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Assessing the Gap between Environmental Legislation and Effective Implementation: A Study and Guidelines for Enhancing the Implementation Performance of Environmental Laws



Abstract: - This article explores the gap between environmental legal regulations and their actual implementation in the Kingdom of Saudi Arabia. A comprehensive research approach was used, linked to a survey conducted among a randomly selected sample of 592 individuals in Saudi Arabia. Through a comparative assessment, various factors contributing to this gap were identified, including administrative, regulatory, financial, and cultural aspects specific to the region. Practical recommendations are provided based on the evaluation of research findings, aiming to enhance the implementation of environmental laws. The goal is to strengthen environmental safety and promote sustainable development in Saudi Arabia. The outcomes of this study hold significant importance for policymakers, aiding in the reinforcement of law enforcement and the encouragement of sustainable practices adaptable to local contexts, while also contributing to global environmental initiatives.

Keywords: Environmental legislation, implementation gap, comparative analysis, enforcement, practical recommendations, sustainable development, environmental protection, policy reform.

I. INTRODUCTION

In recent times, there was an increasing worldwide acknowledgment of the pressing necessity to tackle environmental problems, in particular in Saudi Arabia, with a purpose to guard the welfare and achievement of present and future generations across the globe. The advent of robust and all-encompassing environmental legal guidelines is of extreme importance to nicely control and supervise human moves, thereby decreasing their harmful consequences on vulnerable ecosystems and retaining the delicate equilibrium of our herbal surroundings. Nevertheless, the mere presence of law, as big as it may be, does not guarantee green safety of the surroundings. The predominant task lies in the massive divide regularly discovered between environmental laws on paper and their practical execution in real life (Mikhno et al., 2021).

The existence of this disparity in implementation, that's substantial across countries and societies international, gives significant limitations within the pursuit of sustainability goals. Despite authentic and properly-meaning attempts to pass laws, a multitude of elaborate and interrelated factors contribute to this disparity. Complications inside legal structures, limited sources, insufficient enforcement mechanisms, and conflicting socio-financial agendas all hinder the powerful transformation of environmental regulation into realistic measures. As a result, the favored benefits of these important legal guidelines won't be completely realized, compromising the resilience of ecosystems and exposing communities to diverse environmental risks and dangers (Baig et al.2020).

Having a comprehensive knowledge of and addressing the implementation gap is of extreme significance in selling environmental conservation and sustainable improvement, mainly in Saudi Arabia. By very well examining the underlying causes of this disparity and suggesting customized interventions, we will enhance the effectiveness and efficiency of environmental legal guidelines and rules inside the Kingdom. Additionally, remaining this gap can result in tangible and fantastic consequences, including better surroundings health and resilience within the face of environmental challenges, in addition to multiplied social fairness and justice (Almulhim & Abubakar, 2021).

Hence, the primary goal of this extensive research is to provide a significant and enormous input to the continuing discourse on environmental governance in Saudi Arabia. By carrying out a thorough examination of influential factors and devising pragmatic tips which are particularly catered to the Saudi context, our goal is to contribute

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to coverage debates and permit all stakeholders to effectively take essential measures. Through selling a profound comprehension of the barriers and featuring a entire array of sustainable treatments, our ultimate goal is to foster a tremendous transformation toward an extra balanced, environmentally pleasant, and truthful future for each the Saudi populace and the international network.

The rest of the paper is based as follows: Firstly, a comprehensive literature evaluation explores theories and empirical research regarding the space between environmental regulation and its implementation. Secondly, an overview of environmental rules in Saudi Arabia offers insights into the felony framework governing environmental safety inside the country. Thirdly, the studies method section info records collection, case look at choice, and analysis methods. Fourthly, findings from comparative analysis discover elements contributing to the implementation hole inside environmental legal guidelines. Lastly, the paper concludes through summarizing key insights and discussing implications for environmental governance and future research.

II. REVIEW OF THE LITERATURE

The literature surrounding the gap among environmental law and its effective implementation offers a multifaceted know-how of this complex problem. Scholars have significantly analyzed the motives at the back of this implementation deficit, drawing attention to different factors influencing the translation of laws into action. Several studies, together with the ones by Rose (2011) and Khan (2022), emphasize the gap between environmental rules and implementation. Rose discusses the evolution of environmental regulation closer to integrated, adaptive frameworks, while Khan focuses on Bangladesh's demanding situations in implementing its environmental laws in spite of numerous criminal units. Both stress the need for integrating environmental issues into improvement agendas for powerful environmental management and sustainable development.

