
THE EFFECT OF PUBLIC PERCEPTION OF CARBON TRANSACTIONS IN PROMOTING ECONOMIC PROSPERITY: A SHARIA ECONOMIC APPROACH

Zaenafi Ariani^{1*}, Malami Muhammad Garba²

¹Sharia Economic, Universitas Muhammadiyah Mataram, Indonesia

²Department Islamic studies, Federal College of Education, Yola, Adamawa State, Nigeria
efisholiha@gmail.com

ABSTRACT

This study aims to analyse public perception of carbon transactions in relation to improving economic welfare through sharia economic approach, as well as to examine the role of sharia banking and financial technology (fintech) as facilitators of sustainable carbon trading in accordance with sharia principles. The method used is mixed methods with sequential explanatory design. Quantitative data collection through a survey approach using a Likert-scale questionnaire with a total of 20 questions. This instrument is designed to measure the level of understanding, economic impact, and conformity of carbon transaction practices with sharia economic values. Respondents were purposively selected to represent individuals who have knowledge or involvement in related issues totalling 51 respondents. Quantitative data analysis was followed by a qualitative approach through observation and in-depth interviews with academics, industry players and sharia economic figures to gain a contextual understanding of the survey results. The findings show that public understanding of the concept and mechanism of carbon trading from a sharia perspective is still limited. Although some people show concern for environmental issues, in-depth knowledge about carbon trading is still minimal. However, respondents who understand sharia principles argue that carbon transactions can be justified as long as they fulfil the principles of fairness, transparency and are free from uncertainty (gharar).

Keywords: Public Perception, Carbon Transaction, Sharia Economics, Maqashid Sharia, Fintech.

1. INTRODUCTION

The issue of climate change is now one of the main concerns on the global agenda due to the significant increase in greenhouse gas emissions that have adverse implications for environmental sustainability and the resilience of the world economy (Rodríguez & Valenzuela, 2024). Carbon emissions that impact climate change on the sustainability of entities are caused by human activities such as the burning of fossil fuels (Ardita, 2023). Indonesia is a huge potential carbon market given its natural resources such as tropical forests and peatlands that function as natural carbon sinks. The Indonesian government issued regulations for sustainable development. The move towards sustainable development is realised through policies that support the development of carbon markets and the strengthening of the green economy (Peng et al., 2024).

Carbon trading is one solution where entities that successfully reduce emissions are given economic incentives. The existence of forest areas plays a strategic role in absorbing carbon and maintaining ecosystem balance (Dar et al., 2020). National forestry policy regulates the determination of forest areas that must be maintained, utilised and protected in a sustainable manner, as stated in Law No. 5 of 1967 concerning the main provisions of forestry. Based on their ecological and social functions, forests are divided into four categories, namely protected forests, production forests, nature reserve forests and tourism forests (Setiakahyandari & Hizbaron, 2024). One concrete implementation of education-based forest utilisation is the establishment of special purpose forest areas (KHDTK). The role of these areas is becoming increasingly relevant in supporting carbon trading and environmental conservation policies (Bai & Bai, 2024).

Carbon trading is the buying and selling of certificates given to countries that successfully reduce carbon emissions from climate change mitigation activities (Chavula et al., 2022). Carbon trading is not much different from buying and selling transactions carried out in conventional markets, the difference is the commodity being traded, namely carbon emissions. In practice, this mechanism operates through two main schemes, namely the cap-and-

trade system and the voluntary carbon market, where emission allowances or carbon credits are allocated, traded, and verified based on predetermined standards. The carbon trading mechanism is also an effective way to control CO₂ emissions because it creates economic incentives for governments and companies to innovate, improve energy efficiency, and adopt low-carbon technologies. By placing a price on carbon, this system internalizes environmental externalities into economic calculations, thereby encouraging more responsible production and consumption patterns. Since the carbon trading market is a mechanism that contributes to the transformation and increase of clean energy such as natural gas Janah et al. (2023), its existence not only supports emission reduction targets but also accelerates the transition toward renewable and cleaner energy systems. Furthermore, the development of carbon markets strengthens transparency, accountability, and international cooperation in achieving global climate commitments.

