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Relationship between Green Technology Strategies on Performance of Tea Processing Firms in Nandi County, Kenya

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Abstract
Common sustainability issues facing firms all over the globe in modern business include: climate change and global warming, decline in the number of basic production natural resources pollution control and a demand for goods and services which are environmentally friendly. Therefore, firms have to implement green manufacturing strategies for them to meet these green demands. The concept has been adopted therefore in developed countries but remains a challenge in developing countries; a need for more studies in the area. The overall objective of this study was to determine the relationship between green technology strategies and performance of tea processing firms in Nandi County, Kenya. This study adopted correlation survey research design. The target population was 19 tea processing firms in Nandi County while the sample size was 75 managers from 15 tea processing firms. The study adopted both stratified and simple random sampling techniques. The data was collected using both questionnaires and a document analysis guide. Content validity was assessed based on the supervisor's opinion while reliability was measured using Cronbach's alpha. Data was analyzed using both descriptive and inferential statistics. The research found that green technology ($\beta = 0.155$, $p < 0.05$) significantly related to performance. The study concluded that green technology have a positive relationship with performance. The study made the following recommendations that the firm's should adopt green energy as the alternative source of energy and use of green energy more than any other source of energy.
Key words: *Green Technology Strategies, Performance, Kenya*

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I. Introduction

Green manufacturing has been adopted in the tea sector around the globe because it helps to improve the performance as well as sustainability in line with the sustainable development goals (Kustanti & Widiyanti, 2017). In Turkey, tea processing firms recently diversified into green tea (Ercişli, 2019). The tea sector utilizes renewable energy such as solar in its various forms, wind, biomass, hydro and geothermal (Dasanayaka, 2012). The country's geographical location has several advantages for extensive use of most of the renewable energy sources. Solar energy, which is quite abundant, has been adopted in tea processing. Acceleration of this development through a more intensive investment program has substituted much of the electricity load and reduced the need for imported fossil fuels consequently reducing operational costs (Demirbas, 2012). Green technology has also been adopted in the Indonesian tea sector in a bid to cut on operational costs as well as improve on the performance (Sudarsono, Widiatmaka & Yahya, 2017). There has been an increase in the use of renewable energy, especially thermal energy, in tea processing (Kustanti & Widiyanti, 2017). Their products are biodegradable and hence environment conscious. All these aspects have contributed to an improvement in the overall performance of tea processing firms in the country (Sudarsono, et al., 2017).

In Sri Lanka, green technology has been adopted in the tea sector (Brain, Upton & Tingey, 2015). Biomass is the alternative source of energy in Sri Lanka's tea industry. Kustanti and Widiyanti (2017), opine that the adoption of green manufacturing practices has contributed to growth as well as boosted performance of the tea processing firms. Green manufacturing practices have guided the tea sector, to focus on their products from cradle to grave (Dasanayaka, 2012). Various green technologies have been adopted in the tea sector in Malawi. The technologies range from machines, innovations as well as automations (Du Toit, Nankhuni & Kanyamuka, 2018). In the last 5 years, the tea industry has worked towards reduction in effluent emission by adoption of environmentally friendly green production processes (Gamula, Hui & Peng, 2013). As much as renewable energy has not fully been adopted by all tea processing firms, the spirit is there and for most of the tea processing firms that have adopted renewable energy, the firms have ended recording an improvement in their performance (Du Toit et al., 2018).

