Organizational Ethical Leadership Practices and Adoption of Solar Photovoltaics in Climate-Smart Agriculture in Uasin-Gishu County, Kenya

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ABSTRACT

The study examined the influence of organizational ethical leadership practices on adopting solar energy technology in Climate-Smart Agriculture in Uasin Gishu County, Kenya. The study adopted a positivist research philosophy and descriptive correlational research design targeting the county's 240 executive, policy, legislative, and decision-making level staff as of December 2022. A census was applied to all the target population. Data was collected using a structured questionnaire and analyzed in terms of descriptive and inferential statistics using SPSS version 28. The study showed a strong positive correlation between organizational ethical practices and solar photovoltaic adoption, while the Chi-Square test results strongly associated organizational ethical practices with solar photovoltaic adoption. Regression analysis revealed that the organizational ethical leadership practices significantly predicted solar photovoltaic adoption. Thus, the study rejected the null hypothesis that organizational ethical practices did not significantly influence solar photovoltaic adoption in Uasin Gishu County, Kenya. The findings for the regression analysis after moderation showed that stakeholder perceptions significantly moderated the relationship between organizational ethical practices and solar photovoltaic adoption, and thus, the study rejected the null hypothesis that 'stakeholder perceptions did not significantly moderate the relationship between organizational ethical practices and solar PV adoption.' The results of the study indicated that the respondents agreed on the need for high-level commitment and worker empowerment and hence concluded and recommended that the Uasin Gishu County government leadership develop an appropriate reward system to recognize employees' efforts in Climate Smart Agriculture toward solar photovoltaic adoption. It further recommended that the county leadership establish codes of conduct to regulate and align with environmental, sustainability, and governance standards to support business dealings with ESG-compliant stakeholders that incorporate solar PV adoption in their mitigation measures against climate change.

Keywords: *Climate Change; Climate-Smart Agriculture; Ethical Leadership Practices; Solar Photovoltaic (PV) Adoption; Stakeholder Perceptions*

INTRODUCTION

Ethical principles are practices based on moral standards of good or right behaviors. In contrast, ethical leadership values are exhibited through personal conduct and interactive relationships, which constitute acceptable norms, and the promotion of such behavior to subordinates through mutual interaction and influence (McCann & Holt, 2009). Ethics plays a central role in the leadership process because leadership involves influence, with leaders often having more power than followers and giving them enormous ethical responsibility for how they affect others (Mihelic et al., 2010). The findings of this study indicated that leaders need to involve followers and treat them with respect and dignity for the mutual attainment of set organizational goals. The findings further showed that setting high ethical standards and ethical values through their behavior led to them earning their followers' trust and perceived integrity. Ethical Leadership requires appointing appropriately qualified experts who will contribute positively to organizational performance and corporate governance (Kumar & Zattoni, 2018). The findings of this study indicate that dominant-owner CEOs in organizations with little regard for organizational ethics and values negatively influence performance. This study was done in Asia and is specific to dominant-owner CEO organizations, and hence may have limited generalizability to other organizations and countries. An ethical organizational leader can influence an organization's corporate image, identity, and prestige. In their descriptive study, Tutar et al. (2011) looked at the leadership influence on an organization's culture and how this culture manifests itself in company image, identity, and prestige, with findings indicating that ethical leadership positively influenced corporate image and identity. However, the study was specific to one country and may not be generalizable to others. While examining the role of strategic leadership in government in Nigeria, Kowo and Akinbola (2019) noted that ethical leadership values and practices were crucial for the effectiveness of African governments and, hence, the need to develop employee behavioral competencies at all levels for the adoption of requisite personality and value orientation for improved performance based on their conduct and character.

Solar photovoltaic energy is a type of renewable energy developed to assist the transition to low-carbon and sustainable energy sources, and agri-voltaic energy is solar photovoltaic energy adopted as one of the mitigating measures to reduce the effects of climate change and its impact on agricultural production (dos Santos, & da Cunha, 2019). The Intergovernmental Panel on Climate Change (IPCC) Report of 2022 showed that the continued consumption of fossil fuels impacted nature through greenhouse gas emissions that accelerated climate change (Pörtner et al., 2022). To address this human-induced climate challenge, governments have developed policy frameworks to support solar photovoltaic adoption and other mitigation measures (Schindele et al., 2020). Solar PV adoption is influenced by strategic leadership and its dimensions of strategic direction, core competencies, HR training and development, organizational culture, organizational ethical leadership practices, and organizational controls, which further influence the constructs of solar PV adoption, namely, affordability, accessibility, and enabling environment. Wang and Feng (2022) explored how supply chain ethical leadership affected the integration of green supply chains and green organizational image, and the results indicated that supply chain ethical leadership positively impacted green organizational image and strengthened organizational strategic green policy for adopting green energy technologies.