A growing body of literature has investigated the role of carbon transactions in fostering economic prosperity and sustainable development (Adanma & Ogunbiyi, 2024; McAfee, 2015; Nawaz & Sadiq, 2023). Other studies further emphasize the institutional, regulatory, and market dimensions of carbon trading as instruments for strengthening economic resilience and environmental governance (Nasution et al. 2025; Rahmawati et al., 2024; Firdaus & Arkananta, 2024). In addition, recent contributions highlight the strategic implications of carbon markets in supporting long-term green growth and low-carbon transformation (Yazis & Basah (2013). In this context, Baranzini et al. (2017) argues that carbon pricing, commonly referred to as the economic value of carbon, not only functions as an instrument for reducing greenhouse gas (GHG) emissions but also serves as a catalyst for green investment by discouraging carbon-intensive industrial activities. Moreover, NEK is considered a complementary financial mechanism to address the climate financing gap through carbon trading schemes. It reflects a form of multi-stakeholder collaboration and provides strategic momentum for achieving first-mover advantage in market-based climate

change mitigation at the global level, thereby contributing to sustainable economic recovery.

(Bhat, 2026) Presenting Green Banking guidelines, this carbon sales and operational business strategy includes environmental and social risk management, development of environmentally friendly products and services, and sustainability reporting. Green banking and sustainable financing are solutions to the challenges of global climate change (Park, 2022). Islamic banking has great potential in implementing this concept because of its compatibility with Islamic principles that emphasise social responsibility and sustainability (Ahmed et al., 2024). Meanwhile, Yazis & Basah (2013) explained that through product and service innovation, fintech can facilitate access to sustainable financial products, encouraging wider participation in the green economy. In addition, the role of fintech in encouraging sustainable transactions and global green (carbon) investment is increasingly significant along with the increasing need for environmentally friendly financial solutions. Fintech facilitates wider access to green finance through inclusive and efficient digital platforms.

Liu et al., (2024) demonstrate that free-riding behavior among consumers exerts nuanced yet significant effects on the performance of a Closed Loop Supply Chain (CLSC). Their findings indicate that such behavior can marginally stimulate market demand and increase recycling volumes, which in turn enhances profitability for both producers and retailers operating within the CLSC framework (Huang, & Peng, 2024). Furthermore, the study reveals that the quality of recycling services, together with transfer costs linked to retailers' free-riding practices, plays a critical role in shaping profit distribution between supply chain actors (Ballerini et al., 2023). These factors jointly determine whether the economic benefits derived from recycling activities are equitably or disproportionately allocated. In addition, the authors highlight that free-riding behavior influences both forward sales channels and reverse recycling channels to a comparable extent, suggesting a symmetrical impact across supply chain operations. Collectively, this research offers important managerial and policy implications for optimizing recycling systems, strengthening

collaborative mechanisms within supply chains, and advancing sustainable development strategies in the recycling sector. Ultimately, the study contributes meaningfully to broader efforts aimed at achieving carbon neutrality by improving the efficiency and economic viability of circular economy practices.

While previous studies on carbon trading have highlighted its contribution to improving economic welfare, the integration of Islamic economic concepts in carbon transaction mechanisms has been minimally explored. The approach used tends to focus on conventional economic perspectives, while Islamic values such as justice, social responsibility and sustainability have not been widely raised in the context of carbon trading. Therefore, this research aims to analyse the public perception of carbon transaction in promoting economic welfare based on Islamic economy. It also aims to identify the role of Islamic banking and financial technology (fintech) as supporting instruments in facilitating carbon trading that is sustainable, inclusive and in line with Islamic principles.