Green technology in the tea industry in Kenya, has been adopted to harvest tea leafs as opposed to manual labour (Ongonga, 2013). This has led to an increase in the overall output as a result of minimized labour costs as a cost cutting measure. Plucking machines have been introduced in most tea producing counties in Kenya to cut down on production cost. For example, tea harvesting has been mechanized in Williamson Tea, Sotik Tea, Finlay, Unilever and Kipkebe which operates in Kericho, Nandi, Bomet and Nyamira counties (Omuga, Olubandwa & Wanga, 2016). The machines consume less fuel and is managed by one person who can do work for more than 20 tea pickers cutting down on the cost of production by a greater margin (Kimutai, 2016). According to Nordman (2014), tea firms have also adopted renewable energy, health and safety standards as well as asset management. This has then led to reduction in their operational costs and hence improving revenues. In Nandi County, Tea is the main export cash crop and a source of income for the majority of its residents (Tanui, Feng, Wang & Kipsat, 2020). In the last decade, the tea processing firms in the County have been experiencing performance challenges (Tanui, *et al*., 2020). Nandi County has experienced adverse fluctuations in tea productivity for the past twelve years (Kavoi, Owuor, Siele & Oluoch-Kosura, 2015). This trend has persisted irrespective of efforts by tea companies and farmers to device methods and techniques to counter it (TBK, 2011). Tea processing firms in the County have been hit by a downward trend in prices against the backdrop of rising production costs, the highest being labor costs (Kavoi et al., 2015). Since 2004, tea processing firms in Nandi have been adopting innovative strategies in creating product design and in production technology with hope of improving their productivity (TRFK, 2018). The current study therefore seek to determine the relationship between adoption of green technology strategies and performance of tea processing firms in Nandi County, Kenya.

1.1 Statement of the Problem

Performance can result into either business success or failure. Tea processing firms are supposed to record better performance for their sustainability as well as yielding returns for the investors in the sector. Additionally improved performance of firms will generate more income to the government, create more employment to the community and farmers will get increased earnings on their produce. Despite the aforementioned benefits, tea processing firms have been recording declining performance as well as high operational costs in the last 5 years (Kiptoo, 2017). For example, in 2019, most of tea processing firms recorded high operational costs which made most of these firms not to break-even (KTDA, 2020). As a result, farmers have been receiving poor returns and wide variation of bonus payment from one tea processing firm to another. For instance KTDA managed factories dividends payout to famers has declined from Ksh.28.8 billion in 2018 to Ksh.27.6 billion in 2019. All these are indicators of a sector that is experiencing performance decline (Davis, 2019).

The declining performance if left unattended will not only lead to loss of income to the government and loss of employment to the members of the community. The green manufacturing strategies adopted should lead to improvement in the performance of tea processing firms. But this is not the actual situation on the ground, Nordman (2014), opines that besides adoption of green manufacturing strategies, poor performance is still experienced in the tea industry in Kenya. The current study therefore sought to determine the relationship between green manufacturing strategies and performance of tea processing firms in Nandi County, Kenya. A vast amount of sustainability literature have attempted to link green strategies to performance (Muma et al., 2014; Wanyoike & Kipkorir, 2015; Tanui et al., 2020). However the results have been contentious. While some (Muma et al., 2014) posted positive relationship between green strategies and performance other studies (Wanyoike & Kipkorir, 2015; Tanui et al., 2020) found negative or no association between particular green manufacturing strategies and performance. For this reason this study sought to determine the relationship between green technology strategies and performance of tea processing firms in Nandi County. Section 2 covers literature review & hypothesis development, section 3 covers research design and methodology, section 4 covers results & discussion and section 5 covers conclusions & recommendations.

II. Literature Review & Hypothesis Development

2.1 Green Technology and Performance of Tea Firms

Syanda and Getuno (2019), researched on the influence of green technology on performance of tea processing firms in Kenya. The study adopted a descriptive research design. The target population was heads of procurement and finance in the 66 tea processing firms in Kenya. The study did a census of all the 66 tea processing firms. Primary data was collected using both questionnaires and interview schedule. The study adopted both descriptive as well as inferential statistics. The descriptive statistics adopted in the study were; percentage, frequencies, mean and standard deviation. Inferential statistics were both correlation and regression analysis. Correlation results revealed that green technology has a strong positive relationship with performance of tea processing firms in Kenya. The study did not incorporate infrastructures which the current study sought to

incorporate. In addition the researcher adopted a descriptive research design and used census method while the current study was anchored in correlation research design and stratified random sampling method.

