
**EXAMINING THE INFLUENCE OF CLIMATIC CHANGE PATTERNS ON TOURISM
ACTIVITIES IN UGANDA. A CASE STUDY OF BUDUDA DISTRICT.**

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ABSTRACT

The study focused on climatic change patterns and tourism activities in Budduda district. In this study climatic change patterns (measured by drought, floods and landslides) were the independent variable and tourism activities (measured by food supply, travel services and housing) was the dependent variable. The study used cross sectional design which enabled the researcher to draw the samples from the population over a short period of time. The study focused on the respondents from Budduda district. The researcher used different departments as clusters in which stratified random sampling was used to select the respondents from all layers in the cluster. Primary data and secondary data collection methods were used. Quantitative methods were used to collect and analyze the data. The research findings shown by correlation analysis generally indicated that there was a significant positive relationship between climatic change patterns measures (drought, floods and landslides) and tourism activities measures (food supply, travel services and housing) (Christopher, 2022). Regression models also indicated that drought, floods and landslides factors of climatic change patterns (independent variable) were better predictors of the variation in the tourism activities (dependent variable). Floods were the most significant predictor of the variation in tourism activities, followed by landslides and drought respectively.

Keywords: *climatic change patterns, floods and tourism activities*

Background of the study

The tourism sector is one of the largest and fastest growing global industries and is a significant contributor to national and local economies around the world. Tourism represents far more than just travel for leisure and holidays (Christopher & Felex,

2022). *Tourism encompasses travel for education, health, religion, conventions and conferences, general business travel and visiting friends and relatives. The United Nations World Tourism Organization defines tourism as including the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes not related to the exercise of an activity remunerated from within the place visited.*” According to the UNWTO, international tourist arrivals have grown from just over 200 million in 1980 to 922 million in 2008. International travel is also forecast to almost double to 1.6 billion arrivals by 2020. The economic importance of the sector worldwide is demonstrated by World Travel and Tourism Council estimates that in 2008 the global travel and tourism industry, contributed 9.6 per cent of global Gross Domestic Product (GDP) and 7.9 per cent of world-wide employment (Frank et al., 2023).

While comparable global statistical data on domestic tourism are not available, its volume was estimated at around 8 billion trips worldwide in 2005, of which 4 billion were estimated to be from same-day visitors and 4 billion from overnight tourists.

Climate change is mainly caused by the production of green house gases from human activities including agricultural production, industrialization, burning of fossil and bio fuels, and deforestation among others (Nicholas et al., 2023). These gases react with the thin layer (Ozone) which protects the earth from direct heat from the sun.

Statement of the Problem

Climate change is the single greatest environmental challenge to the world today (WTTC, 2011). Africa is considered by the IPCC and many other studies as one of the most vulnerable regions in the world to the effects of climate change (Boko et al., 2007; Hope, 2009; Kumssa and Jones, 2010). According to the IPCC, there is a notable lack of geographical balance in the data and literature on observed changes with a marked scarcity from developing countries (IPCC, 2007; Hope, 2009). In addition, tourism has been pointed out by the UNWTO, the IPCC and the Government of Uganda as one of the most vulnerable sectors alongside agriculture and biodiversity,

yet it is also identified as a key economic sector (IPCC, 2007; UNWTO, 2009; Kumssa and Jones, 2010;). Bududa District has been severely affected by excessive heat, droughts, excessive rainfall leading to flooding, landslides and hailstones as a result of climate change. However, despite the continued attempt by Government of Uganda to improve on climatic change to improve the tourism industry, more often than not, tourists continue to complain of poor services (Willies et al., 2022). Even when there are efforts by Government and particularly the Tourism board to address this, there seems to be no significant change in climatic change patterns. However, it is not clear whether this results from droughts, floods and landslides as components of climatic change patterns.

