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Greening the Bricks: Unraveling the Impact of Environmental Policy on Firm Performance in Brick Industry of Pakistan

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Abstract: *Both air pollution and global warming pose serious risks to human health and ecosystem. The study underlined that developing and enforcing environmental policies may alleviate some of these problems, especially those that are small-scale in nature. Further, thoughtful actions and legislative measures are necessary to ensure environmental sustainability. The purpose of this study is to identify factors that the brick sector in Pakistan might use to enhance organizational performance. The study analyzed how government regulation, public involvement, and environmental management techniques affect both environmental sustainability and organizational performance. The study used self-administered survey questionnaire to collect the data. The sample was selected using convenient sampling technique from respondents and in total 403 sample was analyzed through SmartPLS. The results demonstrated that these factors have a major effect on both organizational and environmental success. Smart-PLS-3 was employed to assess the data and test hypothesis. Environmental sustainability and Organizational performance are perceived to be significantly influenced by governmental laws, public involvement, and an organization's environmental management system. The study also embarked significant theoretical and practical implications.*

Keywords: Environment Management System, Public-Participation, Govt-Regulations, Brick-Sector Pakistan, Firm Performance, Environmental sustainability, Environmentalism.

Introduction

Greening the Bricks delves into the critical realm of environmental protection. It refers to the concerted efforts made to conserve and safeguard the natural environment and its invaluable resources (Ahmed et al., 2023). This entails multifaceted measures to prevent the pervasive pollution and degradation of air, water, and soil. Simultaneously, it encompasses endeavors aimed at protecting and preserving the natural habitats, wildlife, and the intricate tapestry of biodiversity. The importance of environmental protection is underscored by its profound implications for the health and well-being of not just humans but also uncountable other species. The reflective interconnectedness of environmental health and human well-being is acutely evident (Griggs et al., 2013). Pollution, climate

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change, and an array of environmental issues wield the potential to exert significant adverse impacts on human health, economies, and the overall social well-being, as pointed by environment experts (Ren et al., 2022). Furthermore, the importance of environmental protection transcends these immediate concerns. It extends to the bedrock of human survival, clean air and water. These fundamental natural resources are indispensable, not just for human existence but also for the sustenance of various industries such as agriculture (Ebbesson, 2010), tourism, and manufacturing, which play pivotal roles in global economies.

Shifting the focus to Pakistan, the brick industry emerges as a prominent pillar of the country's economy, making substantial contributions to its GDP and employment rates (Ahmed et al., 2023). However, the industry also carries the weight of being identified as a significant source of environmental pollution and degradation, particularly concerning water and air quality In response to these pressing environmental challenges, Pakistan has embarked on a journey of implementing a series of environmental policies and regulations. These policies and regulations are meticulously designed to serve several pivotal roles in the brick industry (Zhang & Berhe, 2022). They necessitate that brick kilns meet specific standards pertaining to emissions, waste management, and resource utilization. Kilns that successfully adhere to these standards are more likely to avoid fines and penalties, safeguarding both their finances and their reputation. Moreover, many of these environmental policies and regulations are artfully engineered to incentivize kilns to adopt practices that are not only environmentally responsible but also more efficient and sustainable (Marrucci & Daddi, 2022). This can lead to reduced waste generation, resource conservation, and heightened energy efficiency, translating into cost savings and a healthier bottom line for the kilns. In addition, brick kilns that willingly embrace these sustainable practices and comply with environmental regulations often find themselves in a more favorable light among consumers, investors, and various other stakeholders (Charef, 2022). This improved perception can contribute to a bolstered reputation and brand value for these kilns. In turn, this enhanced reputation and brand value may well translate into tangible benefits, such as increased sales and a larger share of the market. The evolving landscape of consumer preferences and business practices further underscores the significance of environmental policy for the brick industry in Pakistan (Wang & Liu, 2023). A growing number of consumers and businesses are actively seeking environmentally sustainable products and services. This presents a unique opportunity for kilns that can demonstrate their unwavering commitment to sustainability. They may not only meet the expectations of a conscious consumer base but also gain access to new markets and customers willing to pay a premium for eco-friendly products (Charef & Emmitt, 2021). According to the previous study, environmental policies significantly improved business performance in the brick sector of Pakistan. Higher production and profitability have been observed in kilns with better environmental management methods and greater compliance with environmental legislation (Ikram, Zhou, Shah, & Liu, 2019). The study also discovered that kilns with greater performance levels were more inclined to have embraced environmentally friendly methods, such as the utilization of renewable energy sources and water-saving techniques. According to the report, environmental regulation can play a significant role in advancing sustainable business practices and enhancing firm

performance in Pakistan's brick industry (Agyemang et al., 2019). It emphasizes how, in order to increase their ability to compete and long-term performance, kilns must implement more environmentally friendly methods and adhere to environmental standards.