Rorugu and Bett (2018), researched on green technology adoption and performance of tea processing companies in Kericho County. The study target population was 164 employees. The sampling techniques adopted in the study were both stratified and systematic random sampling techniques. Data was collected using both questionnaires and interview schedules. The study was analyzed using both descriptive and inferential statistics. The descriptive statistics adopted in the study were; percentage, frequencies, mean and standard deviation. Inferential statistics were both correlation and regression analysis. The study results revealed that adoption of green technology has a strong positive relationship with performance of tea processing companies. Their study did not incorporate green energy as an aspect of green technology which the current study sought to incorporate. Additionally the researcher in the current study also adopted a simple random sampling technique and not systematic random sampling like the reviewed study above. Ngatia (2011), researched on green technology practices and performance of Kenya tea development agency managed factories. The study adopted a descriptive survey research design. Target population was 63 targeted factories while the sample size was 40 tea factories. The data collection instruments considered in this study were questionnaires and interview schedule. The data was analyzed using descriptive statistics and inferential statistics. The descriptive statistics adopted in the study were; percentage, frequencies, mean and standard deviation. Inferential statistics were both correlation and regression analysis. The study results revealed that green technology practices have a strong positive relationship with performance of Kenya tea development agency managed factories. The study did not incorporate machines which the current study sought to incorporate. Also the researcher of the study focused only on KTDA managed firms using descriptive survey design while the current study focused on different types of tea firms using correlation survey design.

Njagi (2019), researched on the impact of machines on performance of Kenya Tea Development Agency managed factories. The study adopted an explanatory research design. The target population was 65 factories while the sample size was 63 factories. Primary data was collected using questionnaires. The study adopted both descriptive statistics as well as inferential statistics. The descriptive statistics adopted in the study were; percentage, frequencies, mean and standard deviation. Inferential statistics were both correlation and regression analysis. The study results revealed that machines have a strong positive association with performance of Kenya Tea Development Agency managed factories. The study did not consider green energy which the current study seeks to incorporate. The researcher of this study adopted an explanatory research design while the current study was anchored by correlation survey design on private firms, parastatals and KTDA managed firms in Nandi County. Ogachi (2017), researched on the effects of machines on performance of Itumbe tea factory. The study used a descriptive research design. Target population was 100 respondents while the sample size was 30 employees. The sampling technique adopted in the study was simple random sampling technique. Primary data was collected using questionnaires. The data was analyzed using both descriptive statistics as well as inferential statistics. The descriptive statistics adopted in the study were; percentage, frequencies, mean and standard deviation. Inferential statistics were both correlation and regression analysis. The study results revealed that machines have a strong positive relationship with performance the tea factory. Besides machines, the study did not incorporate infrastructures which the current study sought to incorporate. The researcher focused on a single tea firm while the current study used several types of tea firms operating in Nandi County.

Sezen and Sibel (2013), researched on the effects of infrastructures on sustainability performance. Firms are facing growing pressure to become greener or more environmentally friendly. Consequently, firms have had to review their production processes as a result of pressures from the community and governments. Data were collected through a questionnaire-based survey across 53 companies the tea sector in Turkey. The empirical model was tested using regression analysis, to verify the hypothetical relationships of the study. The results of this study indicate that infrastructures have a strong positive relationship with performance of tea firms. The current study sought to incorporate green energy which was not considered in their study. The study was also carried out in Turkey while the current study was in Kenya using correlation survey research methodology. Tuochen et al. (2018), did a study on the influence of infrastructures on performance of China's Provincial High-End tea Industry. The study used panel data from 2010 to 2015 on China's high-end manufacturing industry. The study was analyzed using both descriptive statistics as well as inferential statistics. The descriptive statistics adopted in the study were; percentage, frequencies, mean and standard deviation. Inferential statistics were both correlation and regression analysis. The study results revealed that infrastructures have a strong positive relationship with performance of China's Provincial High-End tea Industry. The current study sought to incorporate machines which was not incorporated in their study. In addition the current study also incorporated different types of tea firms in Nandi County Kenya. Literature reviewed led to the development of the following hypothesis.

