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The Effects of Electric Vehicle Consumption on the Environment in the Perspective of the Qur'an; M. Qurasy Shihab, Al-Zuhaili, and Al-Qurthubi's Interpretation of QS. Ar-Rum Verse 41

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Abstract

Vehicle usage is expanding as technology advances, including the use of electric vehicles, which impact the environment. This article analyzes the history of electric vehicles, as well as the source and environmental impact of electric vehicle batteries, by examining Qurthubi, Al-Zuhaili, and M. Qurasy Shihab's interpretation of Surah ar-Rum Verse 41, which deals with the destruction on Earth. The writer used the literature research method to complete this study. According to the research findings, electric vehicles have been used since the 1990s, with batteries being the primary material sourced from mineral mines. Poor mining and processing of battery waste can disrupt the Earth's balance, negatively influencing the environment. Imam Qurthubi, Wahbah al-Zuhailiy, and M. Qurasy Shihab interpret the term fasad in QS. Ar-Rum verse 41 refers to physical and non-physical damage on land and at sea. Essentially, all of this is the

product of human activity, so the solution to environmental preservation through the usage of electric vehicles harms other regions of the globe, resulting in negative environmental consequences.

Keywords: *Al-Qur'an; Ar-Rum 41; Effects; Electric vehicles; Environment.*

Abstrak

Seiring dengan berkembangnya teknologi, penggunaan kendaraan semakin meningkat, termasuk dalam penggunaan kendaraan listrik yang menimbulkan efek terhadap lingkungan. Artikel ini membahas tentang sejarah kendaraan listrik, sumber dan dampak baterai kendaraan listrik terhadap lingkungan, dengan melihat kepada penafsiran Qurthubi, Al-Zuhaili, dan M. Qurasy Shihab terhadap surat ar-Rum Ayat 41 terkait kerusakan yang terjadi di muka bumi. Dalam menyelesaikan artikel ini penulis menggunakan metode penelitian kepustakaan. Dari hasil penelitian, penulis menemukan bahwa kendaraan listrik sudah digunakan sejak tahun 1990-an dengan baterai sebagai bahan utamanya yang dihasilkan dari tambang mineral. Penambangan dan pengolahan limbah baterai yang tidak baik dapat merusak keseimbangan bumi sehingga berdampak buruk bagi lingkungan. Imam Qurthubi, Wahbah al-Zuhailiy, dan M. Qurasy Shihab menafsirkan kata fasad pada QS. Ar-Rum ayat 41 dengan kerusakan yang terjadi di darat dan di laut, baik secara fisik maupun non fisik. Pada dasarnya semua itu disebabkan karena perbuatan tangan manusia, sehingga solusi pelestarian lingkungan melalui penggunaan kendaraan listrik justru harus merusak belahan bumi lainnya yang mengakibatkan dampak negatif terhadap lingkungan.

Kata Kunci: *Al-Qur'an; Ar-Rum 41; Dampak; Kendaraan Listrik; Lingkungan.*

A. Introduction

Industrial development is accelerating in modern times, notably in agriculture, plantations, and the manufacturing sector. One of the most exciting industrial advancements to address is the electric vehicle industry. The primary goal of electric car manufacturing is to reduce global environmental pollution. This is predicated on all countries' commitment to transition to the Net

Zero Emissions (NZE) era by 2060. As a result, we must consider how optimal this proposed approach is.