Ethical Leadership has been demonstrated to influence employee performance and motivation positively and consequently influence the adoption of green energy technologies like solar PV. The application of ethical values positively influenced employee innovation and creativity, which also positively influenced employee commitment and ethical decision-making and thus impacted employee job satisfaction, which improved job performance through leader role modeling and empowerment (Vito & Sethi, 2020). The study findings demonstrated that applying an authoritarian leadership style led to low-quality leader-member exchange with employee feelings of exclusion, affecting job satisfaction and performance with implications for leaders and human resource managers. Ethical leaders lead by example and thus influence followers/employees to emulate them. The role of local governments in solar photovoltaic development in China showed that local government leadership influenced development at all stages by providing appropriate interventions, incentives, and ethical guidance to accelerate the production and adoption of solar photovoltaics for sustainable agricultural development (Corwin & Johnson, 2019). Compared to the developed world, only a few studies exist on the specific influence of organizational ethical leadership practices on solar photovoltaic adoption in Africa. The few available studies need to be more consistent with efforts to mitigate climate change using technologies like solar photovoltaics (Pascaris et al., 2021). Despite the availability of technologies to substitute greenhouse gas-emitting energy systems, adoption is slow due to affordability, accessibility, and a lack of a facilitative and conducive regulatory and policy environment (Pascaris et al., (2020).

Climate-smart agriculture is an integrated climate change mitigating approach to managing agricultural practices while addressing cross-sector food security challenges. To stimulate the adoption of these techniques, organizations have developed policies and strategies to improve accessibility and affordability, with Ahmad et al. (2021) confirming that supervisor ethical leadership positively influenced green employee work behavior with a positive influence on the adoption of green climate mitigation technologies like solar photovoltaics. Minimal empirical studies are, however, available on the adoption of solar photovoltaic systems in developing countries, with most being in the developed world. Statistics show that the challenges facing the adoption of solar photovoltaics in Uasin Gishu were varied, with 30% indicating cost factors, about 30% intermittent and unstable nature of solar photovoltaics, while 30% attributed this to a lack of skilled technical personnel to install and maintain solar photovoltaic units (Kimutai, 2019). However, this study did not investigate the influence of leadership, especially organizational ethical leadership practices, on solar photovoltaic adoption.

Economic, structural, political, social, technical, and regulatory barriers exist to developing and adopting renewable energy, including solar photovoltaics. Geh et al. (2022) recognized the existence of these factors in solar PV development and adoption. They inferred the need for ethical leadership through top leadership commitment and strategic guidance in reducing resistance and influencing the deployment of solar photovoltaic systems. Vinkhuyzen and Karlsson-Vinkhuyzen (2014) carried out ethical analysis using various models. They concluded that moral leadership and training were necessary to address adoption challenges by creating a clear organizational vision and motivation to change. These findings were supported by a study on the adoption of green banking practices by Bukhari et al. (2020), who found that the internal ethical environment created by leaders positively influenced adoption. Ghorbani et al. (2020) also found that ethical behavioural attitudes and leadership in solar photovoltaic adoption were critical for promoting community initiatives toward decarbonized energy generation. It is instructive to note that

compared to the developed world, only a few studies exist on the influence of organizational ethical practices on solar photovoltaic adoption in Africa and that the available studies are inconclusive on what ethical leadership practices and efforts were required to mitigate climate change using technologies like solar photovoltaics (Pascaris et al., 2021). The influence of the ethical leadership dimension was measured using three subconstructs, i.e., employee commitment, leader-worker empowerment, and leader/stakeholder ethical conduct.

This study aimed to analyze the influence of organizational ethical practices on the adoption of solar photovoltaics and the moderating influence of stakeholder perceptions on the relationship between organizational ethical practices and solar photovoltaic adoption in Uasin Gishu County, Kenya. The study considered the following research questions: What is the influence of organizational ethical leadership practices on the adoption of solar photovoltaics in Climate-Smart Agriculture in Uasin Gishu County, Kenya? and What is the moderating influence of stakeholder perceptions on the relationship between organizational ethical leadership practices and solar photovoltaic adoption in Climate Smart Agriculture in Uasin Gishu County, Kenya? The hypotheses were: Ethical leadership practices do not significantly influence the adoption of solar photovoltaics in Climate-Smart Agriculture in Uasin Gishu County, Kenya, and Stakeholder perceptions have no significant moderating influence on the relationship between organizational ethical practices and solar photovoltaic adoption in Climate Smart Agriculture in Uasin Gishu County, Kenya.