H0₁: *There is no significant relationship between use of Green technology and performance of tea processing firms.*

III. Research Design and Methodology

This study adopted a correlation survey research design. A correlational research design measures a relationship between two variables without the researcher controlling either of them (Greene, 2008). This research design was suitable for this study, because the current study sought to establish the relationship between green manufacturing strategies and performance of Tea processing Firms in Nandi County, Kenya. Target population refers to the larger population to which the researcher ultimately would like to generalize the results of the study (Hyndman, 2014). It is thus the entire group of individuals, events or objects having common observable characteristics. The target population in this study was nineteen tea processing firms. Sample size of the study was 15 tea processing firms arrived at by use of Yamane (1964) sample determination formula. Out of the 15 tea processing firms, the researcher further targeted five managers from each firm, these summed up to 75 respondents. The researcher used stratified random sampling techniques. The stratification was based on management levels that is, top level and middle level managers in the 15 tea firms in Nandi County. Within each stratum, the researcher used simple random sampling method to give all managers equal opportunity when selecting the respondents. This way the researcher has allocated and grounded the sample proportionally to the population in each strata.

The study used questionnaires and document analysis guide to enable the collection of relevant and reliable data. The study used structured questionnaire to collect primary data and document analysis guide for secondary data. The study adopted content validity which were validated by seeking the opinions of research experts; in this study the supervisor's opinions was sought. The study the researcher adopted Cronbach's Alpha (α) model which is;

$$\alpha = \left(\frac{k}{k-1}\right)\left(1 - \frac{\sum_{i=1}^{k}\sigma_{y_i}^2}{\sigma_x^2}\right)$$

$$where \quad k = number \quad of \quad scale \quad items$$

$$\sigma_{y_i}^2 = \text{var}\,iance\ associated\ with\ i$$

$$\sigma_x^2 = \text{var}\,iance\ associated\ with\ the\ observed\ total\ scores$$

A coefficient of zero implies the tool has no internal consistency while that of one implies complete internal consistency (Hyndman, 2014). Creswell (2018), indicates that a reliable research instrument should have a complete Cronbach Alpha Reliability Coefficient of at least 0.7 for all items under study; where Alpha < 0.7, the research instruments will be revised before going for field work to acceptable levels. According to the pilot study that was conducted in Mbogo valley and Sang'alo tea manufacturing firms in Nandi county where ten employees were involved, the Cronbach Alpha coefficients of the variables i.e. green technology >0.708, hence the results indicated that questionnaire were reliable. The study ensured that there was no inaccurate coding and ambiguous instructions by using a research process that minimize the random error, examining and appraising the questionnaire critically to enhance the reliability of the instrument. The researcher used quantitative analysis after collection of data from the field.The researcher screened questionnaires to determine if they were properly filled.Coded the properly filled forms after sorting them out. Then entered information to SPSS for analysis followed. Lastly the data obtained was organized both descriptively and inferentially analyzed. Descriptive statistics such as frequencies, percentages, means and standard deviation was used. The study employed Pearson Correlation to test the relationship between the variables. The study also employed regression analysis to test the hypotheses. Regression analysis was used to determine the influence of the independent variable on the dependent variable. The regression model was as follows:

$Y= \beta_0 + \beta_1 X_1 + \varepsilon$

Where; Y= the dependent variable (performance of tea processing firms), β_0= Y intercept, β_1 = regression coefficient, X_1 = green technology while ε = error term.

IV. Results & Discussion

4.1 Demographic Information

This section presents the demographic characteristics of the respondents in the study. These include; gender, highest level of education, duration of time while working at the tea firm, type of ownership of the firm and designation in the firm. The results were as presented in Table 1:

Table 1: Demographic Information of the Respondents

n=71		Frequency	Percent
Gender	Male	44	62.0
	Female	27	38.0
Highest level of education	Certificate	3	4.2
	Diploma	24	33.8
	Undergraduate	22	31.0
	Graduate	9	12.7
	Others	13	18.3
Duration while working at the tea firm	< 5 years	3	4.2
	6-10 years	26	36.6
	11-15 years	12	16.9
	• Ears	18	25.4
	>20 years	12	16.9
Ownership of the Firm	KTDA	5	7.0
	Private	56	78.9
	Parastatal	10	14.1
Designation in the Firm	Top level manager	12	16.9
	Middle level manager	18	25.4
	Low level manager	41	57.7