This research is comparable to prior studies, such as Edward's "The Impact of Shifting Mass Road Transportation to Electric Cars",¹ Ibrahim's "Future Projections of Electric Vehicles in Indonesia: An Analysis of Regulatory Perspectives and Controlling the Impacts of Sustainable Climate Change",² Viktor's "Study of Electric Vehicle Development in Indonesia: Prospects and Obstacles",³ Cakrawati's "Strategies for Sustainable Electric Vehicle Utilization as a Solution to Reduce Carbon Emissions",⁴ Xu's "Future Material Demand for Automotive Lithium-Based Batteries",⁵ Aisyah's "Environmental Damage in the Qur'an",⁶ eko's "A Study of the Qur'an and Science on Environmental Damage",⁷ and Qomarullah's "Environment in Qur'anic Studies: Environmental Crisis and Its Countermeasures from the

¹Edwaren Liun, 'Dampak Peralihan Massal Transportasi Jalan Raya Ke Mobil Listrik.', *Jurnal Pengembangan Energi Nuklir*, 19.2 (2018), Page, 13–22 <<https://doi.org/10.17146/jpen.2017.19.2.4075>>.

²Asrul Ibrahim Nur and Andrian Dwi Kurniawan, 'Proyeksi Masa Depan Kendaraan Listrik Di Indonesia: Analisis Perspektif Regulasi Dan Pengendalian Dampak Perubahan Iklim Yang Berkelanjutan', *Jurnal Hukum Lingkungan Indonesia*, 7.2 (2021), Page, 197–220. <<https://doi.org/10.38011/jhli.v7i2.260>>.

³Victor Tulus Pangapoi Sidabutar, 'Kajian Pengembangan Kendaraan Listrik di Indonesia: Prospek Dan Hambatannya', *Jurnal Paradigma Ekonomika*, 15.1 (2020), Page, 21–38. <<https://doi.org/10.22437/paradigma.v15i1.9217>>.

⁴Cakrawati Sudjoko, 'Strategi Pemanfaatan Kendaraan Listrik Berkelanjutan Sebagai Solusi Untuk Mengurangi Emisi Karbon', *Jurnal Paradigma: Jurnal Multidisipliner Mahasiswa Pascasarjana Indonesia*, 2.2 (2021). Page, 54-68. <<https://doi.org/10.22437/paradigma.v15i1.9217>>.

⁵Xu C, 'Future Material Demand for Automotive Lithium-Based Batteries,' *Communication Materials*, 2020. Page, 1-10. <<https://doi.org/10.1038/s43246-020-00095-x>>.

⁶Aisyah Nurhayati, Zulfa Izzatul Ummah, and Sudarno Shobron, 'Kerusakan Lingkungan Dalam Al-Qur'an', *Suhuf*, 30.2 (2018), Page, 194–220. <<https://doi.org/10.23917/suhuf.v30i2.7643>>.

⁷Eko Prayetno, 'Kajian Al-Qur'an Dan Sains Tentang Kerusakan Lingkungan', *Al-Dzikra: Jurnal Studi Ilmu al-Qur'an Dan al-Hadits*, 12.1 (2018), Page, 111–136. [Al-Dzikra: Jurnal Studi Ilmu al-Qur'an dan al-Hadits \(radenintan.ac.id\)](https://doi.org/10.24042/al-dzikra.v12i1.2927). <<http://dx.doi.org/10.24042/al-dzikra.v12i1.2927>>.

Perspective of the Qur'an".⁸ However, past studies have not particularly analyzed the impact of electric vehicles on the environment in terms of Qur'anic verses.

This study focused on the history of electric vehicles, the resources and environmental implications of electric vehicles, and the interpretation of Qur'anic verses regarding the damage caused by the manufacturing process of electric vehicles. This phenomenon is crucial because electric vehicles have become more popular recently. The writer concentrated on verse 41 of Surah Ar-Rum in Tafsir Al-Misbah, Al-Munir, and Al-Qurthubi. The writer chose the interpretation of Al-Misbah and Al-Munir because this book employs the *al-Adabi Al-Ijtima'i* style (social society) to link to the natural environment in which humans live. The writer used Tafsir al-Qurthubi in the Lughawi style to understand the meaning of Surah Ar-Rum verse 41 in terms of language.

This study employed the library method (library research). The writer collected and reviewed information from books, theses, journals, articles, and papers on electric vehicles' history, development, components, and environmental impact.