METHODOLOGY

The positivist research philosophy guided this study. This research philosophy is used to support the testing of the hypothesis and its adoption as the appropriate choice for use in this study. The study population consisted of 240 employees of Uasin Gishu County in executive, policy, legislative, and decision-making positions. The sample consisted of a census of all 240 employees in the population. A census was preferred due to the relatively small size of the target population and the need to get a larger and more representative sample and replicable data analysis results. Data was collected using a self-administered online questionnaire. The questionnaire utilized data in the study's theoretical and conceptual frameworks to summarize the constructs identified from the literature review to create a data collection instrument (Alessiani et al., 2019). The questions were in a Likert scale format with five categories such that Strongly Disagree was at one end of the continuum and Strongly Agree at the other end, that is, 5 = Strongly Disagree; 4 = Disagree; 3 = Neutral; Agree = 2 and 1 = Strongly agree. After collection, data was analyzed using descriptive statistics of frequency and percentage distribution, mean, and standard deviation. Inferential data analysis methods such as Factor analysis, Pearson's Correlation, Chi-Square test, ANOVA, and Multiple Linear regression were used to test the hypothesis. All the analysis was done using SPSS version 28. SPSS is a comprehensive statistical package for statistical analysis equipped with advanced procedures and data management capabilities capable of generating bivariate and descriptive statistics and group and numerical predictions necessary for data analysis, hence its choice for this study.

Ethical Considerations

Approval to conduct the study was sought from the supervisors. After that, and to fulfill the mandatory ethical requirements, the proposal was submitted to the Institutional Review Board (IRB) for approval, after which an application was made for a research permit from the National

Commission for Science, Technology, and Innovation (NACOSTI). License number NACOSTI/P/22/22863 was obtained on 22nd December 2022 after which permission was sought from the Uasin Gishu County leadership before the commencement of the study. Respondents were asked not to write their names on the questionnaire to maintain anonymity. The questionnaire clearly stated that participation in the survey was voluntary, and that any information given would be treated with utmost confidentiality.

RESULTS

A total of 240 were administered, with 24 for the pilot test, 216 questionnaires administered for the main data collection, and 152 responses received, representing a response rate of 70.4% in the main data collection phase.

Demographic Information

The demographic information of respondents analyzed included gender of respondents, level of education, monthly income of farmers, the position of respondent in county government, and years of service in the county government. Table 1 provides a summary of the results.

Table 1:
Demographic Results

Demographic Variables	Results	
Gender of Respondents	1 = Male	48.7%
	2 = Female	51.3%
Level of Education	1 = Doctoral degree	0.7%
	2 = Master's degree	21.7%
	3 = Bachelor's degree	42.8%
	4 = Post-secondary certificate	28.3%
	5 = Others	6.6%
Monthly Income of Farmers	1 = Below Kshs. 20,000/=	19.1%
	2 = Kshs. 20,001 to 40,000	40.1%
	3 = Kshs. 40,001 to 60,000	33.6%
	4 = Kshs. 60,000 to 80,000	5.9%
	5 = Over Kshs. 80,001	1.3%
Position in county government	1 = CEO/Deputy CEO	1.3
	2 = CEC, Speaker, Chief officer	19.1%
	3 = Director, MCA	19.7%
	4 = Clerk to CA, D/Director	15.1%
	5 = Ward rep, CSA staff, and Others	44.7%
Years of service in county government	1 = Below five years	16.4%
	2 = 6 to 10 years	46.1%
	3 = 11 to 20 years	15.1%
	4 = 21 to 30 years	8.6%
	5 = Over 30 years	13.8%

Mean and Standard Deviation for Organizational Ethical Leadership Practices

The means and standard deviations were evaluated to provide objective measures of data comparison. Analysis of responses to the research questionnaire indicated that respondents concurred that UG had created a conducive environment for solar PV adoption (*M = 2.34*, *SD = .990*) and was neutral on the development of enforceable climate-friendly ethical codes (*M = 3.03, SD = 1.345*). The Uasin Gishu County leadership responses also indicated that they felt morally

obligated and were proud to be associated with Climate Smart Agriculture for climate change mitigation (*M = 2.80, SD = 1.229)*. The leaders felt obligated to do the right for the farmers and ensure their decisions were legal (*M = 2.25, SD = .855)*. Table 2 summarizes the results.