The study sought to establish the gender of the respondents. The study results revealed that 44 (62.0%) of the total respondents were male while 27(38.0%) were female. This implies that majority of the respondents were male. The study also sought to determine the respondents' highest level of education. The construct was operationalized using; certificate, diploma, undergraduate, graduate and others. Majority of the respondents 24 (33.8%) had diploma, 22 (31.0%) had undergraduate, 13(18.3%) had professional qualifications such as certified public accountants (CPA) among others. 9(12.7%) were graduates, 3(4.2%) had certificate level of education. The study also interested in determining the duration the respondents had spent working at the tea firm. The study results revealed that most of the respondents had been working at the tea processing firms for between 6 and 10 years, 18(25.4%) between 16 and 21 years, 12(16.9%) between 11 and 15 years, 12 (16.9%) more than 20 years while 3(4.2%) less than 5 years. In regards to the type of ownership of the firm, 56(78.9%) were owned by the multinational companies and local investors (private), 5(7%) KTDA and 10(14.1%) government owned (parastatals). This implies that most of the tea processing firms in Nandi County are owned by private investors as show in Table 4.3. The study also sought to determine the designation of the respondents in the tea processing firms, 41(57.7%) were low level managers, 18(25.4%) middle level managers while 12(6.9%) top level managers. This implies that majority of the respondents were middle and low level managers.

4.2 Descriptive Statistics for Green Technology in Tea Processing Firms

The study wanted to find out the extent to which green technology is related to performance of tea processing firms in Nandi County, Kenya. The results were presented in Table 2:

Table 2: Descriptive Statistics for Green Technology

n=71		SD	D	U	A	SA	Mean	Std. Deviation
Green energy as the alternative source of energy.	F	10	12	10	32	7	3.1972	1.24923
	%	14.1	16.9	14.1	45.1	9.9		
Uses green energy more than any other source of energy.	F	9	2	10	23	27	3.8028	1.32686
	%	12.7	2.8	14.1	32.4	38.0		
Sustainable technology and machinery	F	2	15	14	30	10	3.4366	1.06546
	%	2.8	21.1	19.7	42.3	14.1		
Installed ecofriendly machines	F	10	18	10	25	8	3.0423	1.28103
	%	14.1	25.4	14.1	35.2	11.3		
Infrastructures have helped to improve the firm's performance.	F	18	15	10	26	2	2.7042	1.28056
	%	25.4	21.1	14.1	36.6	2.8		

Infrastructures that are environmentally friendly	F	10	15	12	32	2	3.0141	1.16488
	%	14.1	21.1	16.9	45.1	2.8		
Composite values							**3.1995**	**1.22800**

The study was interested in finding out whether the firm had adopted green energy as the alternative source of energy, 10(14.1%) strongly disagreed, 12(16.9%) disagreed, 10(14.1%) were undecided, 32(45.1%) agreed while 7(9.9%) strongly agreed. The item recorded a mean of 3.1972 and a standard deviation of 1.24923. The study results resembles that of Rorugu and Bett (2018), that tea processing firms had adopted green energy as the alternative source of energy. The study also sought to determine whether the firm uses green energy more than any other source of energy. The study results revealed that 9(12.7%) strongly disagreed, 2(2.8%) disagreed, 10(14.1%) were undecided, 23(32.4%) agreed while 27(38.0%) strongly agreed. The item had a mean of 3.8028 and a standard deviation of 1.32686. The study results resembles that of Syanda and Getuno (2019), that the firms' uses green energy more than any other source of energy.

The study sought to determine whether the firms use sustainable technology and machinery, 2(2.8%) strongly disagreed, 15(21.1%) disagreed, 14(19.7%) were undecided, 30(42.3%) agreed while 10(14.1%) strongly agreed. The itemized mean of the construct was 3.4366 while the standard deviation was 1.06546. The study results are similar to the findings of Ngatia (2011), that the tea processing firms use sustainable technology and machinery. In regards to whether the firm has installed ecofriendly machines, 10(14.1%) strongly disagreed, 18(25.4%) disagreed, 10(14.1%) were undecided, 25(35.2%) agreed while 8(11.3%) strongly agreed. The item realized a mean of 3.0423 and a variation in responses of 1.28103. The study is in agreement with the findings of Njagi (2019), that tea processing firm have installed ecofriendly machines. In relation to whether the infrastructures the firm has invested in have helped to improve the firms' performance, 18(25.4%) strongly disagreed, 15 (21.1%) disagreed, 10(14.1%) were undecided, 26(36.6%) agreed while 2(2.8%) strongly agreed. The item recorded a mean of 2.7042 and a standard deviation of 1.28056. The study results resembles the findings of Ogachi (2017), which the infrastructures the firms' have invested in have helped to improve the firms' performance. From the study findings, 10(14.1%) strongly disagreed that the firm had adopted infrastructures that are environmentally friendly, 15(21.1%) disagreed, 12(16.9%) undecided, 32 (45.1%) agreed while 2 (2.8%) strongly agreed. The item had a mean of 3.0141 and a variation in responses of 1.16488. The study results are similar to the findings of Tuochen, et al. (2018), that tea processing firms' have adopted infrastructures that are environmentally friendly. In summary, the item had a composite mean of 3.1995 and a standard deviation of 1.22800.

