

## Green Investment Performance in Morocco

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### ABSTRACT

This paper explores the green investment performance in Morocco, analyzing the key factors influencing the success of such investments in the context of the country's sustainability and economic goals. With growing global emphasis on environmental sustainability, Morocco has emerged as a regional leader in adopting green investment strategies, particularly in renewable energy and eco-friendly infrastructure. This study aims to assess the financial returns, environmental impact, and social contributions of green investments, with a specific focus on government policies, investment challenges, environmental sustainability, investor confidence, and job creation. The analysis utilizes descriptive statistics, regression, and correlation techniques to examine the relationships between the variables and green investment performance. The findings show that while government policies have moderate effectiveness, environmental impact and job creation significantly drive green investment success. However, investor confidence and incentives for future investment remain key challenges. The study offers valuable insights for policymakers, highlighting the need for stronger policy implementation, reduced investment barriers, and increased focus on sustainable job-generating projects. By integrating Sustainable Finance Theory and Triple Bottom Line (TBL), this paper provides a comprehensive framework for evaluating green investments, with implications for enhancing Morocco's green transition and sustainable development efforts.

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## 1. INTRODUCTION

The global investment landscape is undergoing a profound transformation, driven by the growing recognition of environmental sustainability (Hassan et al., 2024; Hossain, 2025). Green investments, aimed at funding projects that contribute to environmental preservation, renewable energy, and sustainable development, are gaining momentum worldwide (Elkholy & Omrani, 2021; Rao et al., 2024; Hossain et al., 2024). In this context, Morocco stands out as a developing country that is making significant strides in integrating green investment strategies to meet its environmental and economic goals (World Bank, 2020). This paper examines the performance of green investments in Morocco, analyzing their impact on the nation's economic growth, environmental sustainability, and the broader investment climate (Bertelsmann Stiftung, 2020; Idroes et al., 2024). Over the past decade, Morocco has emerged as a regional leader in environmental policy and sustainability initiatives, particularly in the fields of renewable energy and eco-friendly infrastructure. The country's proactive approach to green investment is embodied in its

ambitious renewable energy targets, such as the goal to derive 52% of its electricity from renewable sources by 2030. These policies are aligned with Morocco's commitments under international environmental agreements, such as the Paris Agreement, and are seen as a model for other African and Mediterranean nations. However, while Morocco has made notable progress in adopting green technologies and sustainable investment practices, the performance of these investments—particularly their financial returns and their contribution to long-term economic growth—remains an underexplored area of study.

The central research problem addressed in this study is the limited understanding of the actual performance of green investments in Morocco. While there is increasing enthusiasm surrounding the role of green finance in fostering sustainable development, empirical evidence on the effectiveness and returns of green investments in Morocco remains sparse (Elkholy & Omrani, 2021; Hossain et al., 2024). This gap in knowledge is compounded by the complex nature of measuring both the financial and environmental impacts of such investments, especially in a developing economy (Global Green Growth Institute, 2018; Işık et al., 2024). The purpose of this paper is to investigate the performance of green investments in Morocco by evaluating their financial returns, assessing their environmental impact, and exploring the policy environment that shapes their development (AfDB, 2018; Mertzanis et al., 2024). By doing so, the paper aims to contribute valuable insights to both academic and policy discussions on sustainable finance in Morocco (World Bank, 2020). This study aims to provide a comprehensive analysis of the green investment landscape in Morocco by addressing several key objectives. First, it seeks to evaluate the financial performance of green investments in Morocco over the past decade, examining the returns and economic viability of such investments in sectors like renewable energy, waste management, and sustainable agriculture. Second, the study will assess the environmental and social impacts of these investments, focusing on how they contribute to Morocco's sustainability goals, including carbon reduction and resource conservation. Third, it will explore the role of government policies and international partnerships in shaping the success of green investments, identifying how regulatory frameworks and global collaborations influence outcomes. Finally, the study will offer recommendations for enhancing the effectiveness of green investments, with an emphasis on improving returns for investors while maximizing their environmental and social benefits. By addressing these objectives, the paper aims to provide valuable insights into the opportunities and challenges faced by policymakers, investors, and other stakeholders in Morocco's green investment sector.