Table 2:
Mean and Standard Deviation for Organizational Ethical Practices Dimension

Organizational Ethical Practices Dimension	N	Mean	Std Deviation
I am proud to be associated with solar adoption	152	2.35	1.246
Create a conducive environment for solar adoption	152	2.34	.990
Recognize and reward employees in CSA	152	2.77	1.344
Recognition and sense of belonging by CSA staff	152	2.80	1.527
Recognition and Employee Retention in CSA	152	2.87	1.316
Morally obligated and proud of the CSA association	152	2.80	1.229
Focus on results and motivation for solar adoption	152	2.59	.986
Employees to do right for the farmers in CSA	152	2.25	.855
Developed enforceable climate ethical codes	152	3.03	1.245
Ensure CSA decisions are lawful	152	2.23	1.070
Employees to promote the org climate interests	152	2.47	1.079
Ensure the success of employees in climate mitigation	152	2.66	1.223

Correlation Between Organizational Ethical Practices and Solar PV Adoption

Correlation Analysis was done to investigate the linear relationship between organizational ethical practices and solar PV adoption in Uasin Gishu County, Kenya. Results indicated that the organizational ethical practices had a strong positive and significant association with the solar PV adoption sub-constructs of Affordability, Accessibility and Enabling Environment, i.e., r (152) = .623, p < .05, r (152) = .648, p < .05 and r (152) = .893, p <.05 The results are summarized in Table 3.

Table 3:
Correlation between Organizational Ethical Practices and Solar PV Adoption

Organization Ethical Practice		Solar PV Adoption Dimensions			Solar PV Total
	Analysis Method	Affordability	Accessibility	Enabling Environment	
	Pearson Correlation Sig. (2-tailed) N	.623** <.001 15	.648** <.001 15	.893** <.001 15	.877** <.001 15

**Correlation is significant at the 0.01 (2-tailed)

Regression Analysis and Hypothesis Testing

Regression analysis was conducted to measure the relationship between organizational ethical leadership practices and solar PV adoption. A regression model helps to determine whether the independent variable explains the changes in the dependent variable and the extent and direction of the relationships between the variables under study. The regression analysis tested the following hypothesis:

H_{01}: Organizational ethical leadership practices do not significantly influence the adoption of solar PV in Climate Smart Agriculture in Uasin Gishu County, Kenya.

Regression Model Summary for Organizational Ethical Practices

The study results indicated that organizational ethical practices explained a significant proportion of the variance in the adoption of solar PV technology in Climate Smart Agriculture (CSA) in Uasin Gishu county, R^2 = .769. This implied that 77% of the variance in solar PV adoption in Uasin Gishu County was explained by organizational ethical practices. These findings are summarized in Table 4.

Table 4:
Model Summary for Organizational Ethical Practices

Model	R	R Square	Adjusted R Square	Std Error of Estimate
1	.877[a]	.769	.767	10.70438

a. Predictors: (Constant), Organizational Ethical Practices
b. Dependent Variable: Solar PV adoption

Analysis of Variance for Organizational Ethical Practices Dimension

The results of the ANOVA determined that the relationship between organizational ethical practices and solar PV adoption was significant, F (1, 150) = 499.271, p < .05. Thus, the overall model was statistically significant in associating organizational ethical practices and solar PV adoption in Climate Smart Agriculture in Uasin Gishu County, Kenya. These results also indicate that organizational ethical practices were a good predictor of solar PV adoption. It is thus concluded that the model was significant in explaining the relationship between the variables and that, based on the significance of the F- statistic, the null hypothesis was rejected. The results are illustrated in Table 5.

Table 5:
Regression ANOVA for Organizational Ethical Practices Dimension

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	57208.427	1	57208.427	499.271	<.001[b]
Residual	17187.573	150	114.584		
Total	74396.000	151			

a. Dependent Variable: Solar PV adoption
b. Predictors: (Constant), Organizational Ethical Practices

Regression Coefficient for Organizational Ethical Practices Dimension

Multiple linear regression was conducted to assess the magnitude and direction of the association between organizational ethical practices and solar PV adoption. The results of the study showed that organizational ethical practices significantly predicted solar PV adoption in Climate Agriculture (CSA) in Uasin Gishu, Kenya, $\beta = 1.855$, $t\ (152) = 22.344$, $p < .05$. The results implied that a unit increase in organizational ethical practices led to an increase of 1.855 in solar PV adoption in Climate Smart Agriculture in Uasin Gishu County. These findings indicate that organizational ethical practices significantly predicted solar PV adoption in Climate Smart Agriculture (CSA) in Uasin Gishu County. The findings are summarized in Table 6.

Table 6:
Regression Coefficient for Organizational Ethical Practices Dimension

Model		Unstandardized Coefficients		Standard. Coefficients	t	Sig.
		B	Std Error	Beta		
	(Constant)	30.692	2.729		11.247	<.001
	Organizational Ethical Practices	1.855	.083	.877	22.344	<.001

a. Dependent Variable: Solar PV adoption

Mean and Standard Deviation for Stakeholder Perceptions

The study examined how stakeholder perceptions influenced solar PV energy adoption in Climate Smart Agriculture (CSA) in Uasin Gishu County, Kenya. The means and standard deviations were evaluated to provide objective measures of data comparison.

