

**STAKEHOLDERS' ASSESSMENT OF THE POTENTIAL OF GEOTOURISM IN
BARINGO COUNTY, KENYA**

RERIMOJ JACKSON MENGICH

**A Thesis Submitted to the Graduate School in Partial Fulfilment of the Requirements
for the Doctor of Philosophy Degree of Geography of Egerton University**

EGERTON UNIVERSITY

OCTOBER, 2025

DECLARATION AND RECOMMENDATION

Declaration:

This thesis is my original work and has not been presented in this university or any other for the award of a degree.

Signature: _____

Date: _October 28, 2025_____

Rerimoi Jackson Mengich

ND13/0309/11

Recommendation:

This thesis has been submitted with our approval as University supervisors.

Signature: _____

Date: ___ October 27, 2025 _____

Prof. Francis N. Wegulo, PhD

Department of Geography

Egerton University, Kenya

Signature: _____

Date: ___ October 27, 2025 _____

Prof. Stanley M. Makindi, PhD

Department of Environmental Sciences

Machakos University, Kenya

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DEDICATION

To the vision of my late father, the unwavering faith of my mother, the enduring love of my wife, and the hope and future embodied by my dear children - Annan Kemboi, Kennan Kibet, and Anisha Jerotich - whose presence and inspiration made this achievement possible.

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ABSTRACT

Geotourism is rapidly emerging as a popular niche market worldwide, offering a new direction for tourism based on geodiversity. Although there is growing interest in geotourism, its potential in Baringo remains largely untapped, despite the iconic presence of geological formations. Moreover, little is known about stakeholders' awareness of the potential of geotourism. This study, therefore, assessed stakeholders' knowledge of geotourism potential in Baringo County by evaluating local community's knowledge of geotourism, analyzing tourists' perceived value of landforms, assessing the role of Baringo County government and stakeholders, and examining how destination attributes influence tourist visitation. Anchored on Self Determination and Maslow's theories, this study used a mixed-method survey research design. Primary data were collected from 385 tourists, eight local community participants, and six stakeholder groups. This study adopted purposive sampling, and data collection methods included focused group discussion, stakeholder analysis, and questionnaire administration. Data were analyzed using the Kirkpatrick perception model, Strba and Rybar scale, Student's t-test, and stakeholder analysis. Findings revealed that the local community knowledge significantly influenced geotourism perception ($p < .05$); tourists valued landforms highly for geotourism, with no significant difference in intrinsic values ($p > .05$) but a significant difference in extrinsic values across tourist categories ($p < .05$); four stakeholder typologies were identified based on interest-influence matrix but with no geotourism policy framework guiding promotion of geotourism; and finally, there is significant differences in how tourists perceive destination image ($p < .05$) and motivation ($p < .05$). The study concludes that varying community knowledge significantly influenced perceptions of geotourism potential; there is a statistically significant difference in perceived extrinsic values of landforms across tourist categories, while intrinsic values showed no such variation; stakeholders had different interests, influence, and approaches in promoting geotourism; and varying levels of destination familiarity and prior exposure influenced destination image and motivation of different tourist groups. This study recommends enhanced community-based geotourism awareness and collaboration between government agencies and other stakeholders in promoting geotourism. Future research should examine how targeted geotourism marketing strategies influence the perceptions and satisfaction of domestic and international tourists at geosite destinations.

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LIST OF ABBREVIATIONS AND ACRONYMS

BCCA	Baringo County Conservancies Associations.,
BGRVAGGp	Baringo Great Rift Valley Aspiring Global Geopark
CIDP	County Integrated Development Plan
CSDP	County Spatial Development Plan
EARS	East Africa Rift System
EGN	European Geoparks Network
FGD	Focus Group Discussion
GGN	Global Geoparks Network
GoK	Government of Kenya
GPS	Global Positioning System
GVS	Geodiversity Value Score
KNATCOM	Kenya National Commission for UNESCO
KNBS	Kenya National Bureau of Statistics
KWS	Kenya Wildlife Service
LBNR	Lake Bogoria National Reserve
MICE	Meetings Incentives Conferences and Exhibitions
MoT&W	Ministry of Tourism and Wildlife
SDGs	Sustainable Development Goals
SDT	Self Determination Theory
UGG	UNESCO Global Geopark
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNWTO	United Nations World Tourism Organization
WHS	World Heritage Sites
WTTC	World Tourism and Travel Council

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Tourism is a key driver of world's socio-economic development and previous reports (United Nations World Tourism Organization [UNWTO], 2019, 2022, 2024; World Travel and Tourism Council [WTTC], 2022) on growth and expansion of tourism concur that tourism has experienced continued expansion and growth to become one of the largest and fastest-growing economic sectors in the world. As such, global tourism increased exponentially from 25 million arrivals in 1950 to 1.5 billion in 2019 (UNWTO, 2019) but dropped to 398 million due to Corona Virus Disease 2019 (COVID-19) pandemic (UNWTO, 2021). Similarly, the corresponding receipts from tourists rose from USD 2 billion in 1950 to USD 1,480 billion in 2019 but reduced to USD 536 billion (UNWTO, 2019, 2021). Nonetheless, tourism bounced back to the pre-pandemic levels (UNWTO, 2024). Further review of literature (Strba et al., 2020; UNWTO, 2021; WTTC, 2022) indicate that the economic impact of tourism and related benefits for various countries and tourist destinations is well documented. In this regard, tourism contribution to world's socio-economic development account for; one in 11 jobs, equivalent to about 289.5 million jobs, 6.1% of global Gross Domestic Product (GDP) equivalent to USD 5.8 trillion (WTTC, 2022), 7 % of global export revenues and infrastructure, and nearly 700 million international travellers per year (UNWTO, 2016).