Specific Objectives

- 1. To establish the effect of drought on tourism activities in Uganda.*
- 2. To evaluate the influence of floods on tourism in Uganda.*
- 3. To assess the effect of landslides on tourism activities in Uganda.*

Research Questions

- 1. What is the effect of drought on tourism activities in Uganda?*
- 2. What is the influence of floods on tourism in Uganda?*
- 3. What is the effect of landslides on tourism activities in Uganda?*

Methodology

Research Design

The study used a case study research design. The case study approach enabled the researcher to conduct an empirical study that investigated the contemporary phenomenon within its real-life context considering answering the “how” and “why” questions which was posed during the data collection exercise. Both qualitative and quantitative approaches was employed interdependently. The qualitative approach was used to obtain an in-depth study of the study variables. The quantitative approach was on the other hand used to analyze numeric data obtained through questionnaires.

Quantitative approach

This was an inquiry into the identified problem based on testing a theory measured with numbers and analyzed using statistical techniques. The goal of quantitative approach was to determine whether the predictive generations of the theory hold true.

Qualitative approach

This approach was a process of inquiry which had the goal of understanding the social or human problem. Qualitative research was conducted in a tourism setting and involved a process of building a complex and holistic picture of the customer satisfaction in Bududa District.

Qualitative research focused on the “why” rather than the “what” of customer satisfaction and relied on direct experiences on the customers.

Study Population

The study population is defined as the entire group of individuals, events or objects having common observable characteristics. The population of the study constituted 123, 100 (population and housing census of Uganda,2002).

Krecjie and Morgan (1970) sample population and sample size determination table postulate that a study population of 123,100 respondents considers a sample size of 384 respondents randomly selected.

Sample size and selecting techniques

Sample Size

Sample sizes of less than 10 are not normally recommended. In simple experimental research with tight controls, successful research can be conducted with samples as small as between 10 to 20. Therefore, in this study a sample size of 384 was considered during the data collection exercise.

Sampling techniques

Simple random sampling

Simple random sampling was utilized to obtain data from the homogenous sample population. Because of their immense numbers, the researcher employed the use of clusters to obtain data from relatively large subsets in a short time frame. Simple random sampling was also used to eliminate possibilities of bias from the accessible population. It was ensured that each member of the population had equal and independent chances of being included in the sample.

Data Management and Processing

The collected Data was entered into computer program (using particularly the Statistical Package for Social Scientists (SPSS) version 20. The data was analyzed using both statistical and narrative methods. This was analyzed using descriptive frequencies and percentages by means of a 5-point Likert scale ranging from 1 to 5 which was Strongly Disagree and strongly disagree respectively. After collecting and cleaning the data, it was coded then entered in a computer using Statistical Package for Social Scientists (SPSS) version 20 (Nelson et al., 2022). Various statistical tests were run to analyze the data. Descriptive statistics such as frequency distributions, percentages and frequency tables were used to summarize and relate variables obtained from the study. Correlations were carried out to establish the relationship between the independent variable factors and the dependent variable. Regression analysis was also performed to predict the dependent variable.

RESULTS

Demographic characteristics of the respondents

Gender of the respondents

Table 1: Distribution of the respondents by their Gender

Gender of the respondent	Frequency	Percent	Valid Percent	Cumulative Percent
Males	220	57.9	57.9	57.9

Females	160	42.1	42.1	100.0
Total	380	100.0	100.0	

Source: Primary Data

From Table 1 it is indicated that of the total (380) respondents, 57.9% of them were males whiles 42.1% were females. It implies that more males participated in the study compared to females.

Current age of the respondents and Gender of the respondents

Table 2: Distribution of respondents by their age

Age of the respondent	Frequency	Percent	Valid Percent	Cumulative Percent
10-20	40	10.5	10.5	10.5
21-30	81	21.3	21.3	31.8
31-40	96	25.3	25.3	57.1
41-50	109	28.7	28.7	85.8
50+	54	14.2	14.2	100.0
Total	380	100.0	100.0	

Source: Primary Data

From the Table 2, it was noted that majority (28.7%) of the respondents were in the age group 41-50 years, followed by 25.3% in the age group 31-40, 21.3% in the age group 21-30, 14.2% in the age group 50+ and 10.5% in age group 10-20 respectively. Thus, majority of the participants were from the age group 41-50 while the least number of participants were aged 10-20 years.