Mean and Standard Deviation for Stakeholder Perceptions

From the analysis of research questionnaire data, respondents all concurred that climate change has influenced agricultural production in Uasin Gishu County, with all the item Standard Deviations being below M = 3. The respondents concluded that climate change had affected agricultural production and reduced crop yields (*M = 1.66, SD = .652).* The respondents further agreed with the perception that climate change had led to reduced farming activities (*M = 1.68. SD = .786)* and that climate change mitigation efforts would lead to increased crop yields (*M = 2.13, SD = .954).* Table 7 summarizes the results.

Table 7:
Mean and Standard Deviation for Stakeholder Perceptions (Leader Perception of Influence of Climate Change on Agri Production)

Stakeholder Perceptions (Effect on agricultural production).	N	Mean	Standard Deviation
Climate change effects on Agricultural production	152	1.66	.652
Reduced crop yields due to climate	152	1.67	.905
Other effects of variations in climate	152	1.71	.725
Perception of reduced farming activities	152	1.68	.786
Climate mitigation led to a crop yield increase	152	2.13	.954
Have an active climate mitigation strategy	152	2.49	1.092
Adopt climate mitigation for higher crop	152	1.97	.986
Perceived control of climate increases productivity	152	1.92	.987

Mean and Standard Deviation for Stakeholder Perceptions

All the analyzed statistics under the 'Acceptance of climate change sub-construct had a mean of below 3, confirming that there was a general acceptance that climate change was real for all the items put to respondents. The respondents accepted that climate change had affected them, and that the public was aware of solar PV energy (*M = 1.68, SD = 1.438)*. The respondents also concurred that their acceptance of climate change was based on expert interpretation of climate data (*M = 2.18, SD = 1.124)*. The county leadership/respondents were also of the opinion that there was slow acceptance of climate change amongst the farming communities in Uasin Gishu County (*M = 2.53, SD = 1.302).* Furthermore, the respondents agreed that their acceptance of climate change was due to socio-environmental factors and competition for water from other uses other than agriculture (*M = 1.96, SD = .962).* Table 8 summarizes the results.

Table 8:
Mean and Standard Deviation for Stakeholder Perceptions (Leader Acceptance of Climate Change).

Stakeholder Perceptions (Acceptance of Climate Change)	N	Mean	Std Deviation
Climate change affects me	152	1.68	1.438
Public awareness about solar	152	2.39	1.438
Aware of green energy sources	152	1.84	1.019
Farmers accept the reality of climate change	152	1.84	.756
Farmers reluctant to use climate adaptation	152	2.55	1.311
Local influence on farmer acceptance	152	1.95	.779
Farmer acceptance due to perceived impacts	152	2.08	1.071
Acceptance due to interpretation of climate data	152	2.18	1.124
Slow Acceptance of Climate Change	152	2.53	1.302
Farmer Behavioral Attitudes in Acceptance	152	1.99	.876
Acceptance due to socio-environmental factors	152	1.96	.962
Competition for water affects Acceptance	152	2.43	1.096

Mean and Standard Deviation for Stakeholder Perceptions

Analysis indicated that all respondents agreed that there was a Climate change risk perception among leaders. Responses to the questionnaire items indicated that the means of the responses were below M = 3. The respondents indicated their risk perceptions were due to health problems, temperature changes, and drying water sources (*M = 2.20, SD = 1.14).* They also agreed that their risk perception was influenced by farmer attitudes, existing climate adaptation plans, and pre-disposal to climate risks (*M = 2.26, 1.142)*. Table 9 summarizes the results.

Table 9:
Mean and Standard Deviation for Stakeholder Perceptions (Leader Climate Change Risk Perception)

Stakeholder Perceptions (Risk Perceptions)	N	Mean	Std Deviation
Perceived climate risks affect me	152	1.74	.836
Increased disasters due to climate change	152	1.58	.656
Drying water sources due to climate change	152	1.50	.609
Embraced mitigation to adapt to climate	152	2.05	.951
Temperature changes increase risk perception	152	2.16	.929
Health problems influence risk perception	152	2.20	1.140
Decreased rainfall increases risk perception	152	1.95	.995
Riverbank erosion influences risk perception	152	2.32	1.166
Extreme temperatures influence risk perception	152	2.26	1.020
Farmer attitudes influence risk perception	152	2.26	1.142
Climate adaptation plans for risk mitigation	152	2.38	1.133
Predisposed to climate risks and perceptions	152	2.04	.788

Correlation Between Stakeholder Perceptions and Solar PV Adoption

Correlation Analysis was done to investigate the relationship between Stakeholder Perceptions and solar PV adoption in Uasin Gishu County, Kenya. Results indicated that the Stakeholder Perceptions had a strong positive and significant association with the overall solar PV adoption and its subconstructs of Affordability, Accessibility and Enabling Environment i.e., r (152) = .568,

p < .05, r (152) = .673, p < .05, r (152) = .703, p < .05 and r (152) = .767, p < .05. The results of the correlation analysis are summarized in Table 10.