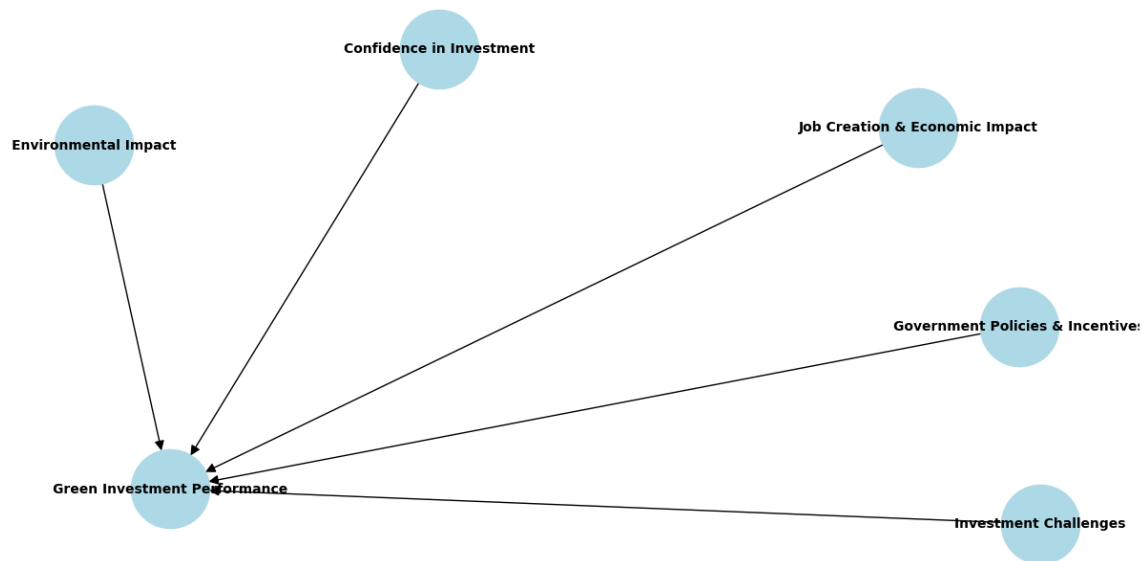
## 2. LITERATURE REVIEW

Numerous studies emphasize the critical role of government policies in promoting green investments, particularly in Morocco, where the government has been proactive in establishing favorable regulatory frameworks, including tax incentives, subsidies, and policies to encourage green energy projects (World Bank, 2020). However, Elkholy & Omrani (2021) argue that the effectiveness of these policies in driving long-term investments is often questioned due to bureaucratic delays and inconsistent implementation. This concern is echoed in survey results, where respondents highlight that while government incentives are essential for attracting green investment, their actual impact is variable. In addition to policy challenges, green investments in Morocco face significant barriers such as insufficient infrastructure, high initial capital costs, and political instability, with a lack of skilled labor being frequently cited as a major obstacle (IRENA, 2020; Bayssi et al., 2024). These challenges complicate the growth of the green investment market. On the environmental front, projects like the Noor Solar Project have contributed to carbon emissions reduction and energy diversification (Bertelsmann Stiftung, 2020; AlMallahi et al., 2024), yet AfDB (2018) points out that the social impact, particularly in terms of job creation and community development, often remains overlooked. Survey responses reveal that while respondents acknowledge the positive environmental outcomes of green investments, the social impacts are often rated less favorably, suggesting a gap in the broader perception of these investments. Finally, while investor confidence in Morocco's renewable energy sector is high, especially in solar and wind, concerns about long-term profitability persist, given the capital-intensive nature of such projects (Global Green Growth Institute, 2018; Matallah, 2024; Goga and Bell, 2024). This aligns with survey findings, where a significant portion of respondents express skepticism regarding the financial returns of green investments despite strong environmental and policy support, highlighting a need for a more nuanced evaluation model that addresses both financial and non-financial aspects of green investment performance.

### 2.1 Theoretical Framework

The theoretical foundation behind the proposed model for evaluating green investment performance in Morocco is grounded in Sustainable Finance Theory and the Triple Bottom Line (TBL) accounting framework (Dion and Evans, 2024; Skalli et al.,