Despite the expanding body of scholarly work delving into the complex interrelations among public involvement, government regulation, organizational environmental management systems, environmental sustainability, and organizational performance, a discernible research lacuna persists in achieving a comprehensive understanding of the enduring dynamics and nuanced relationships within this multifaceted framework. Prevailing investigations often exhibit a propensity to concentrate on specific sectors or geographical regions, employ varied methodological approaches, and fall short of undertaking a holistic examination of the intricate interconnections between public engagement, regulatory frameworks, and organizational strategies for environmental management. Moreover, there exists a dearth of scholarly inquiry delving into the mediating role of environmental sustainability, impeding a more profound comprehension of the manner in which enhancements in environmental outcomes directly contribute to organizational success. A recent study by Ali, Bakhsh, and Yasin (2019) highlighted this gap specifically in the context of Pakistan, emphasizing the need for tailored research to address the unique challenges and opportunities within the Pakistani context. The objective of present study is to address these lacunae holds the potential to furnish valuable insights for policymakers, organizations, and scholars aiming to formulate more efficacious strategies for sustainable development by contemplating the synergies and trade-offs inherent in the intricate interactions between public involvement, government regulations, environmental management systems, and the ultimate performance of organizations (Ali et al., 2019; Rafiq, Zhang, Yuan, Naz, & Maqbool, 2020).

The three problems that this research aims to answer and investigate other relevant issues. First of all, it's not evident what motivates people to participate in environmental decision-making (Ringle, Da Silva, & Bido, 2015). Individuals that care about the environment are more inclined to be involved in the decision-making process or to voice their opinions when they have an interest in the outcome. Locals may be against a project because they are worried about their own livelihood, but those who are not impacted by it may be against it because they value natural resources more ecologically than economically (Hair, Risher, Sarstedt, & Ringle, 2019). Individuals who are linked to a particular location by virtue of ownership, familial ties, or professional pursuits are inclined to express apprehension regarding the potential environmental and health impacts of the project and engage in more active participation compared to those who are not. Second, whom are the people or groups in charge of encouraging public engagement? Employees of environmental protection agencies in Pakistan are sensitive to environmental concerns raised by the general population and play a significant role in encouraging public involvement in environmental conservation initiatives. The contributions made by ENGOs and other civic groups, like homeowner associations (HOAs), are significant. Finally, how much easier is it now for citizens to participate in politics as a result of the laws? The act creates a legal framework that encourages public involvement in protecting the environment and offers evidence to back up their claims. They thus foster an atmosphere that is conducive to environmental action. We employed one of the following four parameters to choose

research cases from among Pakistan's numerous environmental problems: (1) involved the public; (2) involved three tiers of government limits (local, regional, and federal); and (3) took place in regions with differing rates of economic expansion. Therefore, for the research, we selected three well-known national examples of environmental campaigning. It is feasible to get a complete picture of the circumstances that led diverse groups of people to decide to take actions in the first place, as well as the reasons why they are concerned about various environmental concerns, thanks to the wide range of administrative levels and geographic scopes that are available.

In light of this, the goal of this study is to examine the relationship between performance environmental and business-performance and drivers state legislation, environmental-performance, and organizational-performance. A survey-based method was used to measure the relevant constructs, and structural equation modeling was used to test the proposed correlations. This work will contribute significantly to essential research from three angles. In order to better understand how to enhance organizational and environmental sustainability, this research first clarifies the distinct roles that EMSs, regulations, and public involvement play in the implementation of environmental policy. Second, this study shows a strong correlation between government regulations, organizational EMS, public involvement, and environmentally and organizational performance through empirical testing on a sizable sample dataset. The results validate the effectiveness of environmental policies. Third, the brick industry in Pakistan is the subject of this study within the framework of an expanding economy. The brick business in Pakistan is now expanding quickly.