Table 10:
Correlation between Stakeholder Perceptions and Solar PV Adoption

Stakeholder Perceptions and Solar PV Adoption					
	Analysis Method	Affordability	Accessibility	Enabling Environment	Solar PV Total
Stakeholder Perceptions	Pearson Correlation Sig. (2-tailed) N	.568** < .001 152	.673* <.001 152	.703** <.001 152	.767** <.001 152

**Correlation is significant at the 0.05 (2-tailed)
*. Correlation is significant at the 0.05 level (2-tailed).

Regression Analysis and Hypothesis Testing After Moderation with Stakeholder Perceptions

Regression Analysis was conducted to establish whether stakeholder perceptions moderated the relationship between organizational ethical practices and solar PV adoption in Climate Smart Agriculture (CSA) in Uasin Gishu County, Kenya. The following hypothesis was tested:
H_{02}: Stakeholder Perceptions do not significantly moderate the relationship between the organization's ethical practices and solar PV adoption in Uasin Gishu County Climate Smart Agriculture (CSA).

Regression Model Summary for Organizational Ethical Practices and Solar PV Adoption after Moderation

The results from the regression model summary explain the variations in the dependent variable (solar PV adoption) because of the independent variable (organizational ethical practices). The results in Table 11 show that stakeholder perceptions caused a variation in the influence of organizational ethical practices on solar PV adoption from 76.9% before moderation to 82.6% after moderation in moderating the relationship between organizational ethical practices and solar PV adoption.

Table 11:
Regression Model Summary for Organizational Ethical Practices and Solar PV after Moderation

Model	R	R Square	Adjusted R Square	Std Error of Estimate
1	.909[a]	.826	.823	9.34891

a. Predictors: (Constant), Stakeholder perceptions, Organizational ethical practices, Moderating Composite.
b. Dependent Variable: Solar PV adoption

Regression ANOVA after Moderation

The analysis of variance after moderation shows that the model used in linking Stakeholder Perceptions to solar PV adoption was statistically significant, F (3, 148) = 234.398, p < .05. The significance p-value was lower than the conventional probability of 0.05 significance level ($p \leq$ .05) set for this study. The results in Table 12 further demonstrate that the overall model was significant in associating stakeholder perceptions, organizational ethical leadership practices, and solar PV adoption in Uasin Gishu County, Kenya. The findings also indicated that stakeholder perceptions were a good predictor of organizational ethical practices and solar PV adoption in Uasin Gishu County. The study thus concluded that the model was significant in explaining the

relationship between the independent variable of organizational ethical practices and the dependent variable of solar PV adoption. Based on the significance of the F-statistic, the null hypothesis that "stakeholder perceptions do not have a significant moderating influence on the relationship between organizational ethical practices and solar PV adoption in Uasin Gishu county, Kenya," was rejected.

Table 12:
Regression ANOVA for Organizational Ethical Practices and Solar PV Adoption after Moderation

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	61460.498	3	20486.833	234.398	<.001[b]
Residual	12935.502	148	87.402		
Total	74396.000	151			

a. Dependent Variable: Solar PV adoption
b. Predictors: (Constant), Stakeholder perceptions, Organizational ethical practices, Moderating Composite.

Regression Coefficient for Organizational Ethical Practices and Solar PV Adoption after Moderation

The regression coefficient refers to the gradient indicated by the linear relationship between the independent and dependent variables. Multiple linear regression was conducted to determine the magnitude and direction of the relationship between organizational ethical leadership practices and solar PV adoption. The results of the study showed that organizational ethical leadership practices significantly predicted solar PV adoption in Climate Agriculture (CSA) in Uasin Gishu, Kenya, $\beta = 1.855$, $t\ (152) = 22.344$, $p < .05$ before moderation and $\beta = .717$, $t\ (152) = 3.975$, $p < .05$. The results implied that a unit change in organizational ethical practices led to a change in solar PV adoption from $\beta = 1.855$ before moderation to $\beta = .717$ after moderation. As a result, the study concluded that organizational ethical leadership practices significantly predicted solar PV adoption in Climate Smart Agriculture (CSA) in Uasin Gishu County. The study findings also showed that stakeholder perceptions had a significant adverse effect on solar PV adoption in Climate Smart Agriculture in Uasin Gishu county, Kenya, $\beta = -.455$, $t\ (152) = -3.397$, $p < .05$. This implied that a unit increase in stakeholder perceptions would lead to a decrease in solar PV adoption in Uasin Gishu county, Kenya. Stakeholder perceptions also significantly influenced the relationship between organizational ethical practices and solar PV adoption, $\beta = .003$, $t\ (152) = 6.218$, $p < .05$. The results are shown in Table 13.

