Climate Change and Potential Impacts on Tourism. Evidence from the Zimbabwean Side of the Victoria Falls World Heritage Site

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South Africa
Tourism is one of the major economic sectors globally (WTTC, 2018)

It is fastest growing economic sectors

Most important in growing economies such as Zimbabwe (Dube & Nhamo, 2018)
- Employs vulnerable members of the community
- Major Forex earner
- Assist in fighting poverty, inequality and unemployment

Under serious threat from climate change

Climate change set to alter attractions and travel patterns across the world (Fang et al., 2018)
Tourism and climate change

- Dual relationship between tourism and climate change
- Sub-Saharan Africa particularly vulnerable
- Fair amount of research in the global North
- Vast knowledge gaps exists in the global South
- IPCC called for more research
- Scott et al (2016) called for research in SSA on tourism and climate change
- Hoodoorn and Fitchettgen (2016), also called for similar research
Is there evidence of climate change in Victoria Falls Zimbabwe?

How will climate change affect tourism sector in Victoria Falls Zimbabwe?
Objectives

Track evidence of climate change in the context of climate change and climate variability in Victoria Falls, Zimbabwe

Highlight potential implications of climate change on the tourism sector in Victoria Falls, Zimbabwe
Case study

Pragmatism philosophy as recommended by Kono, (2015)

A mixed method approach (Creswell & Clark, 2009)

Tools
- Secondary Data
- Primary Data: Surveys and Interviews
- Remote Sensing

Analysis
- Question Pro Text Analytics
- Mann Kendall Trend Test 2018
- Microsoft Excel Analysis ToolPak
- GIS Archview 10.3

Materials and Methods
Research Design

Pragmatism approach was used (Creswell, 2017)

Case Study
in-depth study in natural setting

Mixed Method approach

40 year meteorological data was analysed 1976-2016

Online Survey
369 tourists from 43 countries and 7 continents

Analysis:
Content Analysis
Mann Kendall Trend Analysis
Microsoft Excel Analysis Tool Pack
Geographic Location of Victoria Falls

- largest curtain of falling water in the world
- Receives more than 500,000 tourists a year
- Part of the Kaza Tourists Region
- Africa’s adventure capital
- Central to tourism economy for South Africa, Namibia, Botswana, Kenya, Ethiopia, Zimbabwe and Zambia
- Important birding site
Study Area

Victoria Falls is a World Heritage Site

7th World Wonder

It is a Ramsar Site

Extreme weather events

Models predict increased temperature and reduced rainfall

Located in the Zambezi Valley Basin

Rich area in biodiversity including the Big 5

Important economic region for SADC
Rainfall pattern 1976-2016

- No significant changes in average rainfall amount over the period in question
- Extreme swings in rainfall patterns
- Prolonged drought periods
- An increase in drought occurrence
- Change in rainfall season
- A delay of one month
- Rainfall season shorter by a month
- 10 years out of the past 16 years were drought years
Findings and Discussions

- 1.4 degree temperature increase was reported over the period in question /0.35 degree Celsius per decade
- Three summer months had outstanding temperature particularly October
October witnessed the largest temperature increase.

\[ y = 0.0794x - 124.36 \]

\[ p = 0.0001 \]
Zambezi Discharge pattern over the past 40yrs
Implications on Tourism

Affects the aviation sector
- Load shedding at departure
- Helicopter takes longer to climb: increased fuel cost and increased carbon footprint

Tourists comfort
- Disturbed sleep
- Dehydration

Affects wildlife that are sensitive to high temperatures such as elephants
- Evidence of decrease in wild dog population as a result of global warming
- Increase animal water uptake

Increased evaporation rates
- Drying of water halls
- Increased water demand

Increased energy costs for cooling
- Increased carbon footprint
- Increased water bills
Potential Impact of Climate change on tourist arrivals to Victoria Falls

Would you come to Victoria Falls if it dries up?

Would you visit the Victoria Falls to see it before it dries up?
Adaptation and mitigation

**Green aviation**
- Retrofitting
- Fleet replacement new fleet up to 20% fuel efficient
- Carbon tax
- Green fuels

**Green buildings**
- Use of clean energy
- Retrofits make buildings more fuel efficient
- Streamline climate change into building design & construction
- Encompass green building codes into construction

**Green transport**
- Electric cars
- Fuel efficient behaviour practice
- Use of green fuels

**Encourage tourist to practice responsible tourism**
- Travel lite
- Purchase local products
- Offset your carbon footprint

**Publish and update climate data**
- Fund climate change research in developing countries
- Mentor climate change researchers
Conclusion and Recommendations

Based on findings there is ample evidence to suggest that global warming is taking place.

Need to continuously monitor the impact of climate change on tourism across the SADC region.

Need for more focused research on World Heritage Sites across Africa to assess the impact of climate change.
Reference