Bondarouk (2018) and Steinebach (2019) provide insights into implementation overall performance in environmental coverage. Bondarouk makes a speciality of EU environmental rules, featuring a framework to research implementation overall performance and addressing expertise gaps in realistic implementation. Steinebach examines the effectiveness of environmental policies throughout international locations, highlighting the importance of properly-designed implementation systems, mainly for command-and-manipulate rules. Both research emphasize the importance of implementation mechanisms in attaining environmental objectives and make contributions to a greater comprehensive expertise of environmental governance.

Prieur (2021) introduces a new approach for assessing the effectiveness of environmental regulation, addressing barriers of current indicators. Over four years of studies, they developed proof-based totally legal signs to assess each national and global regulation implementation. Unlike conventional indicators focusing totally on statistical or financial data, Prieur's technique gives a comprehensive evaluation of legal and institutional stages through a questionnaire-primarily based technique. These legal signs offer stakeholders with accurate insights into regulation enforcement, helping in decision-making and stopping regressions in environmental rules.

Ivanova et al. (2021) provide a comparative analysis of the implementation of worldwide environmental regulation across thirteen countries, that specialize in four agreements addressing pollution and conservation. Their study utilizes the Environmental Conventions Index (ECI) advanced at the Center for Governance and Sustainability on the University of Massachusetts, Boston. The analysis evaluates overall performance in regulation, management, facts, and technical measures, organising a baseline for assessing worldwide environmental law implementation. Additionally, the look at explores the have an effect on of country wide characteristics, guidelines, and actions at the achievement and effectiveness of these agreements.

Knill and Lenschow (2000) take a look at the space among EU environmental rules and its implementation. They argue that this disparity has tremendous implications for coverage formula. Their examine discusses deficiencies in theoretical frameworks and realistic approaches, the effect of institutional innovations, and the effectiveness of latest coverage units. Through their analysis, they shed mild on challenges and opportunities for improving the implementation of EU environmental guidelines.

Eales and Sheate (2011) check out the effectiveness of Strategic Environmental Assessment (SEA) and Sustainability Appraisal in UK and European policy development. They analyze recent practices and reviews, focusing on countrywide-stage strategic actions like Eco-towns and Energy Planning. The examine highlights challenges together with poor attention of alternatives and vulnerable sustainability conceptions. It concludes that the UK Government's implementation of the SEA Directive falls short, as it frequently views compliance as a hurdle instead of a tool for proof-based totally policymaking.

Moore et al. (2018) discover the connection between environmental technological know-how and regulation, highlighting how gaps among the two can also avoid powerful environmental selection-making. They aim to bridge these disciplines with the aid of offering insights for scientists on how to inform environmental statutes, guidelines, and regulations, and for attorneys to make sure these legal frameworks are knowledgeable by medical evidence. The paper offers a conceptual version illustrating how various medical sports can impact legislative and policy cycles. It additionally identifies demanding situations such as differing time frames, requirements of proof, and verbal exchange methods between technological know-how and regulation. To deal with these demanding situations, the authors recommend for bidirectional mastering and intentional collaborations between scientists and legal professionals on the environmental technological know-how–regulation interface.

Young (2008) evaluates proposals for reforming worldwide environmental governance systems, drawing from the studies mission on the Institutional Dimensions of Global Environmental Change. The article discusses pitfalls in that specialize in organizational shape over practical effectiveness and examines institutional demanding situations in creating powerful governance systems. It concludes that while organizational reform is essential, it alone can not gain environmental safety or sustainable development goals.

Jafarzadeh (2011) explores the importance of transparent environmental records and standardized reporting in enhancing environmental governance. The take a look at emphasizes the global nature of environmental demanding situations and the need for complete tracking and information sharing to address them efficaciously. It discusses the function of Multilateral Environmental Agreements (MEAs) in requiring compliance measures such as information accumulating, reporting, and tracking. However, it also highlights current weaknesses, together with the shortage of standardized reporting necessities and dependable records, which avoid the success of international environmental law. The article suggests strategies to overcome these demanding situations and decorate international environmental governance.