Literature Review

Stakeholder Theory and Environmentalism

Polonsky stakeholder theory provides a robust framework for understanding the complexities of organizational environmentalism (Polonsky, 1995). With the escalating concern for environmental issues, it becomes imperative for managers to comprehend the dynamics between various stakeholder groups and their influence on the integration of environmental strategies within organizations. In response to this necessity, researchers advocate for an expanded model that incorporates both internal and external stakeholders' perspectives (F. Saleem, Zhang-Zhang, Malik, & Allui, 2020). Internal stakeholders, residing within the organization, and external stakeholders, situated outside the organizational boundaries, play pivotal roles in shaping environmental strategies. To further elucidate this relationship, the researchers have developed and empirically tested a comprehensive model within the context of Pakistan's burgeoning brick industry. This model integrates determinants such as government regulation, public participation, and EMS organization as independent variables, with firm performance as the dependent variable. Moreover, environmental sustainability serves as a crucial mediator, reflecting the interplay between organizational strategies and environmental outcomes within the brick industry of Pakistan.

Hypothesis Development

Public Involvement and Environmental Sustainability

The impact of awareness of the environment on the acceptance of environmentally friendly innovations in the German manufacturing industry was studied by (Conte, 2018). According to the study, kilns in areas with greater environmental consciousness had a higher propensity to implement eco-innovations, or ideas meant to have a less negative influence on the environment. According to the authors, this is because kilns are under pressure to adopt environmentally friendly techniques as a result of growing environmental consciousness. The effect of public opinion on US kilns' environmental sustainability is being studied (Ebolor, Agarwal, & Brem, 2022). According to the study, kilns that exhibit superior environmental sustainability are more likely to be situated in regions where the general public has a higher degree of care for the environment. The authors speculate that this is the case because investors and customers may put pressure on kilns to switch to more environmentally friendly operations (Werdiningtyas, Wei, & Western, 2020). The association between climate change perceptions and kiln environmental sustainability in the US electrical industry is investigated. The study discovered that kilns with better environmental sustainability levels were more likely to be found in regions where local residents were more concerned about climate change. According to the authors, this is because authorities, investors, and customers may put pressure on kilns to lower their carbon emissions.

Hypothesis (H1): In brick industry, Public Involvement has positive effect on environmental sustainability.

Govt-regulation and Environmental Sustainability

In the brick industry, government regulations play a critical role in driving environmental sustainability (Kenny & Langsaether, 2023). These regulations often set standards and guidelines that manufacturers must follow to minimize their environmental impact. The experts mandate the use of cleaner technologies, limit emissions, and enforce proper waste management practices. Government regulations can also incentivize the adoption of green practices through subsidies or tax benefits for companies that invest in sustainable technologies (Bobbio, 2019). This regulatory framework is essential for ensuring that environmental concerns are systematically addressed in the brick manufacturing process, pushing the industry towards more sustainable operations. The effectiveness of government regulations in enhancing environmental sustainability in the brick industry is evident in the positive changes observed in many regions (Ge et al., 2023). Stricter regulations lead to significant reductions in carbon emissions and other pollutants, encouraging a shift towards more sustainable raw materials and energy sources (Griggs et al., 2013). Moreover, these regulations help level the playing field, ensuring that all players in the industry adhere to certain environmental standards, which in turn fosters innovation and competitiveness in developing sustainable practices. Thus, government regulations not only safeguard the environment but also promote long-term sustainability in the brick

industry.

Hypothesis (H2): In brick industry, Govt-regulation has positive effect on environmental sustainability.

EMS-organization and Environmental Sustainability

Companies can manage their environmental consequences and adhere to environmental requirements by using Environmental Management Systems (EMS), which are systematic systems. Businesses that implement EMS typically perform better environmentally than those that do not, citing research by Zhang and Berhe (2022). According to the study, implementing EMS is linked to lower greenhouse gas emissions, less water use, more energy efficiency, and lower waste production. Warner (2010) looked at the effect of EMS implementation on company development in the manufacturing industry in another study. According to the study Marrucci, Daddi, and Iraldo (2022), businesses that use EMS are typically more inventive than those that don't. According to Ali et al. (2019), kilns may be able to find and employ environmentally beneficial technologies with the support of EMS adoption, which could spark creativity. In 2022, García Alcaraz et al. conducted a third study to examine the parameters influencing the adoption of Enterprise Management Systems (EMS) by small and medium-sized firms (SMEs) in Spain. According to the study Marrucci and Daddi (2022), SMEs' adoption of EMS is significantly influenced by variables like financial incentives, customer pressure, and environmental requirements. The authors recommend taking these factors into account when implementing policy interventions meant to encourage SMEs to adopt EMS. According to Marrucci et al. (2022), EMS can be a useful tool for businesses looking to boost innovation, enhance environmental sustainability, and adhere to environmental laws. They emphasize how crucial it is to use market incentives and legislative changes to encourage businesses, particularly small and medium-sized businesses, to adopt EMS.