2. METHOD

This research uses mixed methods with a sequential explanatory design, beginning with quantitative data collection through a survey using a questionnaire (Grace et al., 2023). The instrument used in the quantitative phase is a closed-ended questionnaire with a 5-1 likert scale to measure aspects of understanding, economic impact, and the compatibility of carbon transactions with Islamic economic principles (Azwar, 2025). This survey stage aims to assess the influence of public perceptions of carbon transactions on economic welfare from an Islamic economic perspective. Respondents were selected using purposive sampling to ensure the inclusion of individuals who understand or are involved in carbon transactions and Islamic economics. Following the analysis of quantitative data, the study continued with a qualitative approach using descriptive methods. The instruments employed included direct observation and in-depth interviews with academics, industry practitioners, and Islamic economic scholars to obtain a deeper and more contextual understanding of the survey results (Azwar et

al., 2024). The research flow and data analysis are illustrated in Figure 1.

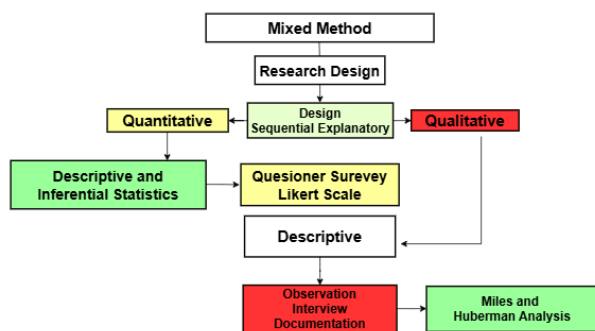


Figure 1. Flow and Analysis of Research Data

Figure 1 explains the flow and analysis of research data used to obtain information regarding the influence of public perceptions of carbon transactions in promoting economic welfare. The Islamic economic approach applies quantitative research with descriptive and inferential statistical analyses. Instrument validity for the 5-1 Likert scale questionnaire was assessed through expert validation. After data collection, descriptive statistics, normality tests, t -tests, and r -tests were conducted using IBM SPSS software. Qualitative data were analyzed through data triangulation using the Miles and Huberman approach, beginning with data collection through direct observation in the Batu Layar village settlement forest, West Lombok. Interview data were gathered from academics, industry practitioners (IP), and religious leaders (RL) in the field of Islamic economics, supplemented by relevant document retrieval. Subsequently, data reduction was performed by sorting and selecting information aligned with the research objectives and topics. Data were then presented descriptively, and conclusions were drawn at the final stage (Zhou & Jiang, 2023). This integrated approach allows for the combination of quantitative and qualitative data, resulting in a comprehensive understanding of public perceptions of carbon transactions within the Islamic economic framework and their contribution to economic welfare.

3. RESULTS AND DISCUSSION

3.1. Descriptive Statistics on Public Perceptions of Sharia Carbon Trading

Descriptive statistics serve to provide an overall picture of public perceptions of carbon trading from a sharia economic perspective. Through descriptive analysis, the pattern of data distribution can be understood more deeply, including the mean, median, mode, and frequency distribution of the various indicators measured. Some of the main indicators analysed include the level of public understanding of the concept of carbon trading, perceptions regarding the suitability of carbon trading mechanisms with sharia principles, as well as public views regarding the impact of carbon trading on economic welfare. The statistical description data is as shown in Table 1.