Selin and Vandever (2015) study the evolution of EU environmental coverage-making and implementation because the Nineteen Seventies. They speak the legal foundation hooked up thru treaty reforms and the pursuit of sustainable development. The take a look at also evaluations the principle actors in EU environmental politics and assesses coverage-making and implementation techniques. Furthermore, it explores the effect of EU membership enlargements and the Union's engagement in international fora. The article affords insights into environmental policy inside and past the EU, emphasizing arguments associated with European integration and sustainable improvement, and gives guidelines for future research.

III. OVERVIEW OF ENVIRONMENTAL LEGISLATION IN SAUDI ARABIA

The environmental management process is composed of various steps that are interlinked and serve to identify the environmental problem, assess it, and then manage it. However, in order to fulfil this process, controls need to be in place in the form of regulations or laws. This is where the Kingdom of Saudi Arabia currently stands now, at the beginning of developing a management process and initiating environmental legislation. This essay serves to identify the current environmental laws in Saudi Arabia and consider these laws with various directives and international standards. The essay will then conclude on the effectiveness of these laws and directives and whether they will serve to fully secure and be conducive to the protection of the environment.

The concern for the environment in Saudi Arabia has grown in recent years due to pressures caused by a dramatic increase in oil and industrial activity in the country and the resulting effects on air, water, and soil quality, in addition to the effects of urbanization and economic and population growth. In 2001, Saudi Arabia enacted its umbrella of environmental legislation, the Supreme Committee for the Environment, which has been assigned to prepare a national environmental protection strategy and has the authority to alter the general policies of the different governmental and private organizations in the kingdom. This committee has special significance due to King Fahad's decree in 1992 that elevated its status above the presidency of Meteorology and the Environment and gave it a budget and hiring authority (Al-Khuwiter 2005). While this is one of the first independent national committees directly dealing with the environment, it has had little effect to date because it has no regulatory powers and most of its efforts are dedicated to setting up state and national environmental action plans. Nonetheless, the committee has generated significant momentum for environmental change in Saudi Arabia as the large majority of the laws being enacted over the last decade have effectively been either created by this committee or with its consultation.

The main problems for detection and prevention of environmental crime lie in the fact that the issues are quite low on the priority list for law enforcement agencies, the difficulty in detecting the crimes due to their often

victimless nature and the lack of suitable evidence which is often thrown out due to procedural mistakes (Luttenberger A and Luttenberger L.R, 2017).

Environmental crimes, such as pollution, harming of natural resources and wildlife, are generally classed as being non-violent crimes. That does not, however, mean that they do not require serious attention from law enforcement agencies (Badran , 2021). These crimes can have a damaging effect on the environment in the short and long terms, depriving the public of natural resources and spoiling the habitat of many forms of life. For this reason, it is important that prevention measures are in place to discourage potential violators from breaking the law. Should they be unsuccessful, the violating of environmental laws must be detected quickly in order to minimize damage, and the offenders must be apprehended and adequately punished to create a deterrent for future violations and this is what the Kingdom seeks through the continuous and effective development of its environmental systems and regulations in light of Vision 2030.

The Kingdom of Saudi Arabia is a country defined by its traditions, and one which has sought to evolve while maintaining its principles. Looking towards greater economic diversification and long term sustainability, the kingdom has sought to institute reform that builds on principles outlined in the Qur'an calling for responsible stewardship of the earth. Developing a sound foundation of environmental legislation is fundamental to achieving this goal, and the kingdom has taken major steps to establish a comprehensive legislative framework. Beginning with the Royal Decree establishing the Presidency of Meteorology and Environment in 2001, the kingdom has worked to systematically build capacity and create a body of law aimed at conservation of its natural endowment and prevention of environmental harm (Dasari et al. 2021). This effort culminated in the 2002 adoption of the Environmental Law, a comprehensive framework statute aimed at protecting the environment and preventing harm through integrating environmental considerations into both public and private activities.

Also an environmental policy and national strategy were established in 2003, aimed at setting a course for sustainable development and identifying priority areas where further legislation and programs are needed. A series of laws addressing specific sectors and environmental issues have been enacted, and importantly the kingdom has sought to incorporate environmental consideration into sectoral laws which address energy, water, and urban development (Amran, 2020).

The kingdom has achieved a great deal in a short time and has established the foundation for a comprehensive system of environmental legislation. Given the magnitude of environmental challenges in the kingdom and the global importance of its natural resources and ecological systems, this is an area where continued law and policy development can have an impact of great significance.