The author discovered that electric vehicles were popular in the 1990s. During the period, electric vehicles were widely used since they were appropriate for road conditions (infrastructure), and buildings were not as vast and numerous as they are now. The battery is critical in electric vehicles because it serves as the drive material. In conjunction with the development of electric vehicles, originally a solution to reduce air pollution, this solution must now harm other regions. Mufassirs such as M. Quraisy Shihab, Wahbah Al-Zuhaili, and At-Thabari understand the word *Fasad* (damage) in QS. Ar-Rum verse 41 is a natural damage, both physical and non-physical. *Fasad* is also associated with harm to human behavior, including harm to *Aqidah*, morals, and others.⁹

⁸ Muhammad Qomarullah, 'Lingkungan Dalam Kajian Al-Qur`An: Krisis Lingkungan Dan Penanggulangannya Perspektif Al-Qur`An', *Jurnal Studi Ilmu-Ilmu Al-Qur'an Dan Hadis*, 15.1 (2014), Page, 135–58 <<https://doi.org/10.14421/qh.2014.1501-07>>.

⁹ Quraish Shihab, Tafsir Al-Mishbah, Pesan, Kesan Dan Keserasian Al-Qur'an, Jilid 11 (Jakarta: Lentera Hati, 2005), hlm, 76; Wahbah Al-Zuhaili, Tejemah Tafsir Al-Munir, Aqidah, Syari'ah, Manhaj, Judul Asli Al-Tafsir Al-

B. The History of Electric Vehicles

The use of electric vehicles dates back to the 1990s in America. At the time, electric vehicles were more popular since they produced no emissions, made no noise, and caused no significant vibration. This is inversely proportionate to vehicles driven by fuel oil or steam, which pollute the air, emit carbon dioxide, and generate noise.

At the time, the public was likelier to adopt electric vehicles due to weak infrastructure conditions. Roadways were only known to exist in urban areas. Also, the distance between cities is not too large, making it ideal for electric vehicles that can only travel short distances.¹⁰

The utilization of electric vehicles decreased as time passed, as did the construction of more advanced infrastructure in America. The highways in America had stretched to rural locations at the time, increasing the distance between one location and another. This is opposed to the characteristics of electric vehicles, which can only go limited distances. Another aspect that contributed to the reduced usage of electric vehicles at the time was the discovery of oil deposits in Texas, which made fuel oil inexpensive and readily available. Furthermore, there were no electricity rules at the time. Thus, each country had a different voltage system, making battery charging difficult.¹¹

On February 16, 2005, the 1977 Kyoto Protocol applied to countries that were members of the United Nations Framework Convention on Climate Change (UNFCCC). The 1977 Kyoto Protocol aims to keep greenhouse gas concentrations in the atmosphere at levels that do not damage the Earth's climate system. The UN Framework Convention on Climate Change and the Kyoto Protocol of 1977 did not question natural climate change

Munir Fii Aqidah Wasy-Syariah Wal Manhaj, Jilid 11 (Jakarta: Gema Insani, 2013), Page, 119.

¹⁰ Dana Prijanjani and Wahyudi Sutopo, 'Studi Komparasi Penelitian Standar Kendaraan Listrik Dunia Dengan Standar Kendaraan Listrik Indonesia', in *Prosiding Seminar Sains Nasional Dan Teknologi*, 2018, 1, Page, 180. <<http://dx.doi.org/10.36499/psnst.v1i1.2346>.