Table 1. Descriptive Statistics

	N	Range	Min	Max	Sum	Mean	Std. Dev.
X1	51	50	50	100	4208	82.50	13.657
Y1	51	50	50	100	4153	81.42	13.984
Valid N	51						

Table 1 explains the results of descriptive statistical analysis which shows that from 51 valid respondents, there are two main variables measured, namely the level of public understanding of the concept of carbon trading (X1) and perceptions of the suitability of carbon trading mechanisms with sharia economic principles and their impact on economic welfare (Y1). On variable X1, the mean value of 82.50 with a standard deviation of 13.657 indicates that the community has a relatively good understanding of the concept of carbon trading, although there are variations in understanding among respondents. Meanwhile, for variable Y1, the mean value of 81.42 with a standard deviation of 13.984 indicates that people perceive carbon trading mechanisms as potentially in line with sharia economic principles and contributing to economic welfare. The range of 50 on both variables indicates a significant difference in understanding and perception among respondents. In general, these results illustrate that the public has a positive view of carbon trading from a sharia economic perspective, although further education is still needed to harmonise understanding and

perceptions more evenly. The normality results are shown in Table 2.

Table 2. Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
X1	.122	51	.057	.933	51	.007
Y1	.109	51	.182	.937	51	.010

Table 2 explains the results of the normality test on variables X1 (Level of Public Understanding of the Carbon Trading Concept) and Y1 (Perception of the Conformity of the Carbon Trading Mechanism with Sharia Economic Principles and its Impact on Economic Welfare) analysed using the Kolmogorov-Smirnov and Shapiro-Wilk methods. Based on the Kolmogorov-Smirnov test, variable X1 has a significance value of 0.057 which is greater than 0.05 ($p > 0.05$), so the data on this variable is considered normally distributed. However, different results are shown by the Shapiro-Wilk test where the significance value is 0.007 ($p < 0.05$) which indicates that the data is not normally distributed. The difference in results between the two tests indicates that the data distribution on variable X1 is close to normal, but has not fully fulfilled the assumption of normality. Meanwhile, for variable Y1, the Kolmogorov-Smirnov test yields a significance value of 0.182, which is also greater than 0.05, so the data is considered normally distributed. However, the Shapiro-Wilk test results showed a significance value of 0.010 ($p < 0.05$) which indicates that the data is not normally distributed. The discrepancy in results between the two test methods indicates that there is a tendency for the distribution to be close to normal, but it does not fully meet the established normality criteria.

Therefore, it can be analysed that the higher people's understanding of the concept of carbon trading, the more likely they are to see the carbon trading mechanism as compatible with sharia values and see it as an instrument that can support the improvement of economic welfare. A good understanding helps people recognise how carbon trading not only contributes to emission reduction, but also aligns with the principles of justice, sustainability and economic balance promoted in sharia

economics. As for the Coefficients value of the study as in Table 3.

Table 3. Coefficient Values

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	4.340	5.005		.867	.390
	X1	.934	.060	.912	15.605	.000

Table 3 analyses the results of simple linear regression values show that variable X1 (Level of Public Understanding of the Carbon Trading Concept) has a regression coefficient of 0.934 with a significance value of 0.000 ($p < 0.05$). This indicates a positive and significant relationship between the level of public understanding and the perception of the suitability of carbon trading mechanisms in the Islamic economic framework and its impact on economic welfare (Y1). The high regression coefficient means that every one unit increase in the level of public understanding will be followed by an increase of 0.934 units in the public perception of the sharia carbon trading mechanism. Thus, the level of public understanding plays an important role in shaping positive perceptions towards sharia-based carbon trading, which in turn can increase public participation and support for the implementation of this programme. The implication of this result is that increasing public understanding is a crucial factor in supporting the success of sharia carbon trading as an instrument capable of improving economic welfare in a sustainable manner.

3.2. Perception of the Conformity of Carbon Transactions with Sharia Economic Principles

Based on the results of interviews and questionnaires, it can be concluded that most respondents have never heard of the term carbon or carbon trading. Those who had heard of the term had participated in Focus Group Discussion activities and some had heard of it through social media. The level of understanding of respondents can be seen in Figure 2.