Table 13:
Regression Coefficient for Organizational Ethical Practices and Solar PV Adoption after Moderation

Model		Unstandardized Coefficients		Standard. Coefficient	t	Sig.
		B	Std Error	Beta		
	(Constant)	58.446	6.185		9.449	<.001
	Org Ethical Practices	.717	.180	.339	3.975	<.001
	Moderating Composite	.003	.000	.902	6.218	<.001
	Stakeholder perceptions	-.455	.134	-.348	-3.397	<.001

a Dependent variable: Solar PV adoption.

DISCUSSION

Influence of Organizational Ethical Practices on Solar PV Adoption

The study's objective was to determine the influence of the organizational ethical practices dimension of strategic leadership on solar PV adoption in Climate Smart Agriculture in Uasin Gishu County, Kenya. A correlation analysis carried out between organizational ethical practices and solar photovoltaic adoption indicated that organizational ethical practices dimension was significantly and positively related to solar photovoltaic adoption, r (152) = .877, $p < .05$. These results agree with the views of (Huda, 2019) who confirmed that professional and ethical engagement had a positive influence on technology adoption through enhanced employee commitment and improved job performance with positive consequences on climate change mitigation efforts and sustainable agriculture.

The Chi-Square test further revealed that the Organizational Ethical practices dimension was strongly associated with solar photovoltaic adoption, χ^2 (2077, N = 152) = 2025.347, $p < .05$. This finding concurs with that of Qing et al. (2020), who examined the influence of ethical leadership on employee attitudes such as affective commitment and job satisfaction with findings concluding that a positive relationship existed between ethical leadership and employee attitudes. The results confirm that employee commitment has become increasingly important for organizations such as Uasin Gishu County to retain talented employees and ensure sustainable organizational performance in their Climate-smart agriculture programs. It was, however, noted that no incentives were given to employees and stakeholders involved in the Climate-smart agriculture program in the county.

The multiple linear regression results for the organizational ethical practices dimension indicated that it significantly predicted solar PV adoption, R^2 = .769, F (1,150) = 499.271, $p < .05$; $\beta = 1.855$, $p < .05$. The results thus showed that the organizational ethical practices dimension was a good predictor of solar PV adoption in Uasin Gishu County. A research study to explore the determinants of technology adoption (Van Dun & Kumar, 2021) concluded that the ethical leadership elements in transformational leadership positively and significantly influenced solar photovoltaic adoption and confirmed that an increase in the ethical practices dimension would increase and was essential for solar PV adoption in Climate-smart agriculture in Uasin Gishu, County. Leader role modeling through transformational leadership impact on front-line employees to determine the effect on worker performance was examined by Buil et al. (2019), with results indicating that the significance of leader role modeling could be attributed to the realization that followers were inclined to emulate positive and ethical leader behavior if they derived a sense of pride in following the leader while negative leader behaviors were associated with adverse follower outcomes such as poor leader-member exchanges. This study has implications for recruiting managers with appropriate ethical and transformational orientation; however, the empirical study was cross-sectional, but a longitudinal study could have provided a better insight and understanding of the relationships under study. Fatemi et al. (2020) examined how ethical codes of conduct affected ethical climate, employee commitment, quality of work, and ethical decision-making by employees in an organization, and results indicated that ethical values, employee innovation, and creativity positively influenced employee commitment and improved ethical decision making, leading to improved organizational performance and hence the need for organizations to develop ethical codes that would positively influence employee attitudes such as employee commitment.