¹¹ Nyoman S. Kumara, 'Tinjauan Perkembangan Kendaraan Listrik Dunia Hingga Sekarang', *Transmisi: Jurnal Ilmiah Teknik Elektro*, 10.2 (2008), Page, 89-96. <<https://doi.org/10.12777/transmisi.10.2.89-96>.

but climate change caused by human activity. CO₂ gas emissions from oil-fueled vehicles are one example of greenhouse gas emissions.¹²

Responding to the rapid development of electric vehicles, Indonesia, based on the world's commitment to attain Net Zero Emission (NZE) by 2060, has initiated the transition to an ecologically friendly sector. Presidential decree 55 of 2019 regarding accelerating the battery-based electric motor vehicle program (Battery Electric Vehicle or BEV) demonstrates that Indonesia is prepared to tackle the transition from oil-fueled to battery-powered vehicles.¹³ It was previously known that electric vehicles were first developed in 2012, but several issues plagued the development of electric vehicles in Indonesia.¹⁴ Furthermore, efforts to address the development of electric vehicles in Indonesia have included industrial development, the manufacture of electric motorized vehicles (KBL), the provision of electric charging infrastructure known as Public Electric Vehicle Charging Stations (SPKLU), and the regulation of electricity tariffs for battery-powered vehicles.¹⁵

C. Sources and Effects of Electric Vehicles on the Environment

1. Electric Vehicle Battery Sources

Batteries are a key component in the use of electric vehicles. This battery is constructed from various mineral mining materials and is constantly being reinvented. Among the batteries used for electric cars are:

a. Lead-Acid Battery

¹² M Triatmodjo, *Implikasi Berlakunya Protokol Kyoto-1997 Terhadap Indonesia.*, 2005. <https://www.neliti.com/publications/39080/implikasi-berlakunya-protokol-kyoto-1997-terhadap-indonesia>.

¹³ “Presidential Decree Number 55 of 2019”.

¹⁴ Audrey Ramadhina and Fatma Ulfatun Najicha, ‘Regulasi Kendaraan Listrik di Indonesia Sebagai Upaya Pengurangan Emisi Gas’, *Jurnal Hukum tora: Hukum Untuk Mengatur dan Melindungi Masyarakat*, 8.2 (2022), Page, 206. <<https://doi.org/10.55809/tora.v8i2.126>>.

¹⁵<https://agro.kemenperin.go.id/index.php/artikel/6518-menengok-perkembangan-industri-kendaraan-listrik-di-indonesia>

The lead-acid battery, introduced in 1859, was the initial rechargeable battery for internal combustion engine vehicles. This battery variant has a cathode made of lead peroxide and an anode made of lead sponge. These electrodes are submerged in an electrolyte solution of water and sulfuric acid. Typically, this battery utilizes a polypropylene container. The production of the battery itself necessitates a significant amount of energy. Specifically, 9.2 MJ and 31 MJ are utilized to manufacture lead-acid batteries. Lead oxide is first transformed into a paste and then undergoes an electrochemical process to be changed into lead peroxide and lead sponge. Lead acid batteries are commonly utilized in gadgets that necessitate high currents, compact dimensions, and comparatively affordable costs. The cost advantage of electrical energy storage, measured in Ampere Hours (AH), is the highest compared to other types of electric batteries.¹⁶

b. Nickel-Metal-Hydrate Battery

The nickel-metal-hydrate battery was implemented as a constituent material for electric vehicles. They bear a resemblance to nickel-cadmium batteries. Due to its lack of cadmium content, the nickel-metal battery is considered safer than cadmium batteries. Nickel metal (NiMH) batteries comprise a cathode made of nickel oxide hydroxyl and an anode made of rare earth elements. These components are immersed in a potassium hydroxide (KOH) electrolyte. The necessary phases in producing these nickel metal batteries are acquiring scarce earth elements for the anode, preparing the cathode and anode, and concluding the assembly of the cathode and anode.

c. Lithium-Ion (Li-ion) Battery

Most electric vehicles employ lithium-ion (Li-ion) batteries, noted for their environmental friendliness and larger capacity than other batteries. This battery's cathode can come from three different sources: a mixture of nickel, cobalt, aluminum, iron phosphate, or manganese oxide. The production of this lithium battery consists of numerous phases, beginning