2024). Sustainable Finance Theory emphasizes that investments should not solely focus on financial returns but also integrate long-term environmental and social outcomes. This theory aligns with Morocco's green investment goals, which seek to balance economic growth with sustainability, particularly in sectors like renewable energy and green technologies (Elkholy & Omrani, 2021). In the context of Morocco, the sustainable finance approach underscores the importance of capital flows directed toward projects that support the country's environmental objectives—such as carbon reduction, energy efficiency, and the transition to a low-carbon economy—while simultaneously contributing to economic development. By incorporating Sustainable Finance Theory and Triple Bottom Line (TBL), the proposed model takes a holistic approach to evaluating the performance of green investments in Morocco. This model (Figure 1) recognizes the complex interplay between economic returns, environmental impact, and social benefits—all of which are integral to Morocco's green transition. It provides a more nuanced framework for understanding how green investments can support Morocco's broader development goals, while offering investors a balanced perspective on the long-term risks and rewards. This framework will allow policymakers, investors, and stakeholders to assess green investments comprehensively, ensuring that they not only deliver financial returns but also contribute to Morocco's environmental and social sustainability targets.



**Figure 1: Proposed model: Independent Variables Affecting Green Investment Performance**

## 2.2 Green Investment Performance in Morocco

Green investment performance refers to the overall effectiveness of investments directed toward projects that promote environmental sustainability, such as renewable energy, energy efficiency, and sustainable development practices (Caglar et al., 2024). In the context of Morocco, green investment performance is measured not only by financial returns but also by the environmental and social impacts of such investments. The success of green investments can be evaluated through a combination of factors, including profitability, carbon emissions reduction, job creation, and the achievement of national sustainability goals (Qing et al., 2024; Li et al., 2024). For instance, in Morocco's renewable energy sector, key projects like the Noor Solar Complex and wind farms have significantly contributed to the country's renewable energy capacity, helping to meet the government's target of generating 52% of its electricity from renewable sources by 2030. However, the performance of green investments extends beyond financial metrics, as they also aim to deliver long-term environmental benefits, such as the reduction of greenhouse gas emissions and the promotion of a circular economy. Socially, these investments are expected to foster job creation, particularly in rural areas, and drive economic growth through the expansion of green industries (Mahmood et al., 2024). Thus, evaluating green investment performance requires a multidimensional approach, balancing financial outcomes with environmental and social contributions, making it a crucial indicator for assessing Morocco's green growth and sustainability transition.

## 2.3 Proposed conceptual model

The proposed model for evaluating green investment performance in Morocco integrates multiple key dimensions to provide a comprehensive assessment of how green investments contribute to the country's economic, environmental, and social objectives. The model is structured around five independent variables (IVs):

- I. **Government Policies & Incentives (IV)**: Refers to government actions like tax breaks, subsidies, and regulations that encourage green investments. Effective policies can lower risks and costs, making green projects more attractive.
- II. **Investment Challenges (IV)**: Encompasses barriers such as high initial costs, infrastructure gaps, and political instability that can hinder the growth of green investments in Morocco.
- III. **Environmental Impact (IV)**: Measures the contribution of green investments to environmental sustainability, such as reducing carbon emissions and promoting renewable energy.
- IV. **Confidence in Investment (IV)**: Reflects investor trust in the long-term profitability and stability of green projects, influenced by market conditions, policies, and past performance.
- V. **Job Creation & Economic Impact (IV)**: Assesses the economic benefits of green investments, including job creation and local economic development, particularly in rural areas.

## 2.4 Theoretical contribution

The proposed model contributes to existing literature by providing a comprehensive framework to assess Green Investment Performance in emerging economies, particularly Morocco. It integrates key variables such as government policies, investment challenges, environmental impact, investor confidence, and job creation, offering a multidimensional approach that goes beyond traditional financial metrics. By combining Sustainable Finance Theory and the Triple Bottom Line (TBL) framework, the model highlights the need to consider not only economic returns but also environmental and social impacts when evaluating green investments. This theoretical contribution expands the understanding of how green investments can drive sustainable development while addressing barriers and opportunities in emerging markets. It further emphasizes the interplay between financial, environmental, and social dimensions, offering policymakers and investors a more holistic view of green investment outcomes.

## 3. METHODOLOGY

The Methodology chapter of this paper outlines the approach taken to assess the green investment performance in Morocco, focusing on the key variables identified in the proposed model: government policies, investment challenges, environmental impact, investor confidence, and job creation. The research uses quantitative data collected through a structured survey from 225 respondents, including policymakers, investors, and industry experts, to measure the effectiveness of green investment initiatives and identify barriers.