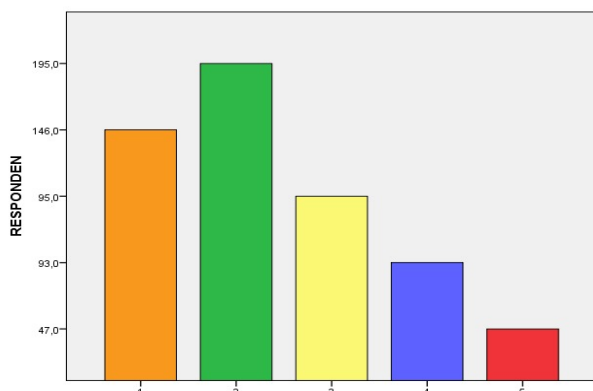


Figure 2. Statistical Results of Respondents' Questionnaires

Figure 2 explains the response from the respondents' understanding is still low, strongly do not understand (34%), do not understand (32%), are uncertain (12%), understand (22%), and fully understand (0%), most of the respondents who don't know the term. Because the term carbon trading is very unfamiliar to them and the average respondent interviewed and filling out the questionnaire has never heard of the term at all so that the answers of respondents related to carbon trading can be said to be very low or do not understand it, there are also respondents who really understand it because they have participated in FGD activities carried out by KHDTK managers and some of the respondents have heard or read through social media related to the term. Based on the results of interviews with Community Leaders (CL) of Batu Bolong hamlet, Batu Layar village, West Lombok explained that; *“The level of understanding related to the value of carbon economy is still not very clear on how to sell carbon, the institutions that manage it, the benefits of carbon economy trading, carbon tax, the amount of carbon in each tree, how to calculate carbon. However, regarding the problems of pollution, global warming, environmental pollution, illegal/indiscriminate cutting of trees, the benefits of planting trees in the forest we are very familiar with it. So in this case, if there will be carbon trading in Batu Bolong hamlet, it will greatly impact the income level of the people here”*.

From the results of the interview above, it can be concluded that the head of Batu Bolong hamlet has never heard of the term carbon trading and so on. However, the head of Batu Bolong hamlet said that regarding the rules for cutting down trees illegally, I already

understand this and regarding tree planting and environmental pollution or pollution I also understand. For the future, I hope that if a carbon trading event will be held or will be carried out and will have an impact on the level of economic income of the people here, I will fully support it for the sake of the welfare of the people here. The results of the interview from the head of the farmer group in Batu Bolong hamlet, Batu Layar village, West Lombok, explained that; *“The level of understanding related to carbon economic trading can be said to be very understanding because I have participated in FGD activities held by Universitas Muhammadiyah Mataram, and participated in managing KHDTK in Batu Bolong Hamlet so that carbon economic trading is familiar, starting from institutions that sell certificates, carbon taxes, carbon content in each tree and so on”*.

Based on the results of interviews with KKT in Batu Bolong Hamlet, they have a fairly in-depth understanding of carbon trading obtained through their participation in FGDs and KHDTK (Special Purpose Forest Area) management. This experience makes the interviewee familiar with technical aspects such as certification bodies, carbon taxes and carbon content in trees. The process of education and hands-on practice in the field plays an important role in increasing literacy about carbon transactions. This level of understanding has the potential to encourage active community participation in carbon trading mechanisms. This will support the implementation of an equitable and sustainable sharia economy.

3.3. Characteristics of Carbon Trading in Sharia Economic Framework

Based on the results of interviews with one of the religious leaders about the use of Sharia methods in carbon trading is one of the conservative discussions in supporting environmental awareness efforts and as a use of community economic improvement. (RL) explained as follows; *“Sharia-compliant carbon trading should avoid usury, gharar, and all forms of injustice. This means that every transaction must be transparent, clear, and not contain elements of speculation that harm one party. In addition, carbon trading must also prioritise the principles of social justice and*

environmental sustainability as part of the responsibility of Muslims”.