IV. METHODOLOGY

Sample Selection and Data Collection Process

This study was conducted in the Kingdom of Saudi Arabia among individuals aged 18 years and older between the beginning of January 2024 and the end of January 2024. To ensure a comprehensive representation, a random sample of participants was selected, considering various demographic factors such as gender, age, educational background, and occupation. The sample size was determined based on the need for statistical significance and the ability to generalize the results, resulting in a total of 592 respondents.

Data was collected through a well-designed questionnaire distributed both electronically and in printed format. The questionnaire included specific questions aimed at evaluating participants' perceptions and attitudes towards the enforcement of environmental laws in the Kingdom of Saudi Arabia. Participants were strongly encouraged to provide honest and thoughtful responses.

The survey was distributed through various channels, including social media platforms, community centers, and local organizations. Prior to participating in the study, all participants were provided with informed consent. The response rate was monitored throughout the data collection period, and efforts were made to maximize participation and ensure the accuracy of the collected data.

Instruments

The questionnaire applied on this examine underwent a thorough development technique to guarantee its efficiency and validity. Comprehensive critiques of literature from each national and worldwide scientific databases were undertaken to identify appropriate scales and objects for evaluating perceptions and attitudes toward the implementation of environmental laws within the Kingdom of Saudi Arabia. Consequently, applicable

and well-known items have been carefully selected and arranged into separate dimensions for analysis, with any redundant items being systematically removed.

In order to authenticate the content inside the questionnaire, a set of three environmental policy experts and 4 contributors from the local community presented priceless contributions. Their understanding and viewpoints assisted in excellent-tuning the questionnaire. Before initiating the complete records series, an initial trial changed into done, concerning 30 people from the community. These people have been eventually excluded from the very last sample, but the motive of the trial changed into to thoroughly compare the readability and understandability of the questionnaire.

Statistical Analysis

The method of information analysis entailed a careful and methodical technique with the reason of extracting precious insights from the survey facts that are in keeping with the research targets. Initially, the statistical software program IBM SPSS Statistics for Windows, with model 25.Zero, was hired because of its sturdy abilities in handling and inspecting intricate statistics units. The choice of this software program played a crucial role in permitting thorough analyses that had been mainly tailored to the research questions and the format of the questionnaire.

The validity of the survey scales turned into thoroughly evaluated using Cronbach's alpha (α), a metric for internal coherence. This guaranteed that the survey questions as it should be gauged the intended principles related to humans's perceptions and attitudes closer to the enforcement of environmental rules in Saudi Arabia, as special in the studies goals.

The usage of descriptive evaluation had a essential significance in condensing the demographic features of the individuals and the allocation of reactions to every survey query. By approach of this system, the absolute frequencies (n) and relative chances (%) had been computed to offer a precise depiction of the composition of the pattern and styles of responses. Furthermore, measures inclusive of imply (M) and fashionable deviation (SD) were calculated to provide statistics at the average and variant of the information.

Utilizing inferential evaluation strategies, further to descriptive records, the researchers examined the connections among variables and tested hypotheses primarily based on the studies targets. In order to benefit a higher know-how of the strength and path of these relationships, the researchers utilized Spearman's correlation to assess the institutions among individual demographic factors and perceptions of environmental regulation implementation. The Chi-Square take a look at and evaluation of variance (ANOVA) have been applied to evaluate the have an impact on of demographic factors, such as age, gender, education degree, profession, and profits, on perceptions of environmental regulation enforcement. Through evaluating responses among numerous demographic groups, these checks aided in figuring out viable discrepancies and offering guidance for precise interventions.

A multivariate regression analysis the use of the Enter method was completed to decide the vast predictors of perceptions of environmental regulation implementation. This technique enabled the simultaneous assessment of a couple of unbiased variables while also accounting for potential confounding elements. The Betas (β) and their corresponding 95% self belief periods (95% CI) have been provided to suggest the power and course of the associations.