Formalized frameworks known as Environmental Management Systems (EMS) assist firms in managing and enhancing their environment's performance. There has been much research on the connection between environmental sustainability and EMS, and most studies agree that EMS can improve environmental sustainability, however the exact amount of that impact will depend on a number of variables. Companies with EMS outperformed those without EMS in terms of environmental sustainability, according to research by Adomako and Tran (2022). The study also discovered a favorable correlation between Environmental sustainability and the degree of EMS adoption. Charef (2022) looked at the effect of EMS on Brazilian businesses' environmental sustainability in another study. According to Wang and Liu (2023), businesses using EMS outperformed those without EMS in terms of pollution avoidance, energy conservation, and waste reduction. Some research, meanwhile, has also produced contradictory findings. For instance, a study by Alkhuzaim, Zhu, and Sarkis (2021) discovered that a number of variables, such as the company's size, industry, and degree of EMS implementation, affected how well environmental sustainability was affected by EMS. The adoption of Environmental Management Systems (EMS) is positively correlated with enhanced environmental sustainability (EP), according to a large body of research. As an illustration, a meta-

analysis of 65 research revealed that the implementation of EMS was linked to a considerable improvement in a number of EP metrics, such as lower energy use, greenhouse gas emissions, and the production of hazardous waste. According to a study conducted by Charef and Emmitt (2021), 180 Chinese manufacturing kilns with EMS accreditation had greater environmental performance compared to those without certification, as shown by decreased levels of waste creation and pollutant emissions.

The hypothesis (H3): In brick industry, EMS-Organization has positive effect on environmental sustainability.

Environmental Sustainability and Organizational Performance

Numerous studies have examined the connection between organizational success and environmental responsibility; nevertheless, the results of these investigations have been equivocal. There was disagreement about whether there was a causal relationship between lower environmental pollution and improved organizational performance, according to the results of a study conducted by Nepal and Deb (2022). Furthermore, a number of academics have claimed that organizations that make significant efforts in environmental management may see higher expenses and less rewards. Because of this, it is crucial that companies weigh the possible returns on these expenditures against the expenses involved. However, other scholars have noted that more stringent environmental laws may encourage companies to spend money on cutting-edge production machinery in an effort to lower production costs and environmental pollution, which would ultimately boost profits. Companies must engage in eco-friendly operations to get the greatest rewards. Developing strong ties with the community, creating environmentally friendly products, drawing clients who care about pollution, lowering manufacturing costs through energy conservation, and improving the company's reputation are a few of these advantages. Companies that invest early in sustainable technology can potentially become more competitive. This is because environmentally conscious innovation is likely to lead to cheaper manufacturing unit costs and the creation of effective organizational procedures.

The hypothesis (H4): In brick industry, Environmental sustainability has positive effect on Organizational Performance.

Moderating Role of Environmentalism

In the brick industry, environmentalism plays a crucial moderating role between environmental sustainability and organizational performance (Ren et al., 2022). The principles of environmentalism, which prioritize the protection and preservation of the natural environment, have a significant influence on how companies in the brick industry approach sustainability initiatives. This impact is particularly noticeable in how environmentalism shapes corporate strategies and consumer expectations, guiding firms towards sustainable practices. A strong commitment to environmentalism within an organization can led to the adoption of cleaner production technologies and more efficient resource usage

(Conte, 2018). These environmentally friendly practices not only help in reducing the ecological footprint of the brick industry but also enhance the organization's performance by improving its brand image, aligning it with consumer preferences, and often reducing long-term operational costs. Furthermore, environmentalism influences the way stakeholders perceive and interact with an organization, thereby impacting its performance (Werdiningtyas et al., 2020). Companies in the brick industry, embracing environmentalism can lead to better stakeholder relationships, increased customer loyalty, and even access to new markets that prioritize sustainability. In this context, environmentalism acts as a bridge that connects the organization's sustainability (Zhang & Berhe, 2022) efforts with improved market performance. By integrating environmental considerations into their core business strategies, brick manufacturing companies can achieve a balance between ecological responsibility and economic success. This approach not only benefits the environment but also creates sustainable value for the organization, its stakeholders, and society at large.

The hypothesis (H5): Environmentalism moderate the relationship between environmental sustainability and Organizational Performance.