Nevertheless, the UNWTO Reports (2021, 2024) demonstrates that the global pattern, growth, and benefits of tourism are unevenly distributed. From the report, Europe is the leading destination with 235 million tourists (59%) and USD 234 billion receipts (44%) while France ranks the highest in international arrivals at 89.4 million tourists per year (UNWTO, 2021). The Middle East is the least visited destination with 18.2 million tourists (UNWTO, 2021). Similarly, previous reports (UNWTO, 2019, 2021) concur that geographical variations exist in Africa's tourism growth and socio-economic benefits. As such, Africa received 71.2 million tourists, generating USD 72.52 billion (UNWTO, 2021), and 21.3 million jobs (WTTC, 2022). Furthermore, variations exist in the number of tourists among the tourism sub-regions in Africa; a third (19.8 million) went to North Africa, over a third to Southern Africa, almost a quarter to East Africa and the remainder to the rest of the tourism destinations in the continent;

mainly West Africa. Sub-Saharan Africa (SSA) received 35.9 million tourists (UNWTO, 2015b).

In the case of Kenya, some destinations endowed with the Big Five wild animals experience mass tourism, namely the participation of large numbers of people in tourism, while those areas without the Big Five wild animals are least visited (Government of Kenya [GoK], 2022b; Kenya National Bureau of Statistics [KNBS], 2016). Notwithstanding the importance of wildlife-based tourism, many studies and reports (GoK, 2007; Odunga & Maingi, 2011; Sindiga, 1999; World Bank Report, 2010) on Kenya's tourism have questioned the rationale for continued focus on the Big Five wild animals' product trajectory, particularly in areas endowed with rich geodiversity. Furthermore, this study provides new insight into the importance of geodiversity not only in contributing to tourism growth but also in distributing benefits across destinations that are less endowed with the Big Five wild animals. Generally, the uniqueness of geodiversity, culture, and biodiversity attractions underpinned the spatial and temporal variations in the global distribution of tourism growth and benefits (Ólafsdóttir & Tverijonaite, 2018; UNWTO, 2015a; World Bank Report, 2010).

In this context, geotourism has emerged as a key strategy for harnessing geodiversity as a tourism product, especially in regions lacking traditional wildlife-based attractions. Geotourism is a rapidly growing niche area embraced as an emerging new direction for tourism diversification (Strba et al., 2023), based on the value of geology and geomorphology namely geodiversity and geodiversity products (Dowling, 2011; Kenya National Commission [KNATCOM], 2023; Ngwira, 2018; Ólafsdóttir & Dowling, 2014; UNESCO, 2024; Yolal, 2012). As such, geotourism complements efforts to broaden the tourism base while ensuring more equitable distribution of tourism benefits across diverse landscapes.

Geotourism has gained prominence in Australia, China, United Kingdom, Portugal and Slovakia (UNESCO, 2019, 2024) and UNESCO Global Geoparks Network has been instrumental in promoting geotourism (UNESCO, 2006, 2019). The presence of geological heritage and geodiversity everywhere presents opportunity for geotourism (Farsani et al., 2011). Based on reviewed literature (Farmaki, 2012; Nazaruddin, 2019; Ngwira, 2018; Ólafsdóttir, & Tverijonaite, 2018; UNWTO, 2014, 2024) many countries in Europe, Asia, and

the Middle East have focused on promoting geotourism products, which offer both sustainable tourism through establishment of global geoparks and diversifying tourism.

Consequently, UNESCO Global Geoparks (UGGs) has established 213 global geoparks in 48 countries spread around the world (UNESCO, 2019, 2024) The bulk of these UGGs are located in Europe (109) and China (48) and other Asian countries (33) while the rest are distributed as follows; Russian (1), Middle East- Iran (3), North America - Canada (5) and Mexico (2), South America (11), and New Zealand (1). Africa region has only two global geoparks; one each in Morocco and Tanzania (KNATCOM, 2023; UNESCO, 2019, 2024; Scoon, 2020). Based on reviewed literature (Ólafsdóttir & Tverijonaite, 2018; UNESCO, 2016, 2019), stakeholders' knowledge of geodiversity and geotourism products is integral to assessing and promoting geotourism through creation of Global Geoparks.

Despite the growing interest in geotourism, the potential of geotourism in Africa is largely untapped (Kayima & Karasiewicz, 2024; Ngwira, 2018; Scoon, 2020), and there is little understanding how local communities participate in offer of geotourism products in the unprotected areas (Ngwira, 2015). Research thus far has not elicited and presented local community's own knowledge, and perspectives related to offer of geotourism products in the unprotected areas. To underscore the need to study perception of tourists towards geotourism, Allan et al. (2015), Ólafsdóttir and Tverijonaite, (2018), and Strba et al. (2018) argued that most of the geotourism studies have paid more attention to assessment of geosites and geoconservation to the neglect of tourists that visit geosites for recreation and the people for whom tourism products are developed.

The UNWTO Report (2015a) on tourism, argued that many African countries failed to offer diverse tourism products besides wildlife, cultural heritage, as well as beach tourism and thus, tourism resources were largely underutilized. The Report further stated that geodiversity indicates greater tourism potential than is realized through wildlife and culture-based tourism. The finding of a study by Ngwira (2018) on geotourism and geoparks in Africa corroborates UNWTO Report (2015a). The study revealed that though still in infancy stage and emerging as tourism niche market, geotourism and global geoparks are an avenue for growing tourism in

low profile tourist destinations. Further, Ngwira (2018) indicates that Africa did not seem to pay attention to geotourism - the new wave of tourism phenomena spreading around the world.