Carbon trading within the Islamic economic framework is characterised by alignment with *Maqashid* Shariah principles which emphasise environmental sustainability, social justice and economic equality. This framework supports carbon trading initiatives especially in countries like Indonesia where the economic value of carbon credits is utilised to reduce greenhouse gas emissions while promoting community welfare and efficient use of resources. Shariah-based insurance then has an important role to play in mitigating the risks associated with carbon trading, by ensuring that transactions are conducted in accordance with Islamic principles, especially in avoiding the elements of usury and excessive uncertainty (*gharar*). The carbon trading system itself involves various operational mechanisms that enable efficient interaction between buyers and sellers, while addressing specific regulatory challenges in the context of Islamic finance. The integration of sharia principles in carbon trading not only has the potential to strengthen environmental responsibility, but also opens up wider investment opportunities in Islamic finance. Shariah-based carbon trading can thus become a sustainable and fair economic model, in line with Islamic values that promote ecosystem balance and social welfare.

Carbon trading within the Islamic economic framework has specific characteristics that distinguish it from conventional carbon trading systems. This system focuses on the principle of sustainability by emphasising environmental protection as an effort to maintain the balance of the ecosystem and the survival of future generations. The principles and characteristics of Sharia carbon trading are as follows;

3.3.1. Sustainability Principle (*Istidamah*)

Prioritising environmental sustainability by managing carbon emissions responsibly so as not to damage nature and ensure ecological balance.

3.3.2. Principle of Justice (*'Adalah*)

Ensuring that all transactions are conducted fairly without any disadvantaged parties, including ensuring equitable distribution of benefits to all actors and affected communities.

3.3.3. Principle of Prohibition of *Riba*, *Gharar* and *Maisir*

Carbon trading transactions must be free from usury (interest), excessive uncertainty (*gharar*), and speculation (*maisir*) to comply with the provisions of Islamic law and ensure clarity of rights and obligations of the parties.

3.3.4. Principles of Cooperation and Agreement (*Tawazun* and *Shura*)

Emphasising the importance of deliberation and agreement between the parties involved to achieve common goals in carbon emission reduction with the principles of mutual consent and transparency.

3.3.5. Principle of Social and Environmental Responsibility (*Maslahah*)

Placing the benefit of the people and environmental protection as the main objectives of carbon trading, so that economic benefits must be accompanied by sustainable social and ecological benefits.

The Sharia economic framework emphasises the importance of economic activity conforming to the principles of Islamic law that prohibit the practices of *riba* (interest), *gharar* (uncertainty), and *israf* (waste or exploitation). In carbon trading, these principles ensure that transactions are fair and transparent. Shariah-compliant carbon trading should avoid excessive uncertainty regarding the quality, quantity and price of carbon credits, so that all parties involved have a clear understanding and agreement on the terms and conditions of the transaction (Hidayanto et al., 2023). This approach not only protects the interests of market participants, but also ensures that the carbon trading mechanism runs with fairness and sustainability, in accordance with *Maqashid* sharia objectives that prioritise collective benefit and environmental preservation (Muflikha et al., 2023). Therefore, the application of sharia economic principles in carbon trading plays an important role in creating an ethical and sustainable trading system.

4. CONCLUSION

4.1. Conclusion

Based on the findings obtained through questionnaire distribution and interview

implementation, it is evident that public understanding of the concept of carbon trading from the perspective of Islamic economics remains relatively low. The majority of respondents lack sufficient knowledge regarding the fundamental concepts, implementation mechanisms, and primary objectives of carbon trading. Although the community demonstrates a basic awareness of carbon sales, there are indications of environmental concern and an acknowledgment of the importance of environmental preservation as part of their social responsibility. In the context of Islamic economics, some respondents who possess an understanding of the basic principles of Shariah stated that carbon trading can be deemed acceptable, provided it adheres to principles of justice, transparency, and is free from elements of uncertainty (*gharar*). Carbon trading is also perceived to be in line with the principle of public interest (*maslahah*) and supports the objectives of *maqasid al-shariah*, particularly in terms of environmental preservation (*hifdz al-bi'ah*).