¹⁶ Sri Paryanto Mursid, 'Perancangan Smart Charger Baterei Asam Timbal Berbasis ATTiny85', *Jurnal Teknik Energi*, 12.1 (2023), Page, 10 <<https://doi.org/10.35313/energi.v12i1.5134>>.

with the synthesis of cathode paste and lithium metal oxide, followed by the preparation of an anode from a graphic, assembly of the cathode and anode with a separator, addition of electrolyte, charging of the battery cells, and final assembly.¹⁷

2. The Impact of Using Electric Vehicles on the Environment

The beneficial effect is visible in terms of cost, as electric vehicles are less expensive. This is evident from the fact that one liter of Peralite type gasoline costs IDR 10.000 and produces approximately 3 KWH of energy, resulting in a price per KWH of IDR 1.500.¹⁸ In comparison, the price of electrical energy from the State Electricity Company at 6,100 VA power is 1,467/kWh. When assessed in terms of pricing, the gap between the fuel price and the battery capacity of the State Electricity Company Electricity is not particularly significant. Still, regarding material availability, the distinction between fuel and electric power is considerable. Petroleum fuel is currently rare, whereas electricity generated by hydro, wind, geothermal, and nuclear power plants has a greater potential for long-term use.¹⁹ Furthermore, electric vehicles have been shown to emit no more pollutants into the atmosphere than gasoline-powered automobiles. As a result, the availability of electric vehicles that emit low pollution levels can assist in addressing the issue of air pollution in cities.²⁰ Furthermore, the positive impact of using electric vehicles may be one solution to the present environmental challenges. Because they use environmentally friendly technologies and supplies, they

¹⁷ I. Made Indradjaja M. Brunner and Satria M. Brunner, 'Pemilihan Baterai Kendaraan Listrik Dengan Metoda Weighted Objective', *Jurnal Serambi Engineering*, 6.1 (2021). <<https://doi.org/10.32672/jse.v6i1.2644>.

¹⁸ Edwaren Liun, 'Dampak Peralihan Massal Transportasi Jalan Raya Ke Mobil Listrik.', *Jurnal Pengembangan Energi Nuklir*, 19.2 (2018), Page, 120. <<http://dx.doi.org/10.17146/jpen.2017.19.2.4075>.

¹⁹ Rendi Ansah And Susilawati Susilawati, 'Dampak Kendaraan Listrik Terhadap Lingkungan Dan Sumberdaya Alam: Isu Mutakhir Dalam Transportasi Berkelanjutan', *Zahra: Journal Of Health And Medical Research*, 3.1 (2023), Page, 209. <<https://adisampublisher.org/index.php/aisha/article/view/434>

²⁰ Cakrawati Sudjoko, 'Strategi Pemanfaatan Kendaraan Listrik Berkelanjutan Sebagai Solusi Untuk Mengurangi Emisi Karbon', *Jurnal Paradigma: Jurnal Multidisipliner Mahasiswa Pascasarjana Indonesia*, 2.2 (2021), Page, 55. <<https://doi.org/10.22146/jpmmpi.v2i2.70354>.

can predict the impact of the energy crisis, making electric vehicles a viable option for long-term vehicle use.²¹

The negative impact of electric vehicle usage is associated with the production and handling of waste batteries. Batteries play a significant role in the use of electric vehicles and affect their selling price.²² Minerals are the raw materials utilized in producing these batteries; obtaining the required materials has consequences for mining operations.²³

In addition to increased mining activities, processing old electric vehicle batteries will have a negative impact. As previously stated, the materials employed in these batteries contain extremely harmful poisonous chemicals such as toxic nickel and lanthanum.²⁴ Quoted from Jakarta, CNN Indonesia said that improperly managed battery trash causes environmental degradation because dumping battery waste into the ground causes subsurface water pollution.²⁵ Saving the environment is a difficult task. The solution of using electric automobiles still has to harm other parts of the Earth.