### 3.1 Data Collection

The data for this study was collected through a structured survey designed to assess the factors influencing Green Investment Performance in Morocco. The survey was administered to a sample of investors, policymakers, and industry experts actively involved in green investment projects within the country. The survey included 11 questions based on a Likert scale (1-5) to measure variables such as government policies, investment challenges, environmental impact, investor confidence, and job creation. These questions were designed to capture both the perceived effectiveness of green investment initiatives and the barriers faced in the Moroccan context. The quantitative nature of the survey allowed for the collection of measurable data on these variables, enabling a clear understanding of the key drivers and obstacles influencing the success of green investments in Morocco.

### 3.2 Analytical Techniques

For data analysis, descriptive statistics were first applied to summarize the basic characteristics of the collected data, including mean scores, standard deviations, and frequency distributions for each variable. This provided an overview of the respondents' perceptions and the overall trends in the green investment sector. To explore the relationships between the independent variables (IVs) and the dependent variable (DV) of green investment performance, two key statistical techniques were used: regression analysis and correlation analysis.

Regression analysis is used to examine the causal relationship between the independent variables (such as government policies, investment challenges, environmental impact, confidence in investment, and job creation) and the dependent variable (green investment performance). The general form of the multiple linear regression equation is:

$$\begin{aligned} \text{Green Investment Performance} = & \beta_0 + \beta_1(\text{Government Policies \& Incentives}) + \beta_2(\text{Investment Challenges}) \\ & + \beta_3(\text{Environmental Impact}) + \beta_4(\text{Confidence in Investment}) + \beta_5(\text{Job Creation \& Economic Impact}) \\ & + \epsilon \end{aligned}$$

Where:

- Green Investment Performance is the dependent variable
- government policies, investment challenges, environmental impact, Confidence in Investment, and job creation and Economic impact are the independent variables.
- $\beta_0$  is the intercept term,
- $\beta_1$  to  $\beta_5$  are the coefficients representing the impact of each independent variable on Green Investment Performance,
- $\epsilon$  is the error term.

This equation helps to quantify the effect of each independent variable on green investment performance, allowing for the identification of which factors most influence the success of green investments.

**Correlation Analysis:** This analysis helps to determine the strength and direction of relationships between the independent variables (e.g., government support and green investment performance) to identify significant patterns that can inform investment strategies.

These analytical techniques allowed for a deeper understanding of the complex dynamics shaping Morocco's green investment landscape, offering insights into how various factors (both quantitative and qualitative) influence green investment performance. The results of the regression and correlation analyses provided a solid foundation for making informed recommendations to improve investment strategies and policy interventions aimed at enhancing green investment outcomes in Morocco.

## 4. RESULTS

### 4.1 Results

The table 1 provides a summary of the descriptive statistics for key variables related to green investment performance in Morocco, based on data from 225 respondents. Government Policies have a mean of 3.31, indicating moderate effectiveness, with some variability in perceptions. Investment Challenges have a mean of 3.07 and a higher standard deviation of 1.51, showing significant variation in respondents' experiences. Environmental Impact is positively perceived, with a mean of 3.37 and relatively low variability. Confidence in Investment has a mean of 3.79, suggesting general confidence in green investments, though with some differences in opinion. Job Creation & Economic Impact stands out with a high mean of 3.92, indicating strong recognition of the economic benefits of green investments. The dependent variable, Green Investment Performance, has a mean of 3.43, reflecting a positive but slightly above-average assessment. Investment Factors is rated lower with a mean of 2.80, suggesting market conditions are viewed as less impactful. Government Support (mean of 3.27) is seen as moderately important, while Environmental Sustainability (mean of 3.22) is considered relevant but not dominant. Investment Performance is viewed positively with a mean of 3.79, and Incentives for Future Investment is rated the lowest, with a mean of 2.69, indicating perceived weaknesses in future incentives.

**Table 1: Descriptive Statistics**

Variable	Obs	Mean	Std. Dev.	Min	Max
GovernmentPolicies	225	3.307	1.000	1	5
InvestmentChallenges	225	3.067	1.509	1	6
EnvironmentalImpact	225	3.373	0.752	2	5
ConfidenceinInvest~t	225	3.787	0.796	2	5
JobCreationandEcon~t	225	3.920	0.820	2	5
GreenInvestmentPer~e	225	3.427	0.496	3	4
Investmentfactors	225	2.800	1.073	1	5
GovernmentSupport	225	3.271	0.820	2	5



EnvironmentalSusta~y	225	3.218	0.902	1	5
InvestmentPerforma~i	225	3.791	0.952	2	5
IncentivesforFutur~t	225	2.689	1.203	1	4