Past studies and reports (Ngwira, 2018; UNESCO, 2024) indicate that, in spite of Africa's rich geology and geomorphology - mountains, Rift Valley, deserts, geysers, and white sandy beaches, the continent is lagging behind Europe, Asia, and Australia, which have embraced global geoparks and geotourism in diversifying tourism products (Ngwira, 2018; Tessema et al., 2021). According to UNESCO Global Geopark Report (2024) on establishment of geoparks, Africa has only two global geoparks - M'Goun in Morocco and Ngorongoro-Lengai in northern Tanzania, which is the first global geopark in East Africa (KNATCOM, 2023; Scoon, 2020). Past studies (Beraaouz et al., 2019; Ngwira, 2018) observed that geotourism is rapidly growing around the world, but Africa seems to be falling behind the rest of the world. This indicates a gap in Africa and particularly in Kenya on establishing global geoparks and promotion of geotourism. UNESCO Global Geopark defined a geopark as an area with a particular heritage of universal importance, not only from a geological viewpoint; but also, for archaeological, ecological, economic, historical, and cultural reasons (UNESCO, 2016). Baringo county is not only characterized with World Heritage Sites (WHS), Ramsar site, Rift system, geysers and hot springs, and protected areas but also potential to be a Geopark, which can contribute to geotourism. Thus, the study area was chosen for purposes of this study.

Since the establishment of the park system in 1946, through Nairobi National Park, tourism in Kenya has primarily focused on a few national parks and reserves, as well as the sandy beaches along the south coast (Akama et al., 2011). Further, because of the park system, which is largely based on the Big Five wild animals and beach tourism products, geotourism is neglected (Scoon, 2020; UNWTO Report, 2015a). Evidence of focus on wildlife-based tourism products is seen in the geographically concentrated tourism where 42% of visitors are attracted to the seven out of the country's 65 wildlife protected areas (Nairobi National Park, Maasai Mara Game Reserve, Amboseli National Park, Lake Nakuru National Park, Tsavo East, & Tsavo West National Parks, and Aberdare's National Park) (KNBS, 2022; TRI, 2022).

As a way of addressing weaknesses of the narrow product range, mass tourism, and geographically concentrated tourism, Kenya's Vision 2030 (GoK, 2007) agenda and the New

Tourism Strategy for Kenya (GoK, 2022a), acknowledge the need to diversify tourism products and expand it into low profile tourist destinations. For this, the strategies include; creating new and more diverse customer experiences and products, developing niche products such as ecotourism, cultural tourism, and Meetings Incentives Conferences and Education (MICE) (GoK, 2013a; GoK 2021; KNBS, 2016). In particular, the New Tourism Strategy for Kenya (GoK, 2022a) aims to develop and market five high-priority new experiences, namely rare birds, rare and unique animals, sports tourism, water sports, and mountain climbing.

Nevertheless, there is persistent neglect of geotourism and its potential to contribute to diversification of tourism products (GoK, 2022a); yet Europe, Asia, and Australia have embraced geotourism as a niche area to diversifying tourism products (Ngwira, 2018). Further, low profile tourist destinations including those in Baringo County continue to rank low in tourist numbers and benefits, and this trend has persisted (KNBS, 2022). Therefore, tourist destinations less endowed with the Big Five wild animals continued to fall behind in tourism numbers and benefits.

In addition, conservation policy, marketing, and research have also tended to focus on wildlife tourism to the neglect of other niche areas of tourism such as geotourism (GoK, 2013b; GoK, 2011). The tourism policies have consistently overlooked geotourism as a means of diversifying tourism products in Kenya, (GoK, 2013a; GoK, 2022a). Thereby tourist destinations such as Baringo County that have some of the world's most iconic geological formations are least visited (County Integrated Development Plan [CIDP], 2018) due to detractive wildlife image among tourists. Furthermore, unlike wildlife-based tourism products, which are experiencing a decline due to pressure from population growth and climate change, geotourism products are less constrained (CIDP, 2018) and contribute to sustainable tourism (Dowling, 2013; Ólafsdóttir & Dowling, 2014; UNESCO, 2019).

To support diversification of tourism products, initiatives such tourism circuits have failed to optimize the potential of underutilized tourist destinations, such as Lake Bogoria National Reserve (LBNR) in Baringo County (GoK, 2022a; KNBS, 2022). Tourism products in Baringo County are still concentrated in a few tourist destinations such as LBNR (KNBS, 2019, 2022). On the other hand, potential tourist destinations such as the Gregory Rift Valley, which is part

of East Africa Rift System (EARS), Lomechan cave, Cheploch gorge, and Kapnarok are underdeveloped and least visited notwithstanding their geotourism potential (GoK, 2013a; KNATCOM, 2023; Scoon, 2020). Moreover, national and county policies are weak in embracing geotourism in the study area (GoK, 2022a; KNBS, 2016). A focus on the mandate of county government and other stakeholders in promoting tourism products can contribute to a better understanding of tourism diversification in low yield areas.