The statistical analyses completed in this have a look at were especially designed to thoroughly investigate the studies questions, yielding essential findings concerning the elements that impact perceptions of environmental law implementation inside the Kingdom of Saudi Arabia. These analyses performed a essential position inside the research, helping to enlarge our knowledge in this area and informing interventions primarily based on solid proof, with the goal of selling green environmental governance practices. Overall, the statistical analyses conducted in this have a look at had been tailor-made to address the research questions comprehensively, supplying precious insights into the factors influencing perceptions of environmental regulation implementation inside the Kingdom of Saudi Arabia. These analyses shaped the cornerstone of the research findings, contributing to the development of knowledge within the area and guiding evidence-based interventions aimed toward promoting effective environmental governance practices.

V. RESULTS

The study used the stratified random sampling approach to draw a sample from the study population, taking into account many variables such as gender, age, and level of education. The following tables (Table 1, 2 and 3) show the characteristics of the sample studied.

Table 1: Demographic Distribution by Gender

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	326	55,1	55,1	55,1
	Female	266	44,9	44,9	100,0
	Total	592	100,0	100,0	

Table 2: Demographic Distribution by Age.

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 19 years old	118	19,9	19,9	19,9
	20 to 35 years old	212	35,8	35,8	55,7
	36 to 50 years old	159	26,9	26,9	82,6
	More than 50 years old	103	17,4	17,4	100,0
	Total	592	100,0	100,0	

Table 3: Demographic Distribution by Level of Studies.

Level of studies					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Primary Education	146	24,7	24,7	24,7
	High School Education	274	46,3	46,3	70,9
	University education	143	24,2	24,2	95,1
	Higher Education	29	4,9	4,9	100,0
	Total	592	100,0	100,0	

These demographic tables present a snapshot of the sample population’s composition across gender, age, and level of studies. Among respondents, 55.1% identify as male, slightly outnumbering the 44.9% who identify as female. In terms of age distribution, the largest proportion falls within the 20 to 35 years old category (35.8%), followed by the 36 to 50 years old group (26.9%), with those less than 19 years old and more than 50 years old comprising 19.9% and 17.4% of the sample, respectively. Regarding educational attainment, the majority have completed high school education (46.3%), while 24.7% have primary education, 24.2% have university education, and 4.9% possess higher education qualifications. These demographic insights provide a foundation for understanding the diversity within the sample population, which is crucial for interpreting and contextualizing the findings of the survey or study at hand.

Scheffe Test

The Following Scheffe table (Table 4) provides a detailed analysis of the pairwise comparisons between different levels of education regarding the variable “I feel informed about environmental regulations in Saudi Arabia”.

Table 4: Pairwise Comparisons of Feeling Informed about Environmental Regulations in Saudi Arabia by Level of Studies (Scheffe Test).

(I) Level of studies	(J) Level of studies	Mean Difference (I-J)	Std. Error	Sig.
Primary Education	High School Education	-1,029*	,093	,000
	University education	-1,802*	,106	,000
	Higher Education	-2,282*	,184	,000

High School Education	University education	-,773*	,093	,000
	Higher Education	-1,253*	,177	,000
University education	Higher Education	-,480	,184	,080

In summary, the Scheffe table allows for a comprehensive understanding of how different levels of education relate to feeling informed about environmental regulations in Saudi Arabia, indicating significant differences among various educational groups.

One Way ANOVA Test

The Table 5 shows that the “between-groups sum of squares” (SS) is 285.527, indicating the variability of responses between the groups. The within-groups sum of squares is 481.080, representing the variability of responses within each group. The total sum of squares is 766.606, which is the sum of both between-groups and within-groups variability.

The degrees of freedom (df) for between-groups is 3 and for within-groups is 588. The mean square for between-groups (95.176) is much larger than the mean square for within-groups (0.818), further supporting the idea that the variability between groups is significant.

Table 5: One Way ANOVA Test for Feeling Informed about Environmental Regulations in Saudi Arabia.

Q1-1: I feel informed about environmental regulations in Saudi Arabia					
	Sum of squares	df	Mean Square	F	Sig.
Between Groups	285,527	3	95,176	116,328	,000
Within groups	481,080	588	,818		
Total	766,606	591			

In conclusion, the ANOVA results provide strong evidence to reject the null hypothesis and suggest that there are significant differences in perceptions of feeling informed about environmental regulations among different groups surveyed in Saudi Arabia.