Mediating Role of Environmental Sustainability

Environmental sustainability acts as a critical mediator in the relationship between public involvement, government regulation, EMS implementation within organizations, and organizational performance. Public involvement fosters greater awareness and accountability regarding environmental issues, driving regulatory action and shaping organizational priorities (Ebbesson, 2010). Government regulations provide the necessary frameworks and incentives for organizations to prioritize environmental sustainability and implement EMS effectively. EMS integration within organizations facilitates the translation of regulatory requirements into actionable strategies, leading to improved environmental performance and organizational outcomes (Ebolor et al., 2022). Together, these elements create a symbiotic relationship where environmental sustainability serves as both a driver and an outcome of public engagement, regulatory compliance, EMS implementation, and organizational performance, ultimately contributing to long-term ecological health and societal well-being.

The hypothesis (H6): Environmental sustainability mediate the relationship between public involvement(H1a), govt. Regulation(H2b), EMS-organization(H3c) and Organizational Performance.

Figure 1
Theoretical Model

Methodology

The purpose and problem of the study define the research approach, and suitable approaches are necessary for reliable results (Sukmawati, Salmia, & Sudarmin, 2023). After evaluating the topic and goal of the current study, the quantitative research strategy was selected, and a cross-sectional method was used to collect the data. For this investigation, the researchers used a questionnaire to collect data. It is preferred to use a survey questionnaire for the present investigation because it allows data to be collected in a fair amount of time as well as is a financially effective way of data collection (Iqbal et al., 2021). Additionally, this tactic permits easy access to sensitive data and guarantees responder confidentiality. The scale elements were modified from earlier studies.

Information on the population, sampling, composition, validity of the questionnaire, data collection methods, study design, and valuation procedures are all covered by this technique. Analyzing the collected data allowed us to ascertain the construction information's conclusions. Since the quantitative technique is a tool for looking into the subject material for research, it was used. It is based on primary data. The population under investigation consists of brick industry workers in Pakistan, ranging in status from lower to upper.

Participants and Sampling

The study participants are drawn from the brick industry, wherein it is discernible that the labor force engaged in this sector lacks formal educational attainment, rendering them predominantly illiterate with limited exposure to environmental sustainability concerns or issues related to pollution. In order to elucidate the respondents for the purposes of this research, the primary focus is directed towards individuals in leadership roles and managerial capacities responsible for administrative functions within the brick industry. This subset of individuals typically possesses educational qualifications ranging from primary to secondary degrees. The initial stages of the research endeavor involve articulating the research objectives to this cohort and providing comprehensive guidance on the methodology, ensuring a coherent understanding of the survey instrument. Additionally,

an opportunity is extended for pre-survey discussions to address any queries or concerns that may arise among participants, with a view to fostering clarity and facilitating their effective engagement in the research process. Convenient sampling is the approach used to gather the data. There were 500 questionnaires distributed in all, of which 460 were collected from respondents. 57 of the 500 questions are unconfined, which prevents data analysis. A statistical analysis is performed on the 403 remaining questionnaires. With an organized survey based on a Likert scale with seven points, where ”7” indicates strong agreement and ”1” indicates strong disagreement with the topic, the surveys were created with an adaptive technique. The selection of the questions was predicated on their prior reliability within Pakistan and other countries. The issues and their references are shown in Table 1. We have employed Smart PLS (Partial Least Squares) descriptive analysis and a causal melding technique.

Analysis and Results

For data analysis, Smart PLS 3 (SEM) was utilized, and analytical results were obtained by a two-step procedure. There have been 500 questionnaires distributed in all. Respondents completed 466 questionnaires; however, 57 of the surveys were unbound, which prevented the data from being analyzed. Therefore, in order to perform a descriptive analysis and look at the demographic characteristics of respondents in the brick business, we entered 403 surveys into Smart Pls 3. The demographic characteristics in this study include age, gender, level of education, designations, and experience.

Table 1
Table of Construct

S. No	Construct.	Items	Reference
1	EMS-Organization.	4	Andersson et al. (2024)
2	Organizational Performance	5	Utomo et al., (2023)
3	Environmentalism.	4	Kenny & Langsæther (2023)
4	Public Involvement.	5	Bobbio (2019)
5	Gvt.Regulation.	4	Yang et al., (2023)
6	Environmental sustainability	5	Ge et al., (2023)