1.2 Statement of the Problem

Geotourism is a rapidly growing niche area that is embraced globally as an emerging new tourism direction for tourism diversification, based on global geoparks and geodiversity products. However, Kenya's tourism is still largely based on the Big Five wild animals that has shaped the Country's tourism image, marketing, research, and policy to the neglect of geotourism. Consequently, large parts of Kenya, including Baringo County, which is endowed with some of the world's most iconic geological formations that present opportunity for development of geotourism, has continued to lag behind in utilization of geodiversity attractions. Nevertheless, geotourism focuses on local communities - the key beneficiaries of geotourism, and tourists - the consumers of geotourism products, and other stakeholders such as county and national governments. Furthermore, establishing global geoparks and geotourism stimulates rural development through local community participation, creating employment and livelihood opportunities, and reducing poverty. However, in spite of the critical role of stakeholders in promoting geotourism as well as possible economic benefits, there is paucity of empirical research on stakeholders' knowledge of geotourism potential as a means of diversifying tourism products in the study area. Hence without bridging the gap in knowledge, stakeholders' promotion of geotourism and tourism diversification may not take root in the study area. Therefore, to provide useful information on stakeholders' perspectives and role in geotourism, this study focused on stakeholders' assessment of the potential of geotourism in the study area.

1.3 Objectives of the Study

1.3.1 Broad Objective

This study sought to contribute to the broad understanding of stakeholders' assessment of the potential of geotourism in Baringo County, Kenya.

1.3.2 Specific Objectives

Specifically, this study sought to:

- i. Evaluate local community's knowledge of geodiversity and geotourism potential in the unprotected areas in Baringo County.
- ii. Analyze tourists' perceived value of landforms that constitute geotourism products in Lake Bogoria National Reserve in Baringo County.
- iii. Assess the role and function of Baringo County government and stakeholders in promotion of geotourism in Baringo County.
- iv. Examine the influence of destination attributes on tourists' visits to Lake Bogoria National Reserve in Baringo County.

1.4 Hypotheses/Research Questions

To achieve the above objectives, the following hypotheses /research questions guided the study:

- i. How knowledgeable is the local community about geodiversity and geotourism potential in unprotected areas of Baringo County?
- ii. H_{01} : There is no statistically significant difference in the perceived intrinsic and extrinsic values of landforms across categories of tourists.
 H_{a1} : There is a statistically significant difference in the perceived intrinsic and extrinsic values of landforms across categories of tourists.
- iii. What is the interest and influence of the County Government of Baringo and stakeholders in promotion of geotourism in Baringo County?
- iv. H_{02} : There is no statistically significant difference in the perceived destination image and motivation of the respondents about geotourism across categories of tourists.
 H_{a2} : There is a statistically significant difference in the perceived destination image and motivation of the respondents about geotourism across categories of tourists.

1.5 Justification of the Study

Baringo County has unique geodiversity formations such as; the Great Rift Valley, caves, gorges, geysers and hot springs that present opportunity to promote geotourism and contribute to diversifying tourism products, and socio-economic development in the study area. In spite of this potential, Baringo county has persistently focused on wildlife-based and cultural tourism

to the neglect of geotourism. Therefore, this study assesses how the stakeholders take advantage of the growing global interest of geotourism and embraces it as a means to nature conservation and socio-economic development in the study area.

Baringo County is prone to climate change, and as a result wildlife resources are on the decline even in areas previously considered hotspot wildlife tourism destinations, yet there is persistent neglect of geotourism (CIDP, 2018; GoK, 2022a) and its products; global geoparks and geotourism products in many African countries (Ngwira, 2018) including Kenya. By embracing geotourism, which is a form of sustainable tourism based on Global Geoparks, the study area will address the decline of biodiversity resource base and reap environmental conservation as well as economic benefits.

Similarly, Baringo County is an Arid and Semi-Arid Land with limited intensive rain-fed agriculture, and disruptive effects of climate change (CIDP, 2018). Further, the study area is without major manufacturing, hence leading to high levels of unemployment (approximately 68%) and poverty incidence rate of nearly 52% with a majority of its population living below poverty line (Baringo County Conservancies Association [BCCA], 2020). Therefore, considering the socio-economic challenges of the study area, the engagement and perspectives of stakeholders is important in embracing geotourism as a component of socio-economic development among local communities. Thus, geotourism present opportunity for creating employment opportunities, rural development, and alleviating poverty among local communities in the study area. In that way, geotourism contributes to realization of SDG 8 target 8.9, which seek to “promote sustainable tourism that creates jobs based on local-cultural integrity and product diversity” (GoK, 2018; UNWTO, 2017). Geotourism would contribute to the realization of rural development (SDG 8 target 8.9) through establishing UNESCO Global Geopark in the study area that provides for inclusion of local community’s interest in planning and implementation of geotourism activities. Therefore, the Global Geopark would present opportunity for growing partnership between the County government of Baringo and local community to work together towards rural economic development and poverty alleviation by promoting geotourism.

Stakeholders' knowledge of geosite assessment and geotourism potential is integral to identifying and promoting geotourism in the unprotected areas (UNESCO, 2016, 2019). However, there is little empirical research on geotourism in Kenya, especially in Baringo County, as the existing studies are mainly focused on other forms of tourism especially wildlife-based tourism. This study filled this gap by providing empirical data and qualitative insights on the role of stakeholders especially local communities, tourists, and the County government, in establishing Global Geoparks and promoting geotourism products in the study area. This study would contribute to the existing body of knowledge of geotourism in Africa, especially in Kenya. Moreover, local communities are target beneficiaries in promotion of geotourism and establishing Global Geoparks (KNATCOM, 2023). By seeking the knowledge of local community, an often-neglected population regarding assessing geodiversity sites and offer of tourism products, the findings of this study would enrich the existing tourism literature as well as by focusing on geotourism and the role of stakeholders in promotion of geotourism as a niche product for diversification of tourism in the study area. Furthermore, by specifically collecting data from the tourists, this study sought to capture critical knowledge of tourists - the consumers of tourism products, whose views and experiences influence promotion of geotourism products. By using modified Strba and Rybar (2015) method the study also sought to provide experience-based tourists' perceived value of landforms in the study area.