D. Prohibition of Causing Harm in the Qur'an: Interpretation of Surah Ar-Rum Verse 41

Based on the objective of creating electric vehicles, it is essentially an endeavor to conserve the environment by lowering

²¹ Cakrawati Sudjoko, 'Strategi Pemanfaatan Kendaraan Listrik Berkelanjutan sebagai Solusi untuk Mengurangi Emisi Karbon', *Jurnal Paradigma: Jurnal Multidisipliner Mahasiswa Pascasarjana Indonesia*, 2.2 (2021), Page, 56 <<https://doi.org/10.22146/jpmmpi.v2i2.70354>>.

²² David Coffin and Jeff Horowitz, "'The Supply Chain for Electric Vehicle Batteries", United States International Trade Commission,' *Journal of International Commerce and Economics*, 2018, Page 4.

²³ Xu C, 'Future Material Demand for Automotive Lithium-Based Batteries,' *Communication Materials*, 2020. Page, 1-10 <<https://doi.org/10.1038/s43246-020-00095-x>>.

²⁴ Yuanan Hu, *Retired Electric Vehicle (EV) Batteries: Integrated Waste Management and Research Needs* (American Chemical Society: Environmental Science and Technology, 2017), Page, 1028.

²⁵ Baca "Bahaya Salah Kelola Daur Ulang Baterai Kendaraan Listrik di Indonesia," accessed in September 16, 2013, https://www.cnnindonesia.com/otomotif/20230227171601-603_918510/bahaya-salah-kelola-daur-ulang-baterai-kendaraan-listrik-di-indonesia/1.

air pollution.²⁶ In general, this effort appears beneficial in maintaining and preserving the ecosystem. However, the battery serves as the vehicle's energy source, with minerals such as lithium, nickel, cobalt, and manganese as raw materials.²⁷ Extracting this battery material requires digging (damaging) the Earth's surface, and used batteries contain hazardous compounds that can contaminate subsurface water.²⁸

Specifically, verse 41 of Surah ar-Rum discusses the destruction on the earth's surface:

ظَهَرَ الْفَسَادُ فِي الْبَرِّ وَالْبَحْرِ بِمَا كَسَبَتْ أَيْدِي النَّاسِ لِيُذِيقَهُمْ بَعْضَ الَّذِي عَمِلُوا لَعَلَّهُمْ
يَرْجِعُونَ

Corruption has spread on land and sea as a result of what people's hands have done so that Allah may cause them to taste the consequences of some of their deeds, and perhaps they might return to the right path.²⁹

Wahbah Al-Zuhaili interpreted the word الفساد in this verse as a state of disorder and devastation, including drought, famine, lack of vegetation, fires, floods, crime, robbery, unfair seizure of property, the number of harm, and the absence of utility.³⁰ The word البر is the dry part of the Earth that is land, and the word البحر is the watery part of the Earth that is water.³¹ Al-Qurthubi also stated that

²⁶ C.C. Chan, 'The State of the Art of Electric and Hybrid Vehicles,' *Proceedings of the IEEE*, 90.2 (2002), Page 247. <<https://doi.org/10.1109/5.989873>>.

²⁷ Xu C, 'Future Material Demand for Automotive Lithium-Based Batteries,' *Communication Materials*, 2020. Page, 1-10 <<https://doi.org/10.1038/s43246-020-00095-x>>..

²⁸ Baca "Bahaya Salah Kelola Daur Ulang Baterai Kendaraan Listrik di Indonesia," accessed September 16th, 2013, https://www.cnnindonesia.com/otomotif/20230227171601-603_918510/bahaya-salah-kelola-daur-ulang-baterai-kendaraan-listrik-di-indonesia/1.

²⁹ Kementerian Agama Republik Indonesia, *Al-Quran Dan Terjemah Tajwid Warna* (Jakarta: Al-Rafi', 2016), Page, 408.