Duration of time working in the company

Table 3: Distribution of respondents by how long they have been in the company

<i>Duration in Budduda district</i>	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cumulative Percent</i>
1years	67	17.6	17.6	17.6
2 years	83	21.8	21.8	39.5
3 years	122	32.1	32.1	71.6
4 years	95	25.0	25.0	96.6
5+ years	13	3.4	3.4	100.0
Total	380	100.0	100.0	

Source: Primary Data

Table 3 shows that of all the respondents, 17.9% had worked for 1 year, 21.8% had worked for 2 years, 32.1% had worked for 3 years, 25.0% had worked for 4 years while 3.4% had worked for 5+years.

Education of the respondents

Table 4: Distribution of respondents by their level of education

<i>Level of education</i>	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cumulative Percent</i>
"O" Level	41	10.8	10.8	10.8
"A" level	68	17.9	17.9	28.7
Certificate	81	21.3	21.3	50.0
Diploma	81	21.3	21.3	71.3
Bachelors' degree	55	14.5	14.5	85.8
Postgraduate diploma	27	7.1	7.1	92.9
Masters	27	7.1	7.1	100.0

Total	380	100.0	100.0
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Source: Primary Data

Table 4 shows that 10.8% of the respondents had attained “O” level certificates, 17.9% had attained “A” level certificates, 21.3% had attained certificates, 21.3% had attained diplomas, 14.5% had attained bachelor’s degrees, 7.1% had attained postgraduate diplomas and 7.1% had attained master’s degrees.

Gender and Age of the respondents

Table 5: Distribution of respondents by their gender and age

Gender of the respondent	Age of the respondent					Total
	10-20	21-30	31-40	41-50	50+	
Males	14	27	69	69	41	220
Females	26	54	27	40	13	160
Total	40	81	96	109	54	380

Source: primary data

From Table 5, it was noted that of the total respondents, 220 were males while 160 were females. Of the 220 males, 14 were aged 10-20 years, 27 were aged 21-30 years, 69 were aged 31-40 years, 69 were aged 41-50 years while 41 were aged 50+ years.

Of the 160 female 26 respondents, were aged 10-20 years, 54 were aged 21-30 years, 27 were aged 31-40 years, 40 were aged 41-50 years while 13 were aged 50+ years.

Gender and level of education of the respondents

Table 6: Distribution of respondents by their gender and level of education

Level of education of the respondent	Gender of the respondent		Total
	Males	Females	
"O"	14	27	41
"A"	28	40	68
Certificate	54	27	81
Diploma	41	40	81
Bachelors' degree	55	0	55
Postgraduate diploma	14	13	27
Masters' degree	14	13	27
Total	220	160	380

Source: primary data

Table 6 shows that of the 41 respondents, who had attained "O" level certificates, 14 were males and 27 were females. Of the 68 respondents who had attained "A" level certificates, 28 were males while 40 were females. Of the 81 respondents who had attained certificates, 54 were males while 27 were females. Of the 81 respondents who had attained diplomas, 41 were males, 40 were females. Of the 55 respondents who attained bachelor's degrees, 55 were males while 0 were females. Of the 27 respondents who had attained postgraduate diplomas, 14 were males and 13 were females. Of the 27 respondents who had attained master's degrees, 14 were males and 13 were females.