This study sought to highlight geotourism potential in contributing to tourism diversification. Thus, aligning with the Kenya Vision 2030 agenda, New Tourism Strategy for Kenya (GoK, 2022a) and CIDP (2018) that acknowledge the need to diversify tourism, especially through more diverse customer experiences and products as well as sustainable tourism. Therefore, the focus of this study was on geotourism that offers new and more diverse customer experiences and products as well as sustainable approach to tourism in the study area.

Overall, the findings of this study, if considered by relevant stakeholders such as the Ministry of Tourism and Wildlife (MoT&W), County government of Baringo, Kenya Wildlife Service (KWS), community conservancies, and BCCA, would provide critical policy direction in future planning, management, and promotion of geotourism in the study area.

1.6 Scope and Limitations of the Study

This study focused on stakeholders' assessment of the potential of geotourism in Baringo County. Although geodiversity covers other aspects of geotourism such as management, economic, and protection value, this study focused on experience-based interpretative value of landforms only. This study considered the value of geosites as important in promoting and realizing geotourism potential in the study area. To understand why stakeholders valued geodiversity sites, this study focused on stakeholders' assessment of the potential of geotourism. This study specifically; evaluated local community's knowledge of geotourism, assessed potential geosites and offer of geotourism products; analyzed tourists' perceived value of landforms that constitute tourism products; assessed the role and function of stakeholders (local community conservancies, BCCA, Baringo County government, KWS, MoT&W, and UNESCO) in promoting geotourism, and examined how destination attributes influence (destination image, tourists' motivation, destination experience, satisfaction, and frequency of visit) tourists' visits to Lake Bogoria National Reserve. This study focused on geotourism as opposed to other niche tourism products, since the stakeholders participate in establishing of global geoparks and geotourism in the study area.

The researcher conducted the study in Baringo County, covering both protected and unprotected areas. The study area is characterized with iconic geological and geomorphological formations including; the Great Rift Valley, lakes, volcanic mountains, caves, fault lines, craters, geysers and hot springs, waterfalls, and gorges. Some of these formations are iconic as World Heritage Sites, Ramsar site, Important Bird Area, and archaeological sites that can contribute to geotourism. For this, the study area was chosen for purposes of this study and the sample sites included Lake Bogoria National Reserve and local community conservancies within the study area – Kiborgoch and Irong community conservancies.

The study area boasts diverse iconic geological formations, yet stakeholders have focused on wildlife-based tourism products, neglecting other niche areas such as geotourism. To this extent, tourism stakeholders have not fully embraced geotourism as a means of diversifying tourism products. Thus, the aim of this study was to contribute to the broad understanding of stakeholders' knowledge of geotourism as a means of diversifying tourism products in Baringo County. The researcher commenced data collected in December 2019 and continued through

to, February 2020, and April 2020 to March 2022, and September 2023, which coincided with the high tourism season in Kenya.

Researcher chose the geysers and hot springs at LBNR because more local and international tourists visit them compared to other destinations in the study area. Thus, landforms would add diversity to the existing wildlife-based tourism products in the study area. The geysers would help diversify tourism products, if found to be of high geotouristic value. Unlike other geotourism studies that adopted expert-based approach, this study adopted experienced-based approach by including local community, tourists, and the County government of Baringo. This study considered that diversifying tourism products would only succeed when the knowledge of the various stakeholders in the study area is determined and understood. Therefore, this study documented stakeholders' knowledge of geotourism potential as a means of diversifying tourism in the study area. To this extent, the following indicators of the potential of geotourism and diversification of tourism in the study area were used, presence of; knowledge of geotourism, geosites and geotourism activities, high geotouristic value of landforms, variety of unique landforms, geoparks / geosites, signage of geotourism, and repeat visits.

The sample population comprised the local community, tourists, County government of Baringo and other stakeholders. Tourists form a critical component in supply and demand of tourism products. To this extent, this study targeted adult domestic and international tourists in collecting data on perceived value of landforms, and influence of destination attributes on tourists' visits to LBNR. Furthermore, geotourism is locally beneficial and for this reason, local community and county government plays a central role in assessing, promoting and offer of geotourism products.

This study faced a number of constraints including timing the study, which coincided, with the outbreak of Corona Virus Disease 19 (COVID-19) pandemic. The disease led to restrictions through social distancing, travel ban, and lock down, which coincided with data collection survey; through interview and questionnaire. This considerably slowed down data collection. However, data was collected over an extended period of time to ensure that all the respondents for this study had opportunity to provide information. The research permit was also obtained for the extended period. One other limitation in this study is that it involved tourists that visited

LBNR and therefore their knowledge of geysers and hot springs was after exposure to the study area. This was overcome by use of multiple data sources such as the questionnaire, observation and Key informants interview to validate the findings.

1.7 Assumptions of the Study

This study made the following assumptions:

- i. Geotourism is locally beneficial and the local community would be willing to share their knowledge and experiences of geodiversity and geotourism in the study area;
- ii. Within the study period there would be no disruptive geomorphological or geological changes in the study area;
- iii. The tourism products and policies that influence tourists' visits and growing tourism in Kenya, especially in the study area, would remain substantially the same during the study period;
- iv. The political situation in Baringo County, Kenya and tourism source countries would remain peaceful during the study period.

1.8 Definition of Terms

This study defines an operational definition as the expression of a variable, term, or concept in a manner that enables practical measurement to determine its presence or quantity. Accordingly, the study employs and interprets both conceptual definitions and operational terms within the context outlined below.