³⁰ Wahbah Al-Zuhaili, *Tejemah Tafsir Al-Munir, Aqidah, Syari'ah, Manhaj*, Judul Asli *Al-Tafsir Al-Munir Fii Aqidah Wasy-Syariah Wal Manhaj*, Jilid 11 (Jakarta: Gema Insani, 2013), Page, 119.

³¹ Wahbah Al-Zuhaili, *Tejemah Tafsir Al-Munir, Aqidah, Syari'ah, Manhaj*, Judul Asli *Al-Tafsir Al-Munir Fii Aqidah Wasy-Syariah Wal Manhaj*, Jilid 11 (Jakarta: Gema Insani, 2013), Page, 119..

scholars had different interpretations of the term الفساد. Qatadah and as-Suddi are of the opinion that the word الفساد refers to polytheism, which is the most extreme sort of corruption. Ibn Abbas Ra, Ikrimah, and Mujahid believed that the meaning of land corruption was the murder of Adam's son by his brother, specifically Qabil's murder of Habil. While the expression "damage at sea" refers to a dictator who takes every ship by force. Furthermore, some think that corruption refers to extreme poverty, immorality, robbery, and injustice. These acts impede cultivation, development, and commerce.

Quraysh Shihab writes that corruption on land means drought, famine, and loss of security. In the sea, corruption means drowning, and there is a shortage of sea and river products due to the actions of disobedient mankind. As a result, God made them taste some of the consequences of their sins and transgressions so that they would return to the right path.³²

Qurasy Shihab further said that the word يظهر its original meaning is the occurrence of something on the surface of the Earth. Because the occurrences are on the surface, they become visible and can be seen with the eyes and known. The word يظهر is an antonym of بطن, which implies the occurrence of anything in the depths of the ground. According to al-Ashafahani, the phrase الفساد refers to the release of something from the limitations of balance, whether it is a small or large amount. It could be physical, mental, or something else.

Furthermore, Quraysh Shihab expressed his disagreement with scholars who limit the meaning of the word الفساد to the killing of Adam's son Habil. He stated that this opinion is without a strong basis. He agrees with contemporary academics who interpret it as suggesting environmental devastation, citing the verse's association with the words land and sea.³³

He adds to his explanation by saying that the Qur'an contains many verses explaining various corruptions and

³² Quraish Shihab, Tafsir Al-Mishbah, Pesan, Kesan Dan Keserasian Al-Qur'an, Jilid 11 (Jakarta: Lentera Hati, 2005), Page, 76.

³³ Quraish Shihab, 76.

wrongdoings associated with the context of *Fasad*, such as Surah Al-Baqarah [2]:205.

وَإِذَا تَوَلَّى سَعَى فِي الْأَرْضِ لِيُفْسِدَ فِيهَا وَيُهْلِكَ الْحَرْثَ وَالنَّسْلَ ۗ وَاللَّهُ لَا يُحِبُّ الْفَاسِدَ

When he turns his back, His aim everywhere is to spread mischief through the Earth and destroy crops and cattle. But Allah loveth not mischief.

The previous verse refers to land and water as regions of *Fasad*. This means that corruption, such as murder and robbery, occurs on land and sea. The above verse also indicates that the land and sea have been destroyed. For example, the sea has become contaminated, causing fish to die and reducing the supply of marine products. The area is becoming hotter, resulting in a protracted drought; trees are being cut down, causing flooding; and the land is being dug (mine), resulting in an environmental imbalance that produces several disasters.³⁴

The explanations above show that human hands cause harm and tragedies on Earth's surface. When humans disobey the ban, Allah SWT will punish them as a result of their deeds.³⁵ QS. Al-A'raf [7]: 56 outlines Allah SWT's prohibition on causing environmental destruction.