4.2. Recommendations

Recommended that future research emphasises the importance of increased socialisation and education regarding carbon trading among the public. This is essential in fostering awareness that carbon trading is not merely a global economic instrument, but also bears relevance to Islamic values that promote sustainability and social responsibility.

5. REFERENCES

- Adanma, U. M., & Ogunbiyi, E. O. (2024). A comparative review of global environmental policies for promoting sustainable development and economic growth. *International Journal of Applied Research in Social Sciences*, 6(5), 954–977. <https://doi.org/10.51594/ijarss.v6i5.1147>
- Ahmed, U., Ma, A., Alam, S., & Azizah, L. (2024). The Role of Islamic Finance in Sustainable and Green Transition. *Suhuf: International Journal of Islamic Studies*, 36(2), 118–139. <https://doi.org/10.23917/suhuf.v36i2.6314>
- Azwar, W. (2019). *Influence of Moral Education, Organizational Involvement, and Social Participation on Environmental Awareness Attitudes*. 218–231.
- Azwar, W., Mayasari, D., Winata, A., Garba, M. M., & Isnaini. (2024). Exploration of the Merariq Tradition in Sasak Lombok, Indonesia: Analysis in Islamic Law and Socio-Cultural Dynamics Perspectives. *IBDA: Jurnal Kajian Islam Dan Budaya*, 22(1), 23–38. <https://doi.org/10.24090/ibda.v22i1.10766>
- Bai, J., & Bai, J. (2024). Carbon emissions trading and environmental protection: International evidence. *Management Science*, 70(7), 4593–4603. <https://doi.org/10.1287/mnsc.2023.03143>
- Ballerini, J., Yahiaoui, D., Giovando, G., & Ferraris, A. (2023). E-commerce channel management on the manufacturers' side: ongoing debates and future research pathways. In *Review of Managerial Science* (Issue 0123456789). Springer Berlin Heidelberg. <https://doi.org/10.1007/s11846-023-00645-w>
- Baranzini, A., Bergh, J. C. J. M. Van Den, Carattini, S., Howarth, R. B., Padilla, E., & Roca, J. (2017). Carbon pricing in climate policy: seven reasons, complementary instruments, and political economy considerations. *Wiley Interdisciplinary Reviews: Climate Change*, 8(August), 1–17. <https://doi.org/10.1002/wcc.462>
- Bhat, A. A. (2026). Green banking and sustainability – a review. *Arab Gulf Journal of Scientific Research*, 40(3), 247–263. <https://doi.org/10.1108/AGJSR-04-2022-0017>
- Chavula, P., Alemu, B., Ntezimana, M. G., & Kazekula, E. M. (2022). Carbon Trading to Combat Climate Change. *International Journal of Academic and Applied Research (IJAAAR)*, 6(9), 55–61. <https://doi.org/https://orcid.org/0000-0002-7153-8233>
- Dar, J. A., Subashree, K., Bhat, N. A., Sundarapandian, S., Xu, M., Saikia, P., Kumar, A., Kumar, A., Khare, P. K., & Khan, M. L. (2020). *Role of Major Forest Biomes in Climate Change Mitigation: An Eco-Biological Perspective*.
- Grace, H., Banson, K., & Saraf, A. (2023). Mixed-methods research. In *Translational*