Community knowledge: this study conceptualized local community knowledge as; - experiences, opinions, and attitudes towards geodiversity sites and geotourism potential, inventorizing potential geosites and offer of geotourism products in the unprotected area. Phenomenologically, this study conceptualized community knowledge as awareness of geotourism products, assessment of potential geosites, and offer of geotourism products.

Destination attributes: this was operationalized as; tourists' destination image, motivation, destination experience, satisfaction and frequency of visit. Each of the variables were measured on a five-point Likert scale ranging from 1-5 where one is the least and 5 is the highest and also measured at 0.05 significance.

Extrinsic value: refers to external or added values of geysers and hot springs in the study area, which were operationalized to include the following parameters; accessibility, security, value

of provided services, visual value, and touristic importance of geysers and hot springs. Extrinsic variable was measured on a five-point Likert scale ranging from 1-5 where 1 is the least and 5 is the highest.

Geodiversity: adopted from Newsome and Dowling (2006), which refers to non-living part of landscape which include diverse landforms, rocks and natural geomorphic processes that form part of basic resources which attract tourists.

Geodiversity site: a landform with particular geomorphological attributes that may have scientific character, cultural/historical, aesthetic / social/economic value and potential to attract tourists.

Geopark: adopted from (UNESCO, 2006), which refers to an area with certain number of geosites that serve as a tool for sustainable development, conservation, and marketing concept of an area of special scientific character, intrinsic and extrinsic values representative of an area and its geological heritage.

Geosite: a geological or geomorphological place that has acquired universal touristic value /importance and can attract tourists due to human knowledge or exploitation for tourism purposes. Adopted from Reynard (2014, p. 440).

Geotourism: adopted from Newsome and Dowling (2006), and Newsome and Dowling (2010) that; refers to a form of natural area tourism that specifically focuses on geology and landscape and promotes tourism to geosites and the conservation of geodiversity and an understanding of earth sciences through geo-interpretation, appreciation, and learning. By independently visiting geological features, using geo-trails and viewpoints, taking guided tours, participating in geo-activities, and patronizing geosite visitor centres, tourists achieve geotourism. This study conceptualized geotourism as a travel experience based on learning, relaxing, enjoying, and appreciating geodiversity attractions within the study area.

Geotourism potential: refers to stakeholders' knowledge and actions which are intended to grow geotourism products to broaden experience of tourists in the study area. The following indicators of geotourism potential in the study area were used; knowledge of geotourism, presence of geotourism activities, high geotouristic value of landforms, presence of unique variety of landforms, presence of geoparks / geosites, presence of geotourism signage, and repeat visits in the study area.

Intrinsic value: refers to inherent or innate values of geysers and hot springs in the study area, which were operationalized to include the following parameters; general classification,

uniqueness, degree of preservation, observation condition, and availability of information about geysers and hot springs. Intrinsic variable was measured on a five-point Likert scale ranging from 1-5 where one is the least and 5 is the highest.

Non-classified geodiversity sites: a geographical area with geodiversity sites though not recognized and managed through legal means to achieve long-term conservation of nature and geotourism.

Stakeholder: This study conceptualized stakeholder as local communities, community conservancies, BCCA, KWS, County Government of Baringo, MoT&W, KWS, and UNESCO that can affect or is affected by promotion of geotourism in the study area.

Stakeholders' Influence: was operationalized as; ability to affect a particular number of stakeholders in carrying out geotourism activities. Influence was measured on a five-point Likert scale ranging from 1-5, where; 5 = affect all stakeholders, 4 = affect 3 or 4 stakeholders, 3 = affect 2 or 3 stakeholders, 2= affect 1 or 2 stakeholders, and 1 = affect 1 stakeholder only based on Influence-Interest Matrix.

Stakeholders' Interest: was operationalized as the extent to which a particular stakeholder paid attention to promotion of geotourism due to perceived accruing benefits. The interest was measured on a five-point Likert scale ranging from 1 – 5, where 5= critical stakeholder, 4 = high interest, 3 = moderate interest, 2 = some interest, and 1= little interest based on Influence-Interest Matrix.

Tourists' perceived value of landforms: was operationalized as the composite value of intrinsic and extrinsic values of geysers and hot springs, also described as geotouristic value score that is expressed as a *pair value* (composite value) of aggregated intrinsic and extrinsic score values expressed as; $gvs = aiv/aev$. Where the overall geotouristic value score (gvs) is a conceptual function of aggregate intrinsic value score (aiv) paired against aggregate extrinsic value score (aev) and also measured using Independent Sample t-test at 0.05 significance level.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of theoretical and empirical literature on concept and knowledge of geotourism, geodiversity, diversifying tourism products, role and function of government and other stakeholders in promoting geotourism, and destination attributes that influence tourists' visits to the study area. Furthermore, empirical review of literature on the conceptual framework used in this study is examined.

2.2 The Concept of Geotourism and its Origin

The growing interest in geotourism as an emerging niche area has seen a number of scholars (Hose, 1995; Hose & Vasiljevic, 2012; Newsome & Dowling, 2006; Newsome et al., 2002; Stueve et al., 2002) focused on its origin and meaning. Several scholars have varied definitions of geotourism but largely agree that the term geotourism was coined in the 1990s to describe tourism linked to geology and geomorphology. In this regard, Hose (1995) defined modern geotourism as:

Geotourism is “The provision of interpretive and service facilities to enable tourists to acquire knowledge and understanding of the geology and geomorphology of a site (including its contribution to the development of the Earth sciences) beyond the level of a mere aesthetic appreciation” (p. 17).