Measurement Model Assessment

The validity and reliability of the data were assessed using the PLS-SEM measurement model. Construct reliability was evaluated using factor loading, Cronbach's alpha, average extracted variance (AVE) and composite reliability. The discriminant validity was evaluated using the measurement model as well. The results of the measurement approach are displayed in Table 2. Table 2 displays the values for the variables' convergent validity. The directions of convergent validity can be used to determine alpha's value, composite reliability, and AVE. Every variable in this study has convergent validity since every number is over the threshold thresholds. execution. Cronbach's alpha has a threshold value of 0.6 or higher. Moreover, Table 3 indicates that the composite reliability value and the AVE value should both be higher than 0.7

Structural Model Assessment

The study's hypotheses were estimated using the SEM-PLS structural model analysis. Structural model research indicates that public involvement significantly affects business performance (β = 0.530, t = 12.402). Consequently, the analysis's conclusions are consistent with H1. Additionally, our research revealed that H2 is statistically admissible and that government limitations have a significant positive correlation with corporate performance (β = 0.157, t = 3.675) (Table 4).

Table 2
Evaluation of the Measurement Model

SN.	Items	Factor loading	Average Variance Extracted	Construct Reliability	Cronbach Alpha
Public- Involvement	PI1	0.801	0.693	0.873	0.793
	PI2	0.793			
	PI3	0.871			
Gvt.Regulation	GR1	0.584	0.628	0.887	0.817
	GR2	0.860			
	GR3	0.853			
	GR4	0.864			
EMS-Organization	EMS-O1	0.860	0.658	0.861	0.864
	EMS-O2	0.861			
	EMS-O3	0.814			
	EMS-O4	0.755			
	EMS-O5	0.778			
Environmentalism	Envtlism1	0.775	0.644	0.800	0.814
	Envtlism2	0.782			
	Envtlism3	0.798			
	Envtlism4	0.760			
	Envtlism5	0.649			
Environmental sustainability	ES1	0.609	0.584	0.873	0.800
	ES2	0.800			
	ES3	0.873			
	ES4	0.799			
	ES5	0.753			
Organizational Performance	PO1	0.252	0.649	0.888	0.760
	PO2	0.699			
	PO3	0.727			
	PO4	0.789			
	PO5	0.796			

The analysis of the constructs within the provided table 2, illustrate a robust statistical foundation of study. The public involvement demonstrates strong factor loading, ranging from .793 to .871, indicating significant item correlations within the construct. Its average variation extracted of .693 surpasses the conventional threshold of .50, suggesting adequate construct validity. Similarly, its construct Reliability and Cronbach alpha are well above the acceptable limit of .70, reflecting high internal consistency. The Government Regulation, maintain acceptable level of construct validity and reliability. The EMS-organization and public involvement, show strong loadings and satisfactory construct validity and reliability. Environmentalism and environmental sustainability also display a consistent range of factor loadings and reveal areas for potential improvement in the AVE of Organizational Performance. Over all construct exhibit substantial internal consistency and reliability.

Table 3
Discriminant Validity (HTMT)

	PI	GR	EMS-O	Envtlism	ES	PO	En*PO
PI							
GR	0.633						
EMS-O	0.625	0.642					
Envtlism	0.781	0.725	0.741				
ES	0.696	0.667	0.809	0.745			
PO	0.677	0.768	0.636	0.745	0.656		
En*PO	0.645	0.813	0.694	0.820	0.658	0.793	

Table 3 indicates the heterotrait–monotrait correlation ratio. Ringle et al. (2015) asserted that the HTMT, referred to as the heterotrait-to-monotrait ratio, must be smaller than 0.85 in order to demonstrate the discriminant validity in a test of discriminant validity. Because all of the values are less than 0.85, there is no concern with the discriminant validity. Discriminant reliability is important for determining the magnitude of the measurement inaccuracy. In order to identify whether the two concepts are linked or unrelated, it is necessary to adjust for the attenuation in the audio signal.

Table 4
Structural Model Assessment Direct Relationship Effect and Results

Hypotheses	Items	Beta Values	STDEV	t-Values	p-Values	Hypothesis
H1	PI ->ES	0.550	0.041	12.435	0.000	Accepted
H2	GR ->ES	0.159	0.042	2.172	0.000	Accepted
H3	EMS-O ->ES	0.215	0.042	3.095	0.002	Accepted
InDirect Relationship Mediation Results						
H4	PI*GR*EMS-O ->ES->PO	0.570	0.061	3..123	0.000	Accepted
Moderation Results						
H5	ES* Envt ->PO	-0.070	0.031	3.045	0.000	Accepted