The regression analysis results in Table 2 reveal key factors influencing green investment performance in Morocco, based on data from 225 respondents. Among the independent variables, Environmental Impact ( $\beta=0.181$ \beta = 0.181\beta=0.181,  $p < 0.01$ ), Job Creation & Economic Impact ( $\beta=0.155$ \beta = 0.155\beta=0.155,  $p < 0.01$ ), and Investment Factors ( $\beta=0.119$ \beta = 0.119\beta=0.119,  $p < 0.01$ ) show strong positive relationships with green investment performance, suggesting that investments that generate environmental benefits, create jobs, and have favorable market conditions tend to perform better. Conversely, Confidence in Investment ( $\beta=-0.322$ \beta = -0.322\beta=-0.322,  $p < 0.01$ ) has a significant negative effect, indicating that low investor confidence can hinder investment success. Notably, Government Policies and Government Support did not demonstrate statistically significant impacts, as their p-values were higher than the conventional significance threshold of 0.05. The R-squared value of 0.747 shows that nearly 75% of the variation in green investment performance is explained by the model, underscoring the importance of the identified factors in driving green investment success. Additionally, the high F-test value (63.098,  $p < 0.01$ ) confirms the overall statistical significance of the model, making it a reliable framework for understanding the drivers of green investment outcomes in Morocco.

**Table 2: Regression Analysis**

GreenInvestmentPer~e	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
GovernmentPolicies	-0.042	0.027	-1.53	0.128	-0.096	0.012	
InvestmentChallenges	-0.022	0.016	-1.37	0.173	-0.055	0.010	
EnvironmentalImpact	0.181	0.045	4.01	0.000	0.092	0.270	***
ConfidenceinInvest~t	-0.322	0.049	-6.50	0.000	-0.419	-0.224	***
JobCreationandEcon~t	0.155	0.049	3.16	0.002	0.058	0.252	***
Investmentfactors	0.119	0.027	4.33	0.000	0.065	0.173	***
GovernmentSupport	0.015	0.071	0.21	0.832	-0.124	0.154	
EnvironmentalSusta~y	0.023	0.034	0.67	0.502	-0.045	0.091	
InvestmentPerforma~i	0.374	0.045	8.31	0.000	0.285	0.463	***
IncentivesforFutur~t	-0.043	0.018	-2.40	0.017	-0.078	-0.008	**
Constant	1.873	0.149	12.56	0.000	1.579	2.167	***
Mean dependent var	3.427		SD dependent var		0.496		
R-squared	0.747		Number of obs		225		
F-test	63.098		Prob > F		0.000		
Akaike crit. (AIC)	34.712		Bayesian crit. (BIC)		72.289		

\*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$

Table 3 presents the correlation matrix of key variables influencing green investment performance in Morocco. The correlations reveal interesting relationships between the factors. Government Policies shows moderate positive correlations with Investment Challenges (0.445) and Confidence in Investment (0.476), suggesting that stronger policies are linked with higher confidence and greater perceived challenges. Environmental Impact is positively correlated with Confidence in Investment (0.522) and Job Creation (0.534), highlighting the importance of environmental benefits in boosting investor confidence and economic impact. Green Investment Performance has a moderate positive correlation with Environmental Impact (0.505) and Investment Performance (0.748), indicating that better environmental outcomes and previous investment success are strongly associated with higher performance. Government Support has notable positive correlations with Confidence in Investment (0.582), Investment Performance (0.753), and Environmental Sustainability (0.644), suggesting that robust government support and sustainability efforts significantly enhance investment outcomes. On the other hand, Incentives for Future Investments shows weak to negative correlations with most variables, especially Government Policies (-0.347), indicating that respondents perceive future investment

incentives as somewhat disconnected or less impactful. Overall, the matrix highlights the complex interplay between policy, investment challenges, and performance, with government actions and environmental factors playing pivotal roles in shaping green investment outcomes in Morocco.