Since the 1990s geotourism has emerged in the tourism literature as a new but steadily evolving phenomenon in the tourism product portfolio that is based on geodiversity- geology and geomorphology (Dowling, 2011, 2013; Hose, 2000; Joyce, 2006; Newsome & Dowling 2006; 2010). Newsome and Dowling (2006) view geotourism as a form of tourism that focuses on geosite; landform(s), rock(s), fossils, minerals, and geological or geomorphological processes, with natural or added values for recreation through; learning, enjoying, relaxing, and appreciating geodiversity attractions. Thus, geotourism is premised on; first: - the *geo* part, which pertains to geodiversity of natural resources of landscape - landforms, fossil beds, rocks and minerals, and processes that created them. Second: - *tourism*, which involves visitation of geodiversity sites as places of interest for recreation and engaging in a sense of wonder (Newsome & Dowling, 2006).

However, unlike Hose (1995), and Newsome and Dowling (2006), other scholars such as Stueve et al. (2002) argued that geotourism is concerned with wider geographical, socio-economic and cultural contexts that is part of geographical tourism that enhances the character of a place. Furthermore, other scholars went beyond geology, geomorphology and tourism by including biotic (Panizza & Piacente, 2008), and cultural aspects (European Geopark Network [EGN], 2011) in their definition of geotourism. As such, the definition is less confined to geology and geomorphology, and instead includes ecology, geodiversity and geography.

In addition, geotourism is also depicted as a means to protect and conserve geosites and geoparks, which are iconic components of geodiversity (Hose, 2011; Stueve et al., 2002). Furthermore, Dowling (2013), Farsani et al. (2013) and Ngwira (2018) view geotourism as a specialized form of tourism whose focus is sustainable use of geosites and geoparks. According to EGN (2011) geotourism is sustainable use of both the natural and cultural aspects of the earth by tourists. Similarly, several studies (Farsani et al., 2013; Ngwira, 2015; UNESCO, 2016) have characterized geotourism as tools for sustainable tourism; economic, social and environmental sustainability, and rural development, local community inclusion and poverty alleviation. Some studies have also observed that although geotourism is a relatively new term its popularity has grown globally (Ginting et al., 2020; Ngwira, 2018; Strba et al., 2023) over the last two decades and emerging as tourism niche market (Dowling, 2013; Ólafsdóttir & Tverijonaite, 2018). As a form of tourism, geotourism is achieved through independent visits to geological features, geo-trails, vantage points, guided tours, geo-activities, and patronage of geosite visitor centres (Newsome & Dowling 2010) and involving local communities in innovative strategies (e.g. oral narratives about geosites), geo-marketing (Farsani et al., 2010). Geotourism contribute to establishing geosites and geoparks, which are locally beneficial (Arauca Declaration, 2011; Ginting et al., 2020; Newsome & Dowling, 2010) and foster geoconservation and education (Dowling, 2010, 2011; Yolal, 2012).

Geotourism has arisen out of the nexus between geodiversity and tourism; with an emphasis on appreciating and enjoying landform and rocks (Newsome & Dowling, 2010; Newsome et al., 2012). Gray (2004) and Kubalikova (2013) avers that geotourism is based on unique geodiversity features that tourist perceived as valuable and attractive. Further, Newsome and Dowling (2010) stated that some of the unique geodiversity sites include; mountain ranges,

valleys, caves, escarpments, vantage points, volcanoes, karst landscapes, and arid environments. Within landscapes, there may be individual or composite iconic landforms that are of interest to tourists. Geotourism therefore focuses on geosites and Geopark as entities of universal value to tourists (Newsome et al., 2002).

Geotourism encompasses geologic and geomorphic processes of the Earth such as; volcanic eruptions, hot springs, geysers, running water, and weathering. These processes provide valuable geosites for scientific, photographic, sightseeing, and cultural interest and a sense of wonder to tourists (Gray, 2004; Hose, 2012; Newsome & Dowling, 2006, 2010). The nexus between geodiversity and tourism (recreation, learning, experiencing of sense of wonder) has led to establishing geoparks and growing geotourism. As an economic activity, geotourism involves assessing and conserving geosites to provide steady supply of recreation products; relaxation, enjoyment, education and sense of wonder (Lima et al., 2010; Neches, 2013). Further, Neches (2013) observed that as an economic activity, geotourism involves regular visitation by tourists to geosites for recreation purposes, which results in provision of accommodation, infrastructure facilities, and services to support tourism. Geotourism also includes visitation of cultural heritage sites such as archaeological sites, all of which can be considered as distinct and separate aspects of tourism (added values), which forms part of geotourism (Dowling, 2013; Newsome & Dowling, 2006).

The growing demand for geotourism has led to establishing UGGs to provide steady supply of geotourism products (UNESCO, 2006). Further, it has made it necessary for researchers and practitioners in earth sciences to develop geodiversity assessment methods to determine the scientific character of landforms that constitute Global Geoparks. The assessment methods have been used in various European countries including Spain (Bruschi & Cendrero, 2005; Serrano & Gonzalez, 2005), Italy (Coratza & Guitsi, 2005), Portugal (Pralong, 2005), Greece (Zouros, 2007), Poland (Kubalikova, 2013), and Slovakia (Strba & Rybár, 2015). Additionally, geosites and geoparks are managed for geotourism purposes; geoheritage conservation, geo-education, and sustainable local development (Stoffelen, 2020; UNESCO, 2017).