4.3 Descriptive Statistics Performance of Tea Processing Firms

The study further sought to establish the performance of tea manufacturing firms in Nandi County using secondary data and the findings are a summarized in Table 3:

Table 3: Descriptive Statistics for Performance of Tea Processing Firms

	N	Minimum	Maximum	Mean	Std. Deviation
Operational costs	71	6.00	15.00	9.6761	1.80297
No. of completed training sessions per year	71	7.00	9.00	8.0986	.65803
Value of investments in innovation per year	71	8.00	13.00	10.2535	1.35981
Employee productivity per year	71	8.00	12.00	10.1268	1.69815
Firms production volumes in KGs per year		7.00	8.00	7.5915	.49505
Valid	N 71				
(List wise)					

The results showed that value of investments in innovation per year had the highest mean of 10.2535 with a standard deviation of 1.35981. Employee productivity per year came in second with a mean of 10.1268 but with a standard deviation of 1.69815. Operational costs came in third with a mean of 9.6761 and a standard deviation of 1.80297. Number of completed training sessions per year was the fourth with a mean of 8.0986 but with a standard deviation of .65803. Firm's production volumes in KGs per year recorded the least mean of 7.5915 but with a standard deviation of .49505.

4.4: Time Series Analysis

The study further analyzed the Performance of Tea Processing Firms graphically to depict the trend over the five years. The results were presented in Figure 1:

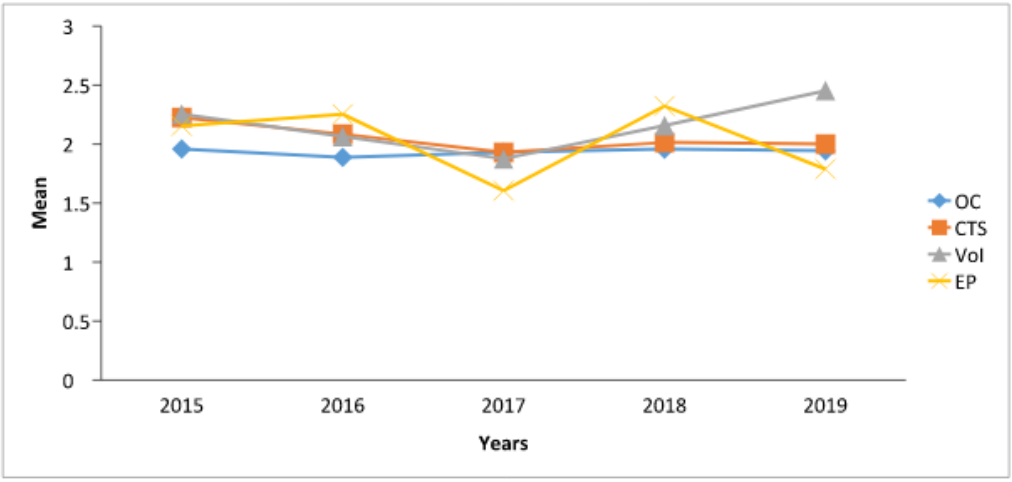

Figure 1: Time Series Analysis

Operational costs declined between 2015 to 2016 and then it rose in 2017 until 2018. It 2019 it remained constant as shown in Figure 1. There was a decline in the number of completed training sessions per year between 2015 and 2017 but it rose in 2018 and remained constant in 2019. Value of investments in innovation per year declined between 2015 and 2017. It rose between 2018 and 2019. Employee productivity rose between 2015 and 2016, it declined in 2017 but it rose again in 2018 and finally it declined in 2019.