Multivariate Regression Analysis

The multivariate regression analysis investigates the relationship between gender, age, level of studies, and the belief in actively encouraging individuals to participate in environmental protection initiatives in Saudi Arabia (Table 6). The results reveal that while gender and age do not significantly influence the belief in encouraging participation, the level of studies shows a statistically significant positive relationship. Specifically, individuals with higher levels of education are more likely to endorse the active encouragement of participation in environmental initiatives compared to those with lower educational attainment. These findings suggest that educational background plays a crucial role in shaping attitudes toward environmental engagement in the Saudi Arabian context, highlighting the importance of educational interventions and outreach programs in promoting environmental awareness and participation.

Table 6: Multivariate Regression Analysis Results for Belief in Encouraging Participation in Environmental Protection Initiatives in Saudi Arabia.

Coefficients ^a						
Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4,550	,096		47,475	,000
	Gender	-,030	,041	-,030	-,732	,464
	Age	-,019	,021	-,037	-,904	,366

	Level of studies	,053	,025	,089	2,151	,032
a. Dependent variable: Q3-7: I believe that individuals in Saudi Arabia should be encouraged to actively participate in initiatives aimed at promoting environmental protection						

The presented multivariate regression analysis in (Table 7) explores the association between gender, age, level of education, and feeling informed about environmental regulations in Saudi Arabia. Gender and age coefficients demonstrate no significant impact on feeling informed, with p-values greater than 0.05. Conversely, the coefficient for the level of studies is highly significant ($p = 0.000$), indicating a substantial positive relationship. Specifically, individuals with higher levels of education are more likely to feel informed about environmental regulations compared to those with lower educational attainment. These findings underscore the pivotal role of education in enhancing awareness and understanding of environmental policies in Saudi Arabia, emphasizing the necessity for educational initiatives to promote environmental literacy and engagement.

Table 7: Multivariate Regression Analysis Results for Feeling Informed about Environmental Regulations in Saudi Arabia.

Coefficients ^a						
Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,143	,177		6,470	,000
	Gender	-,027	,076	-,012	-,356	,722
	Age	,027	,038	,024	,722	,471
	Level of studies	,833	,046	,602	18,251	,000
a. Dependent variable: Q1-1: I feel informed about environmental regulations in Saudi Arabia						

Correlations and their Meanings

The correlation table of Part1 illustrates the relationships between different aspects of perceptions regarding environmental regulations in Saudi Arabia among the surveyed population. Notably, strong positive correlations are observed between several pairs of variables, particularly between feeling informed about environmental regulations and various other factors such as the perceived ease of compliance ($r = 0.672$), access to information ($r = 0.736$), and the adequacy of current laws meeting the country's needs ($r = 0.512$). Additionally, significant positive correlations are found between the belief in enforcement effectiveness and perceptions of penalties ($r = 0.736$) and prioritization of enforcement by authorities ($r = 0.425$). However, some weak correlations are also evident, such as between the belief in enforcement effectiveness and the perception of needing stricter laws ($r = 0.178$). These correlations highlight the interconnectedness of different dimensions of environmental regulation perceptions, emphasizing the importance of considering multiple factors when assessing public opinion and policy effectiveness in this domain.

For Part 2, the correlation table reveals various associations between perceptions regarding environmental issues and initiatives in Saudi Arabia. Strong positive correlations are observed between several pairs of variables, indicating consistent relationships. Notably, there are significant positive correlations between beliefs in the effectiveness of current environmental initiatives and perceptions of governmental efforts being sufficient ($r = 0.349$), personal responsibility for environmental conservation ($r = 0.378$), and the effectiveness of incorporating traditional cultural practices into modern conservation efforts ($r = 0.345$). Moreover, there's a moderate positive correlation between the belief in the effectiveness of environmental initiatives and the perception of public participation's contribution to environmental preservation ($r = 0.268$). However, some weaker correlations exist, such as between the belief in the need to worry about environmental degradation and other variables like the effectiveness of environmental initiatives ($r = 0.443$) and the belief in the sufficiency of governmental efforts ($r = 0.363$). These correlations underscore the interconnectedness of perceptions and attitudes regarding environmental issues, governance, and conservation efforts, providing valuable insights for policymakers and environmental advocates in Saudi Arabia.