Moderating Influence of Stakeholder Perceptions on the Relationship Between Organizational Ethical Leadership Practices and Solar PV Adoption

This study sought to determine whether stakeholder perceptions moderated the relationship between organizational ethical practices and solar PV adoption in Uasin Gishu County, Kenya. Findings from correlation analysis indicated that stakeholder perceptions had a strong and positive relationship with solar photovoltaic adoption r (152) = .767, p < .05. The Chi-Square test of association found that the two variables were strongly associated, χ^2 (3618, N = 152) = 3751.939, p < .05. The study findings also showed that stakeholder perceptions had a significant negative influence on solar PV adoption in Climate Smart Agriculture in Uasin Gishu County, Kenya, β = -.455, t (152) = -3.397, p < .05. This implied that a unit increase in organizational ethical practices would lead to a decrease in solar PV adoption in Uasin Gishu County, Kenya. Stakeholder perceptions significantly influenced the relationship between organizational ethical leadership practices and solar PV adoption in Uasin Gishu County, Kenya, β = .003, t (152) = 6.218, p < .05. This study reviewed the influence of three sub-constructs of stakeholder perceptions, namely, leader perception of the influence of climate change on agricultural production, leader acceptance of climate change, and leader risk perception of climate change. Fierros-Gonzalez and Lopez-Feldman (2021) contended that climate change perception is a complex and elaborate process that includes several psychological constructs such as knowledge, beliefs, attitudes, and concerns about how the climate is changing and that for agricultural producer stakeholders to adopt any mitigation measures, they need to perceive that climate change is real and will continue to change in the future and that the change will be significant enough to warrant the change. The authors in this study indicated that farmer perception of climate change was changing but still limited and that available research has mainly been based on qualitative analysis of case studies with further longitudinal research needed to establish causal relationships and understand farmer perceptions. This view was supported by Fanzo et al. (2018), who opined that food systems would be negatively affected unless farmer perceptions of climate change and mitigation measures were considered at the initial stages. Kukal and Irmak (2018) researched stakeholder perceptions on the effect of climate variability on agricultural production, and results indicated that crop yields fell below the national average due to climate change.

Perception on acceptance of climate change indicated that it was now broadly accepted as a reality, as opined by Mitter et al. (2019), who, however, indicated that farmer acceptance of climate change reality was slow and dependent on the prevailing local conditions that influenced their behavioral attitudes based on socio-environmental and cognitive interpretation of climate information. Leader acceptance of climate change influenced farmer acceptance and public attitudes towards mitigation measures to be adopted (Ricart et al., 2018). Based on secondary data from various sources, the authors further argued that awareness of climate change at the farm level and perception trends influenced farmer acceptability and attribution to human activity and acceptance of climate change as real and occurring. The study also found that the greater the years of farming experience, the greater the rate of climate change awareness. The study targeted the public and farmers; thus, the results may not be generalizable to leader perceptions.

Risk perception of natural disasters was researched by Chowdhury et al. (2020), who examined the risk perception of the impacts of climate change caused by erosion of riverbanks and cyclones that led to the relocation of people and posing health risk challenges for the affected parties. The risk perception was influenced and perceived through the physical and devastating effects of natural calamities caused by climate change (Hussain et al., 2020). The study further reviewed the influence of climate change on the adaptation and mitigation actions for solar PV and other green energy options. This study in Pakistan, a country with low climate change mitigation adaptive capacity and limited financial resources, indicated that Pakistan would continue to suffer the effects of climate change for the foreseeable future. The peculiar nature of the conditions obtaining in Pakistan means that the study's findings may not be generalizable to other countries. Chandel et al. (2022) looked at the beliefs and perceptions of Ethiopian pastoralists on the changes in the region's climate manifestations. They concluded that the pastoralists were aware of climate change and the likely risks. The authors noted that this awareness led to acceptance of the likely risks due to climate change and better preparedness for mitigation strategies to hedge against the risks, thus confirming the need for Uasin Gishu County to take cognizance of stakeholder perceptions in their decisions on the Climate-smart agriculture program.

Conclusion (s)

The study investigated and determined the influence of organizational ethical leadership practices on the adoption of solar photovoltaic energy, and the results confirmed that the organizational ethical leadership practices dimension had a significant influence on solar PV adoption in Uasin Gishu County, Kenya. The multiple linear regression results indicated that the organizational ethical leadership practices could explain the changes in solar PV adoption. They confirmed that organizational ethical leadership practices were a good predictor of solar PV adoption in Uasin Gishu County. The study results further showed that stakeholder perceptions significantly negatively influenced solar PV adoption in climate-smart agriculture in Uasin Gishu County, Kenya. At the same time, stakeholder perceptions were also found to significantly influence the relationship between organizational ethical leadership practices and solar PV adoption in Uasin Gishu County, Kenya

Recommendation (s)

Based on the data analysis and findings, the study recommended that to engender ethical leadership concepts of employee commitment and worker empowerment in the Climate-smart agriculture program, the Uasin Gishu County government leadership should develop an appropriate incentive mechanism to recognize, appreciate, and reward the efforts of employees for improved solar photovoltaic adoption. The study further recommends that the Uasin Gishu County leadership develops ethical codes of conduct to regulate business dealings and give preference to stakeholders that meet ESG reporting standards as a measure for climate mitigation support and compliance.

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