The square root of AVE, that is used to assess concept discriminant validity, is displayed in Table 4. It shows statistically significant beta values and p-values, leading to their acceptance. In particular, H1 (PI $\rightarrow$ ES) demonstrates a strong relationship with a high beta value and a t-value, indicating a substantial impact of PI on ES. In particular, H2, H3 (GR $\rightarrow$ ES) and (EMS-O$\rightarrow$ES) demonstrates a strong relationship with a high beta value and a t-value, indicating a substantial impact of GR on ES and EMS-O on ES. The indirect relationship in H4 (PI*GR*EMS-O $\rightarrow$ ES $\rightarrow$ PO) and the moderation effect in H5 (ES* Envt $\rightarrow$ PO) are also statistically significant, although H5 shows a negative beta value, suggesting a complex interaction between environmental sustainability, environmentalism, and performance of organization. These results affirm the interconnectedness of these constructs and their collective influence on organizational performance. To achieve discriminant validity, the AVE square root value needs to be greater than the values of the other variables. The PLS-SEM method of bootstrapping is applied to evaluate the mediation effect. The study's findings validated H4 and demonstrated that corporations fully moderate the association between ecological and organizational success (β = 0.570, t = 3.123). The outcomes of the moderation analysis are compiled in Table 4. Moderation hypothesis was supported by the data, which showed that environmentalism had a substantial and positive moderating influence on the relationship of environmental-

performance and organizational performance (β = -0.070, t = 3.045).

Table 5
R^2 Value of End Structure

PreCons	T.Const	R2	Adjusted R	Pre. Acc
PI,GR,EMS-O,	EP	0.670	0.661	Substain
PI, Envtlism	OP	0.780	0.778	Substain

In the above (Table 5) R2 values in the end structure analysis provide insights into the explanatory power of the model in predicting the performance of the organization. In Table 5, the R2 value of 0.670 indicates that approximately 67% of the variance in organizational performance can be accounted for by the combination of independent variables, including PI, GR, EMS-O, and EP. Similarly, in Table 8, the R2 value of 0.780 suggests that around 78% of the variance in organizational performance is explained by the independent variables PI and environmentalism (Envtlism). These findings imply that the selected independent variables play a significant role in determining organizational performance, with environmentalism having a particularly notable impact. The moderating influence of environmentalism on the relationship between environmental performance and organizational performance further underscores its importance in enhancing organizational outcomes. The significant and positive moderating effect indicates that organizations focusing on environmental concerns tend to experience greater improvements in overall performance, highlighting the value of incorporating environmental considerations into strategic decision-making processes for sustainable success.

Discussion

This study aims to investigate the role that government laws, organizational EMS, and public involvement play in the achievement of organizational objectives, with the performance of the environment serving as the mediator. This study aimed to investigate the role of environmental as a moderating factor and the moderated mediation influence of environmental sustainability. The investigation's findings indicate that EMS-O, government laws, and public involvement are positively and significantly correlated with environmental sustainability (Xie et al., 2023). Conversely, industry-specific measures like EMS-O, government regulation, and public involvement validate a sustained competitive advantage. The study's conclusions also showed that the relationship between EMS-O, government regulations, public involvement, and organizational performance is significantly influenced by environmental sustainability. Research indicates that companies that prioritize sustainability tend to have superior environmental sustainability over the long run. The results show that environmentalists significantly change the relationship between EMS-O, public involvement, government regulation, and organizational performance (Nisar et al., 2022). The conclusions of a new investigation have several practical ramifications for brick industry senior management. A company's ability to succeed depends on its environment and one of the most important factors increasing the positive effect of the environment on business performance is environmentalism. Companies' se-

nior management needs to establish environmental policies and foster a culture of information sharing throughout the organization in order to perform better in a competitive market. Kilns can improve their efficiency even further by emphasizing environmental sustainability (Iqbal et al., 2021).

