industries: <https://dialogochino.net/en/extractive-industries/42839-cristina-dorador-the-biologist-chile-constitution/>
- Ganguly, t., Khan, A., & Ganesan, K. (2021, Oct). *What is Polluting India's Air?* Retrieved from COUNCIL ON ENERGY, ENVIRONMENT AND WATER: <https://www.ceew.in/publications/sources-of-air-pollution-in-india-and-need-for-official-air-pollution-emissions-inventory>
- Ghosh, S. (2019, Nov 25). *India: Mining, Deforestation and Conservation Money.* Retrieved from World Rainforest Movement: <https://www.wrm.org.uy/bulletin-articles/india-mining-deforestation-and-conservation-money>
- INSNET Editor. (2019, Oct 23). *Electric car emit more CO2 than traditional cars at production.* Retrieved from Internetwork for sustainability: <https://www.insnet.org/electric-cars-emit-more-co2-than-traditional-cars-at-production/>
- Millan, L. (2019, June 11). *Saving the Planet With Electric Cars Means Strangling This Desert.* Retrieved from Bloomberg: <https://www.bloomberg.com/news/features/2019-06-11/saving-the-planet-with-electric-cars-means-strangling-this-desert>
- Miri, I., Fotouhi, A., & Ewin, N. (2020, July 12). *Electric vehicle energy consumption modelling and estimation—A case study.* Retrieved from Wiley Online Library: <https://onlinelibrary.wiley.com/doi/full/10.1002/er.5700>
- Murray, A. (2022, Sep 27). *Cobalt Mining: The Dark Side of the Renewable Energy Transition.* Retrieved from Earth.Org: <https://earth.org/cobalt-mining/>
- Nimesh, V., Sharma, D., Reddy, V., & Goswami, A. I. (2020, March 15). *Implication viability assessment of shift to electric vehicles for present power generation scenario of India.* Retrieved from Elsevier: <https://www.sciencedirect.com/science/article/abs/pii/S0360544220300839>
- *Prescient & Strategic Intelligence: Indian Electric Car Market.* (2023, jan). Retrieved from prescient & Strategic Intelligence: <https://www.psmarketresearch.com/market-analysis/india-electric-car-market>
- R.J.H.Timmers, v., & A.J.Achten, P. (2016, June). *Elsevier.* Retrieved from Atmospheric Environment: <https://www.sciencedirect.com/science/article/abs/pii/S135223101630187X>
- Schipper, O. (2024, jan 8). *News and events.* Retrieved from ETH Zurich: <https://ethz.ch/en/news-and-events/eth-news/news/2019/02/global-impact-coal-power.html>
- Sekhsaria, P. (n.d.). *DEFORESTATION IN INDIA: Overviews and Proposed Case Studies.* Retrieved from IGES: [https://www.iges.or.jp/en/publication\\_documents/pub/conferenceproceedings/en/744/1ws-9-pankaji.pdf](https://www.iges.or.jp/en/publication_documents/pub/conferenceproceedings/en/744/1ws-9-pankaji.pdf)
- singh, V., Biswal, A., Kesarkar, A. P., Mor, S., & Ravindra, K. (2020, January 10). *Environment.* Retrieved from Elsevier: <https://www.sciencedirect.com/science/article/abs/pii/S0048969719342561>
- The Wire. (2023, March 14). *India Had Eighth-Worst Air Pollution in 2022: Report.* New Delhi: The Wire. Retrieved from The Wire: <https://thewire.in/environment/india-had-eighth-worst-air-pollution-in-2022-report>
- The World Bank. (2023, December 8). *Catalizing Clean Air in India.* Delhi, Delhi.
- The World Bank. (2023, December 8). *publication.* Retrieved from The World Bank: <https://www.worldbank.org/en/country/india/publication/catalyzing-clean-air-in-india>
- Veza, I., Asy'ari, M. Z., M.Idris, Epin, V., Fattah, I. R., & Spraggon, M. (2023). *Electric vehicle (EV) and driving towards sustainability: Comparison between EV, HEV, PHEV, and ICE vehicles to achieve net zero emissions by 2050 from EV.* *Alexandria Engineering Journal*, 459-467.
- Zacune, J. (2013, Feb). *Fcts-sheet-Lithium.* Retrieved from [http://www.foeeurope.org/sites/default/files/publications/13\\_factsheet-lithium-gb.pdf](http://www.foeeurope.org/sites/default/files/publications/13_factsheet-lithium-gb.pdf)
- Pirmana et al., (2023, Feb). *Economic and Environmental Impact of Electric Vehicles Production in Indonesia*
- Bigo Aurelien. (2022, June). *Are Electric Cars A Truly Sustainable Solution?.* <https://www.polytechnique-insights.com/en/columns/planet/are-electric-cars-a-truly-sustainable-solution/>
- An estimate from Argonne National Laboratory's GREET.
- <https://www.thehindu.com/sci-tech/energy-and-environment/why-it-matters-india-has-lost-668400-ha-of-forest-cover-in-the-last-30-years/article66645294.ece#:~:text=The%20study%20highlighted%20the%20trend,2020%2C%20Down%20to%20Earth%20noted.>

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## Annexure 16.1.5

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### Reviewers Memorandum

**Reviewer's Comment 1:** The authors have addressed an important and contemporary issue by exploring the role of electric vehicles in promoting sustainability: 'Can Electric Vehicles Serve as a Solution for Sustainability?' The paper effectively synthesizes a wide range of literature to critically assess the sustainability of electric vehicles in achieving environmental protection goals.

**Reviewer's Comment 2:** The authors studied that transitioning from internal combustion vehicles to electric vehicles may not automatically enhance air quality, but it presents a viable solution to combat air pollution sustainably. However, with strategic adjustments, electric vehicles hold potential for significantly reducing carbon emissions and mitigating the impacts of climate change.

**Reviewer's Comment 3:** It is also crucial to acknowledge and address the environmental challenges allied with its production, use, and disposal of electric vehicles. The authors have not only discussed the benefits associated with EVs but have also addressed the challenges involved in their adoption. This study provides scope for future research, suggesting that the things which are mentioned in the present study could be empirically verified.



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### Editorial Excerpt

The article has 07% of plagiarism which is the accepted percentage as per the norms and standards of the journal for publication. As per the editorial board's observations and blind reviewers' remarks the paper had some minor revisions which were communicated on a timely basis to the authors (Divya, Kalpana & Harikishni), and accordingly, all the corrections had been incorporated as and when directed and required to do so. The current study presented on the theme "Can We See Electric Vehicles as a Solution towards Sustainability?" contributes to raising awareness about the utilization of electric vehicles and the environmental benefits associated with their adoption. Although research is well presented, more literature review could have been done to have a more clear picture of the situation. This research assesses the environmental implications of electric vehicles across their entire life cycle, encompassing factors such as raw materials, battery manufacturing and electricity generation. The authors have also considered the end-of-life management of electric vehicles that may not have received much attention in previous research. The study underscores how its findings can aid policymakers in making crucial adjustments to strategies, aiming to enhance the sustainability of electric vehicles. After comprehensive reviews and the editorial board's remarks, the manuscript has been categorized and decided to publish under the "View Point" category.

### Acknowledgement

The acknowledgement section is an essential component of academic research papers, as it provides due recognition to all those who contributed their hard work and effort towards the writing of the paper. The author/s (Divya, Kalpana & Harikishni) express their sincere gratitude to all those who assisted in the research process and made this paper a possibility. Lastly, the reviewers and editors of GJEIS deserve recognition for their pivotal role in publishing this issue, without whom the dissemination of this valuable research would not have been possible.

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