The correlation table for Part 3 exhibits noteworthy linkages between perceptions regarding environmental issues and actions in Saudi Arabia. Several pairs of variables display strong positive correlations, indicating consistent relationships. Notably, there are significant positive correlations between perceptions of the effectiveness of public awareness campaigns and the beliefs in the necessity of community involvement in addressing environmental concerns ($r = 0.367$) as well as the importance of individual participation in environmental protection initiatives ($r = 0.310$). Additionally, robust positive correlations exist between beliefs in the effectiveness of incentives for environmentally friendly practices and the need for international cooperation in addressing environmental challenges ($r = 0.434$), as well as the perceived significance of community participation in implementing environmental laws ($r = 0.269$). Moreover, notable positive correlations are identified between beliefs in the effectiveness of strict industry monitoring and the need for international cooperation ($r = 0.400$) and community involvement in addressing environmental concerns ($r = 0.367$). These correlations highlight the interconnected nature of perceptions and attitudes towards various environmental initiatives and underscore the significance of considering multiple factors when formulating environmental policies and strategies in Saudi Arabia.

VI. RECOMMENDATIONS

Enhance Public Awareness and Education: Given the strong positive correlations between feeling informed about environmental regulations and various other factors such as ease of compliance, access to information, and belief in the sufficiency of current laws, it's crucial to invest in public awareness campaigns and educational initiatives. These efforts should focus on increasing understanding and awareness of environmental issues, regulations, and the importance of compliance among the public.

Promote Public Participation and Community Involvement: The data suggest significant positive correlations between beliefs in the effectiveness of public participation and community involvement and various environmental outcomes, including the effectiveness of environmental initiatives and the implementation of environmental laws. Thus, it's essential to promote and facilitate public participation, encourage community involvement in environmental conservation efforts, and foster partnerships between government agencies, businesses, civil society organizations, and local communities to address environmental challenges collaboratively.

Facilitate International Cooperation and Collaboration: The strong positive correlations between beliefs in the effectiveness of international cooperation and various environmental outcomes highlight the importance of fostering collaboration at the international level to address transboundary environmental challenges effectively. Therefore, it is essential to strengthen partnerships, exchange best practices, and mobilize resources to address global environmental issues and promote sustainable development in Saudi Arabia.

Motivating environmentally friendly practices: Given the positive association between beliefs in the effectiveness of incentives for environmentally friendly practices and the motivation of individuals and companies, incentive-based initiatives to encourage the adoption of sustainable practices and technologies may benefit environmental sustainability. This can include financial incentives, tax breaks, subsidies, and rewards for companies and individuals who demonstrate environmental care and contribute to environmental conservation efforts.

Integrate Environmental Education into School Curricula: The correlations indicate a positive association between beliefs in the integration of environmental education into school curricula and various environmental outcomes. Therefore, policymakers should prioritize integrating environmental sustainability education into formal education systems at all levels to promote environmental literacy, raise awareness, and foster a culture of environmental responsibility and stewardship among future generations.

Overall, these recommendations aim to leverage the insights provided by the correlations in the data to inform evidence-based policy decisions and interventions that can effectively address environmental challenges, promote sustainable development, and enhance environmental quality in Saudi Arabia.

In conclusion, the recommendations outlined above are crucial steps towards addressing environmental challenges and promoting sustainable development in Saudi Arabia. Enhancing public awareness and education about environmental regulations is essential to ensure widespread understanding and compliance. Similarly, promoting public participation and community involvement fosters collective action towards environmental conservation and enforcement of laws. Facilitating international cooperation and collaboration is vital for addressing transboundary environmental issues effectively. Moreover, incentivizing environmentally friendly practices can motivate individuals and businesses to adopt sustainable behaviors. Lastly, integrating environmental education

into school curricula can instill environmental values in future generations. By implementing these recommendations, Saudi Arabia can pave the way for a more environmentally conscious society, ensuring a sustainable and healthy future for its citizens and the planet as a whole.

VII. CONCLUSION

In conclusion, this study sheds light on the multifaceted factors affecting the implementation of environmental laws in the Kingdom of Saudi Arabia. Through rigorous statistical evaluation, vast insights have been uncovered, emphasizing the essential function of coordination amongst stakeholders, public awareness, and institutional potential. Moving ahead, addressing these factors is imperative to enhance the enforcement of environmental laws and foster sustainable improvement. This studies provides a based framework for policymakers and stakeholders to strengthen rules enforcement and promote sustainable practices tailor-made to the nearby context, thereby contributing to global environmental efforts.

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CONFLICTS OF INTEREST

The author declares no conflict of interest.

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