وَلَا تُفْسِدُوا فِي الْأَرْضِ بَعْدَ إِصْلَاحِهَا وَادْعُوهُ خَوْفًا وَطَمَعًا ۗ إِنَّ رَحْمَتَ اللَّهِ قَرِيبٌ مِّنَ الْمُحْسِنِينَ

Make no mischief on the Earth, after it hath been set in order, but call on Him with fear and longing (in your hearts): for the Mercy of Allah is (always) near to those who do good.³⁶

This verse expresses the prohibition of causing harm and doing something that is not useful in any way, whether in the form of conduct such as destroying, killing, polluting rivers, etc., or in terms of aqidah such as shirk, kufr, and all types of disobedience. In this verse, the word *ishlah* represents the opposite axis of *fasad*. Quraish Shihab says, "If you find something good that fulfills its

³⁴ Quraish Shihab, Tafsir Al-Mishbah, Pesan, Kesan Dan Keserasian Al-Qur'an, Jilid 11 (Jakarta: Lentera Hati, 2005), Page, 77.

³⁵ Bani Syarif Maula, 'Wawasan Al-Quran Tentang Konservasi Alam', *MAGHZA: Jurnal Ilmu Al-Qur'an Dan Tafsir*, 2.2 (2017), Page, 63. <<https://doi.org/10.24090/maghza.v2i2.1569>.

³⁶ Lih. Al-A'raf [7]: 56

values, and you keep it so that these values last, then you do *islah*." However, if you find it in disrepair and then fix it so that it is as nice and helpful as before, this is known as *ishlah*.³⁷

The prohibition of causing damage is also found in QS. Al-Baqara [2]:11, QS. Al-Syu'ara [26]: 183, QS. Al-Syu'ara [26]: 183, and QS. Al-Qasas [28]: 77.

The Qur'an emphasizes that humanity must always establish positive relationships with one another and the natural world. Even pursuing happiness in the hereafter requires humans to safeguard the environment. These verses (QS. 26:183 and QS. 28:77) underscore the prohibition of creating any type of damage, including social damage, by depriving people of their rights and natural damage in the form of environmental destruction.³⁸

According to various verses that describe the prohibition of causing damage, driving an electric vehicle is one way to put the verse into effect. According to research findings, driving an electric vehicle can help to cut carbon emissions. However, using electric vehicles to reduce carbon emissions is not the best way to preserve the natural environment. The components used in electric vehicles require batteries sourced from mineral mining, which can harm other regions of the planet. Aside from the toxic elements in the battery, when discharged into the Earth, it might pollute or destroy subsurface water.

E. Conclusion

Electric vehicles have been around since the 1990s in the United States. At the time, the utilization of electric vehicles exceeded that of fuel-oil-powered vehicles. This is confirmed by the fact that the building infrastructure at the period was not as widespread and extensive as it is today. Highways exist in only a few urban areas. In 2012, Indonesia developed its first electric vehicle. However, the use and manufacture of new electric vehicles rose in 2019, thanks to the implementation of Presidential

³⁷ Bani Syarif Maula, 'Wawasan Al-Quran Tentang Konservasi Alam', *MAGHZA: Jurnal Ilmu Al-Qur'an Dan Tafsir*, 2.2 (2017), Page, 63. <<https://doi.org/10.24090/maghza.v2i2.1569>.

³⁸ Bani Syarif Maula, Page, 65.

Regulation Number 55 of 2019, which accelerated battery-based electric motor vehicle programs. Batteries are the primary component (power source) of electric cars. Examples are lead-acid batteries, nickel-metal-hydride batteries, and lithium-ion batteries. The usage of electric vehicles impacts environmental balance because as the number of electric vehicles increases, so does the mining of resources for electric vehicle batteries. Furthermore, when battery waste is placed in the ground, it might damage groundwater, resulting in contamination. Some mufassirs, including Quraysh Shihab, Whabah Al-Zuhailiy, and Al-Qurthubi, while reading Surah Ar-Rum verse 41, explain that human hands are responsible for most of the damage on Earth. Non-physical human actions such as polytheism and sinful acts, as well as physical human actions such as seawater pollution, excessive mining for battery manufacturing materials, and deforestation, all will draw retribution from Allah.

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