4.5 Inferential Statistics

The inferential statistics adopted in this study is; regression analysis as elucidated below:

Table 4: Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.306[a]	.694	.537	2.51640

- Predictors: (Constant), Green Tech

From Table 4, the value of R represents correlation and is 0.306 which indicates a significant degree of correlation. The adjusted R-square is 0.537 which indicates that 53.7% of performance can be explained from the predictor variable (i.e. green technology).The remaining 46.3% could be as a result of other external factors outside the scope of independent variables of the study. In this case 53.7% is a strong significance.

4.5.1: Assessing the Fit of Multiple Regression Model

Analysis of variance (ANOVA) was employed to measure the differences in means between performance and its predictor variables. The results are shown in Table 5;

Table 5: ANOVA

	Model	Sum of Squares	df	Mean Square	F	Sig.
	Regression	1097.926	1	274.482	1921.501	.000[b]
1	Residual	38.712	65	.143		
	Total	1136.638	70			

- Predictors: (Constant), Green Tech
- Dependent Variable: Performance

The F-ratio was 1921.501 at 1 degree of freedom which is the variable factor. This represented the effect size of the regression model and the model is significant at 95% confidence level (p=0.000) indicating that performance can be predicted from the aforementioned independent variable.

4.5.2 Regression Co-efficient

T-test of statistical significance of each regression coefficient was conducted in order to determine the beta which shows how strongly each independent variable affects dependent variable. Coefficient analyses from multiple regression analysis are as shown in Table 6:

Table 6: Regression co-efficient

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	80.751	4.849		16.654	.000
1	Green Technology	.155	.159	.125	.977	.000

- Dependent variable: Performance

Table 6, shows the regression coefficients for green technology (β=0.155, $p < 0.05$). Hypothesis 1 ($H0_1$) predicted that there no significant relationship between use of Green technology and performance of tea processing firms in Nandi County, Kenya. Table 6 indicates that there is significant influence between use of Green technology and performance of tea processing firms in Nandi County, Kenya ($p < 0.05$) implying that we reject the null hypothesis and accept the alternative hypothesis that there is significant relationship between use of green technology and performance of tea processing firms in Nandi County, Kenya. Regression results revealed that green technology had a significant positive effect on performance of Tea Processing Firms in Nandi County. The study findings are in tandem with the findings of Kong et al. (2016); Karurkar et al. (2018); Sezen and Sibel (2013); Tuochen et al. (2018); Bett (2016); that use of green technology has a significant relationship with performance.

V. Conclusions & Recommendations

Green technology has a significant positive relationship with performance. Adoption of green technology leads to an improvement in the performance of the firms. This is attributed to adoption of green energy as the alternative source of energy, use of green energy more than any other source of energy and the use of sustainable technology and machinery. Installation of ecofriendly machines and the infrastructures the firms' have invested in have helped to improve performance. Adoption of infrastructures that are environmentally friendly also leads to improvement of performance. In light of the findings and conclusion of the study, the researcher recommends that the management of the tea factories should invest more on latest technology in order to have a reduction of waste and shorter lead times leading to high profits since issues of cost are critical in the modern business operations as they can positively or negatively impact on firms' performance. They should also implement computerization of tea collection process at the buying centres to enhance accountability and accuracy of records and enhancing information sharing among all stakeholders. Additionally, the study recommends that tea processing factories in Nandi County should use of fast, reliable, and energy efficient production equipment aimed at eliminating wastes and improving productivity to enhance green manufacturing. The firm's should adopt green energy as the alternative source of energy and use of green energy more than any other source of energy. The firms' should use sustainable technology and machinery. The firms' should install ecofriendly machines as well as adopt other infrastructures that are environmentally friendly. This study focused on the relationship between green technology strategies and performance. The study was conducted among tea processing firms in Nandi County. The researcher recommends that a further study on the same research topic should be carried out on other Counties where tea is grown and tea processing firms exist. It would be interesting to know whether the observed findings hold for all the other counties in Kenya where tea processing firms exists.

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