- Radiation Oncology*.
<https://doi.org/10.1016/B978-0-323-88423-5.00029-7>
- Hidayanto, B. I., Hasan, M. T., & Sidik, F. F. (2023). Indonesia's Carbon Trade Odyssey: An Analysis of *Maqashid* Sharia in Balancing Environmental and Economic Compromises Bani Idris Hidayanto Firdan Fadlan Sidik Introduction The environmental crisis has captured the global community's attention, along. *Az-Zarqa: Jurnal Hukum Bisnis Islam*, 15(2), 191–215.
- Huang, Y., & Peng, N. (2024). Manufacturer's S Cooperation Strategies of Closed-Loop Supply Chain Considering Recycling Advertising. *RAIRO-Operations Research*, 58(2), 1555–1576.
<https://doi.org/10.1051/ro/2024032>
- Janah, L. N., Apriliani, A. A. N., Hidayah, A. N., Adhelia, V., Sukirno, S., & Daryono, B. S. (2023). Effectiveness of Liquid Organic Fertilizer Byproduct of Black Soldier Fly Maggot to the Growth of Mustard Plant (*Brassica juncea* L.). *Journal of Tropical Biodiversity and Biotechnology*, 8(1), 1–10.
<https://doi.org/10.22146/jtbb.70530>
- Liu, X., Lu, Z., Qi, X., & Yang, F. (2024). Recycling channel strategy in the presence of free-riding in the carbon neutrality era. *Heliyon*, 10(11), e32305.
<https://doi.org/10.1016/j.heliyon.2024.e32305>
- Molina-Rodríguez, C. B., & Valenzuela, J. M. (2024). Opportunities for the global climate development agenda with Net Zero in the horizon: A perspective from Central America. *Earth System Governance*, 22(September), 100222.
<https://doi.org/10.1016/j.esg.2024.100222>
- Muflikha, I. N., Sya'roni, S., Alqahoom, A., & Pramana, S. (2023). The Investment of Sharia Shares in Indonesia Stock Exchange Representative in Sharia Law Economic Perspective. *Demak Universal Journal of Islam and Sharia*.
<https://doi.org/10.61455/deujis.v1i01.25>
- Nasution, M. S., Rusli, Z., & Heriyanto, M. (2025). Green governance and institutional resilience: strengthening environmental policies for a low-carbon economy in mangrove ecosystems. *Frontiers in Political Science*, 7(November), 1–17.
<https://doi.org/10.3389/fpos.2025.1631249>
- Nawaz, U., & Sadiq, M. (2023). Examining the Relationship between Economic Growth, Financial Development, and Carbon Emissions: A Review of the Literature and Scientometric Analysis. *International Journal of Energy Economics and Policy*, 13(2), 489–499.
<https://doi.org/10.32479/ijeep.14278>
- Park, J. (2022). How can we pay for it all? Understanding the global challenge of financing climate change and sustainable development solutions. *Journal of Environmental Studies and Sciences*, 12(1), 91–99.
<https://doi.org/10.1007/s13412-021-00715-z>
- Peng, H., Sun, Y., Hao, J., An, C., & Lyu, L. (2024). Carbon emissions trading in ground transportation: Status quo, policy analysis, and outlook. *Transportation Research Part D: Transport and Environment*, 131(May), 104225.
<https://doi.org/10.1016/j.trd.2024.104225>
- Setiakahyandari, H. K., & Hizbaron, D. R. (2024). Understanding Eco-DRR as a sustainability indicator for mangrove conservation in urbanized area of North Jakarta, Indonesia. *Environmental and Sustainability Indicators*, 24(August), 100494.
<https://doi.org/10.1016/j.indic.2024.100494>
- Thalib Aziz, D. (2020). Kerjasama indonesia-jepang dalam program joint credit mechanism (jcm) untuk mengurangi emisi karbon di indonesia 2020. *Global Mind*, 6(1), 1–14.
- Yazis, M., & Basah, A. (2013). Islamic Bank and Corporate Social Responsibility (CSR). *European Journal of Business and Management*, 5(11), 194–209.
<https://www.crimbbd.org/wp-content/uploads/2019/01/5-11-20.pdf>
- Zhou, H., & Jiang, F. K. (2023). The study has clear limitations': Presentation of limitations in conclusion sections of PhD dissertations and research articles in applied linguistics. *English for Specific Purposes*, 71, 34–47.