**Table 3: Matrix of correlations**

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) GovernmentPoli~s	1.000										
(2) InvestmentChal~s	0.445	1.000									
(3) EnvironmentalI~t	0.203	-0.038	1.000								
(4) ConfidenceinIn~t	0.476	0.116	0.522	1.000							
(5) JobCreationand~t	0.313	0.210	0.534	0.610	1.000						
(6) GreenInvestmen~e	0.122	-0.181	0.505	0.243	0.249	1.000					
(7) Investmentfact~s	0.066	-0.309	-0.067	0.159	-0.282	0.396	1.000				
(8) GovernmentSupp~t	0.181	-0.033	0.552	0.582	0.032	0.538	0.509	1.000			
(9) EnvironmentalS~y	0.173	-0.070	0.353	0.283	0.036	0.570	0.216	0.644	1.000		
(10) InvestmentPer~n	0.391	0.028	0.552	0.619	0.384	0.748	0.374	0.753	0.729	1.000	
(11) Incentivesfor~e	-0.347	-0.035	0.292	0.042	0.038	0.089	-0.048	0.317	0.174	0.126	1.000

## 4.2 Discussion

The regression and correlation results show important factors that influence green investment performance in Morocco. While government policies are seen as somewhat effective, they don't have a significant impact on performance, suggesting that better implementation and consistency are needed. Investment challenges, such as high costs and infrastructure gaps, vary among respondents, indicating that these obstacles may affect investment outcomes differently. The analysis highlights that environmental impact and job creation are important drivers of green investment success. Investments that offer environmental benefits and create jobs tend to perform better. On the other hand, investor confidence has a negative effect, suggesting that when investors lack confidence, it harms investment performance. Previous investment performance strongly influences future success, but incentives for future investment are viewed as weak. Respondents feel that current incentives are not enough to encourage further investment in green projects. In conclusion, the results suggest that Morocco needs stronger government support with better incentives and policies to reduce challenges. Building investor confidence and focusing on sustainable projects that create jobs will be key to improving green investment outcomes.

## 5. CONCLUSION

This research offers practical recommendations for tourism providers to design flexible, culturally enriching, and convenient travel experiences that align with students' needs. By leveraging both digital platforms and real-world tourism, China's tourism industry can enhance engagement and increase foreign students' participation in domestic travel.

### 5.1 Practical Contribution

This study provides valuable insights into green investment performance in Morocco, shedding light on the key factors that influence the success and challenges of such investments. The findings contribute significantly to understanding how various elements, such as government policies, investment challenges, environmental impact, and job creation, collectively shape the outcomes of green investments. The analysis reveals that while government policies are acknowledged for their role in supporting green investments, their actual impact on performance is moderate. The study indicates that while the government has established a supportive framework, policy implementation often lacks consistency and effectiveness. This suggests that although policies may exist, their real-world application is inconsistent, and a more coherent and strategic approach is required to achieve better results in terms of attracting and sustaining green investments. One of the study's most significant findings is the positive correlation between environmental impact and green investment performance. The results demonstrate that green investments that prioritize sustainability and environmental benefits tend to achieve better performance outcomes. This aligns with global trends

where investors are increasingly drawn to projects that contribute to environmental protection, particularly in renewable energy and sustainable technologies. The study underscores the importance of aligning green investments with sustainability goals, not only for achieving environmental benefits but also for enhancing investment returns. Furthermore, the research highlights the crucial role of job creation and economic development in improving green investment performance. Investments that generate employment, particularly in underdeveloped and rural areas, have a significantly positive impact on local economies and overall investment success. This finding suggests that green investments do more than just address environmental issues—they also have a direct social impact, contributing to poverty reduction, community development, and economic growth. By fostering job creation, green investments play an important role in job diversification and building resilient local economies, making them a key driver of Morocco's broader development objectives.

## 5.2 Suggestion

Based on the findings, several key suggestions can be made to enhance green investment performance in Morocco. First, government support needs to be strengthened, with more consistent and transparent policies, better implementation, and targeted incentives to attract investments, especially in underserved regions. Additionally, Morocco should focus on addressing investment challenges by reducing barriers such as high capital costs, infrastructure gaps, and regulatory delays, through financial incentives and clearer regulatory frameworks. Boosting investor confidence is also crucial, which can be achieved by showcasing successful projects, ensuring policy stability, and promoting case studies in renewable energy and sustainable technologies. Moreover, it is important to promote job-generating green projects, particularly in rural and underdeveloped areas, to amplify both the economic and social impact of these investments. Finally, incentives for future investments should be strengthened through subsidies, tax breaks, and long-term benefits to make green projects more attractive to investors and ensure continued growth in the sector. These strategies will not only improve the effectiveness of green investments but also drive sustainable economic growth and job creation in Morocco.

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