The study's original sample was limited to individuals employed in Pakistan's small-scale and medium-sized brick industry, which makes it difficult to generalize the results to new companies or manufacturing sites (S. M. Saleem, 2017). Second, the rest of Pakistan was not included in this study; instead, it focused solely on a small subset of the population from a particular area. One of Pakistan's biggest sectors and a major contributor to the national economy is the brick sector. On the other hand, this sector is also well-known for its negative effects on the environment, especially when it comes to water contamination and the emission of dangerous chemicals (Sharif & Raza, 2016). In this regard, creating and enforcing efficient environmental regulations may have a big impact on how well brick companies operate. There are multiple ways to approach the topic of how environmental policies affect the success of brick companies: Brick kilns in Pakistan can adhere to environmental norms and laws with the aid of environmental policies. A company's financial performance may be impacted by fines and penalties that are avoided by adhering to environmental standards. Additionally, compliance can aid in preventing detrimental effects on the company's reputation and brand image. Brick kilns can increase what they have efficiency by consuming less energy, water, and other inputs thanks to environmental regulations. Kilns can increase profitability by lowering operating costs through the use of sustainable manufacturing methods. Businesses are under growing pressure from stakeholders, including investors, customers, and others, to adopt environmentally friendly business practices. Brick kilns can fulfill these standards by implementing environmental regulations, which will improve their brand image and reputation and draw in new investors and customers. Enacting environmental regulations can encourage development in the brick sector. Kilns can create new technologies and procedures that enhance their environmental sustainability by making research and development investments. Additionally, these developments may give the kilns on the market a competitive edge. Kilns can identify and reduce environmental risks with the use of environmental policies. Kilns can identify possible environmental hazards related with their operations and take required mitigation actions by completing environmental impact assessments. By doing this, possible environmental liabilities may be avoided, which may have an effect on the company's financial results.

Theoretical Implication

The theoretical implications of this discussion, particularly within the context of stakeholder theory, underscore the vital role of stakeholders in influencing organizational behavior and performance, particularly in environmentally sensitive industries such as brick manufacturing. Stakeholder theory posits that organizations must consider the interests and concerns of all stakeholders, not just shareholders, in their decision-making processes. In this context, the findings suggest that stakeholders such as government regulators, environmental activists, local communities, customers, and investors exert

significant influence on organizational strategies and outcomes. By emphasizing environmental sustainability and compliance with regulations, organizations can effectively manage stakeholder relationships, enhance their reputation, mitigate risks, and ultimately improve long-term performance. This aligns with the stakeholder perspective, which emphasizes the importance of addressing the needs and concerns of all relevant stakeholders to achieve sustainable business success.

Practical Implication

The findings of this study hold significant practical implications for senior management in the brick industry. They underscore the necessity for companies to proactively embrace environmental policies, foster a culture of environmental responsibility, and invest in sustainable manufacturing practices. By doing so, brick kilns can not only mitigate environmental risks and comply with regulations but also enhance their brand image, attract new investors and customers, and ultimately improve their financial performance. Moreover, the study suggests that investing in research and development for innovative environmental technologies can provide a competitive edge in the market while simultaneously addressing environmental concerns.

Conclusion

The performance of businesses in Pakistan's brick industry may be significantly impacted by the adoption of efficient environmental regulations. To enhance the environment's performance and satisfy stakeholders, brick kilns must proactively create and execute environmental regulations. Through this approach, the kilns can enhance their adherence to regulations, optimize resource use, meet stakeholder expectations, foster innovation, and effectively manage risks. These improvements can have a favorable effect on their financial outcomes and facilitate sustainable development. In relation to public involvement, government regulations, and EMS-O chosen to represent the impact of these on the environment and organizational performance, the literature lists a variety of other types of these measures in addition to public involvement and state regulations that are both groundbreaking and transformational. Additionally, from the perspective of stakeholder theory, the study focused on how EMS-O, government regulation, and public involvement affected a specific environmental sustainability approach, recognizing the importance of considering the interests and concerns of various stakeholders in shaping organizational strategies and outcomes. Likewise, environmental stewardship and company effectiveness could not be primarily determined by public involvement alone. Other considerations should be made since they might influence how this connection is interpreted, highlighting the multifaceted nature of stakeholder engagement in shaping organizational performance.

Limitations

Lastly, the main approach to gathering data was quantitative in nature, which may be seen as a limitation on the study. Since surveys as well as other self-reporting methods for gathering information may induce bias in responses, additional qualitative procedures should be utilized to gather more precise data and conclusions in order to meet the study's objectives. Lastly, the results of this study may only apply to the ethical standards and beliefs of Pakistani workers in the workplace because it was carried out in the setting of Pakistani culture.

Directions for Future Research

Future studies should confirm our results with a broader sample of businesses in order to precisely identify developing businesses. In order to support the conclusions drawn from earlier research, a study should also try to gather samples from other regions of the country. If the researcher used different dimensions to measure the different components of the study, it would also be fascinating to see if the results agreed or differed from previous studies. Subsequent research on this relationship should aim to improve discernment by evaluating new characteristics in along with leadership theories or that could influence future leaders' actions in systems such as corporations. Ultimately, future study should focus on providing additional clarification and integrating mediating and moderating relationships to the literature. Both qualitative and quantitative information gathering methods should be used by researchers to produce data that accurately portrays the study's variables.

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