Table 7: Pearson Correlations Matrix

Correlations		DROUGHT	FLOODS	LANDSLIDES	TOURISM ACTIVITIES
DROUGHT	Pearson				
	Correlation	1	.818**	.766**	.797**
	Sig. (2-tailed)		.000	.000	.000
	N	380	380	380	380
FLOODS	Pearson				
	Correlation	.818**	1	.886**	.904**
	Sig. (2-tailed)	.000		.000	.000
	N	380	380	380	380
LANDSLIDES	Pearson				
	Correlation	.766**	.886**	1	.881**
	Sig. (2-tailed)	.000	.000		.000
	N	380	380	380	380
TOURISM ACTIVITIES	Pearson				
	Correlation	.797**	.904**	.881**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	380	380	380	380

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

Source: primary data

To establish the effect of drought on tourism activities in Uganda.

Table 7 indicated that there was a high and significant positive relationship between drought and tourism activities since, $r = .797^{**}$; $p = .000 < .01$. This implied that a change in drought situation leads to a change-tourism activities in the same direction. Therefore, to enhance tourism activities during climatic changes patterns, Budduda district needs to ensure that drought is given enough attention. If $.1 < r \leq .3$, implied that there was a medium positive relationship while those which show

Pearson correlations of such that $.3 < r \leq .5$ imply that there was larger positive relationship between the attributes (Andy 2009).

It is important to note that the diagonal correlation values are such that $r = 1$, because the relationship between a variable and itself is perfect.

To evaluate the influence of floods on tourism in Uganda.

Table 7 showed that there was high and significant positive relationship between floods and tourism activities since $r = .904$, $p = .000 < .01$. As the floods change, the tourism activities change in the same direction; for example, when there are no floods, tourism activities are successful and as such, more money is generated. Thus, to enhance tourism activities in the view of respondents during climatic change patterns, there is need for the district administration to ensure floods are seriously controlled to improve on tourism activities. Therefore, the district should ensure that floods are given consideration.

To assess the effect of landslides on tourism activities in Uganda

Table 7 showed a high positive and significant correlation between landslides and tourism activities with $r = .881$ and $p = .000 < .01$. The significant value $p = .000 < .01$, implied that the relationship between landslides and tourism activities was highly significant. Therefore, the Budduda district administration needs to put very much emphasis on fighting hard to stop landslides during climatic change patterns to ensure very high benefits from tourism activities.

Regression analysis**Table 8: Regression Model for the study variables**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	-3.789	.564		-6.723	.000	-4.898	-2.681
DROUGHT	.263	.070	.132	3.774	.000	.126	.400
FLOODS	.816	.080	.490	10.140	.000	.658	.974
LANDSLIDES	.718	.090	.346	8.019	.000	.542	.894

a. Dependent Variable: TOURISM ACTIVITIES

R Square = .853

F Statistic = 724.896

Adjusted R Square = .851

Sig. F Statistic = .000

Predictors in the Model: (Constant), drought, floods and landslides).

$Y = -1.489 + B_i X_i$

$i = 1, 2, 3, 4$

Source: Primary Data

Table 8 showed that R Square = .853 was adjusted to .851 to provide for the potential errors in the raw data. This means that a combination of drought, floods and landslides accounted for only 85.1% variation in the tourism activities. The other 14.9% variation in the tourism activities was explained by other factors. This is because there are other factors other than the ones under study that affect tourism activities.

From Table 8, it was observed that all factors were good and significant predictors, with floods being the best predictor because it had the highest Beta value (.490).

This is further supported by the sig. values ($p = .000 < .001$), as indicated in Table 4.7. This is followed by landslides and drought respectively.

Conclusions

It was concluded that there was a significant positive relationship between drought and tourism activities. Thus, there is need for the district authorities to make sure that they focus on the drought but after giving consideration to floods and landslides respectively during climatic change patterns.

Recommendations

The researcher recommends that the district authorities need to provide all the necessary support to landslide because if not, then the tourism activities will be highly affected since it shows the highest level of significance from the regression model, it was also noted that there are other factors that contribute to variation in the tourism activities. Therefore, on this basis, the researcher recommends that the district authorities identify which other factors to concentrate on more than others since they don't contribute to variation to the same magnitude.

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