Review of literature on the term “geotourism” showed two approaches to geotourism, namely “geological” and “geomorphological” approach that is mainly based in Europe and Australia

(Hose, 1995, 2012; Hose & Vasiljevic, 2012; Newsome & Dowling, 2006, 2010) and “geographical” one based in the USA that is centred on landscape and well-being of local people (Pralong, 2006; Schutte, 2003; Stokes et al., 2003). This study adopted the geodiversity-based definition, particularly by Newsome and Dowling (2006, 2010) that:

Geotourism is “a form of natural area tourism that specifically focuses on geology and landscape. It promotes tourism to geosites and the conservation of geodiversity and an understanding of earth sciences through appreciation and learning. This is achieved through independent visits to geological features, use of geo-trails and viewpoints, guided tours, geo-activities and patronage of geosite visitor centres” (Newsome & Dowling, 2010, p. 4).

Geotourism therefore refers to travel experience based on learning, relaxing, enjoying, and appreciating geodiversity attractions within protected and unprotected protected areas.

Further, there is a lack of consensus in the literature concerning the origin of the term geotourism as well as its meaning. Thereby, Hose (1994a) traced geotourism to the National Stone Centre, which was also the focus of early United Kingdom geotourism research. Newsome et al. (2002) and Gray (2004) noted that geotourism has always existed; since as places of interest, geodiversity sites have always attracted visitors but it was only with the emergence of the term ‘sustainable development’ in the 1990s and mass tourism, that those unique geological formations have become critical resources for geotourism. On their part, Rodrigues and Carvalho (2009) traced the roots of geotourism to 1956 when Italian geologist, Michele Gortani, stated that: “to the geologist’s mind, the landscape comes alive and talks; every stone, form of coast or mountain or valley tells its story, evoking the variability of its history and its becoming” cited in Ngwira (2015, p. 5). However, Gates (2010 as cited in Thomas, 2012, p. 82) pointed out that geology has featured strongly in recognition of scenic areas in the USA and was embodied in the establishment of Yellowstone National Park in 1872.

Review of literature on geotourism (Bruschi & Cendrero, 2005; Coratza & Guitsi, 2005; Panizza, 2001; Serrano & Gonzalez, 2005) indicates that most studies on this topic are focused on; identification, description, and assessment of landforms as a physical entity management of geodiversity- earth’s geoh heritage (Dowling & Newsome, 2006; Hose, 1995; Joyce, 2006) and sustainability of tourism (Farsani et al., 2009) with a view to determining geotourism

potential. Further, geotourism is characterized as geoconservation-based; sustainable, economically beneficial, educative (geo-interpretation) and brings satisfaction to tourists (Dowling, 2010, 2011; Kubalikova, 2013; Marlina, 2016; Ngwira, 2015; UNESCO, 2006, 2012, 2017) through geotourism products (Gray, 2004; Lima et al., 2010) and infrastructure development (Neches, 2013).

2.2.1 Geodiversity, Global Geoparks, and Geotourism

After examining the concept of geotourism in section 2.2, it emerged that geotourism is based on geodiversity that is established as UNESCO Global Geopark to provide steady supply of geotourism products. Researchers first used the term ‘geodiversity’ in 1996 in Tasmania, Australia, and the Nordic countries later developed it (Nordic Council of Ministers, 2003) to include both geological and geomorphological features and processes. Since then, geodiversity has emerged in the conservation literature, as a new but popular (Gray, 2004, 2008) and steadily evolving phenomenon in scope and application (Ólafsdóttir & Dowling, 2014) in geoconservation and geotourism (Hose, 2008). In 2008, Gray further, noted that geodiversity is a relatively new concept in the earth sciences and according to Thomas (2012) the major components of geodiversity include mineralogical, paleontological, structural and tectonic, and geomorphological and pedological diversity. Gray (2013) defined geodiversity as the natural variety of geological, geomorphological, soil and hydrological features that is important for both biodiversity and understanding the history of Earth, a resource for tourism and recreation. Geodiversity often determines natural scenery, geoheritage and landforms, which are the main attractions for geotourism (Newsome & Dowling, 2010; Ólafsdóttir & Tverijonaite, 2018).

Authorities in the USA classify geodiversity attractions as parks, while those in Europe, Asia, South America, and Africa classify them as geoparks, reflecting the different approaches to the concept and origin of geotourism (Newsome et al., 2012). The sensitivity of some geodiversity resources to anthropogenic activities (Ólafsdóttir & Dowling, 2014) and the need for steady supply of geotourism products, has made geoconservation an integral part of geotourism development (Dowling, 2010; Ginting et al., 2020). To ensure sustainable use of geodiversity resources within and outside protected areas, establishing global geoparks is fundamental. In this context, the UNESCO Report (2006) describes a Global geopark as a nationally protected

area that contains a number of geological heritage sites of particular universal importance, rarity or aesthetic appeal to visitors.

Additionally, geopark is one element in an integrated concept of geoconservation, geotourism, education, and a tool for sustainable rural development that is underpinned by geoconservation and education (Beraaouz et al., 2019; Hose, 2000; Hose & Vasiljević, 2012; UNESCO, 2006) and global marketing concept for geotourism products (Dowling, 2010; Ólafsdóttir & Dowling, 2014; Yolal, 2012). Geopark is an area with a particular heritage of international significance, not only from a geological viewpoint but also, for archaeological, economic, historical, and cultural reasons.

The United Nations World Heritage Convention held in 1972, heralded the establishing UNESCO Global Geoparks (UGG) and introduction of geotourism and geodiversity concepts into tourism and conservation literature in the 1990s (Gray, 2008; Hose, 2011). The Convention established the United Nations Environmental Programme (UNEP) to oversee global conservation and the protection of nature. On its part, UNEP through World Commission on Environment and Development (WCED) led in part to Brundtland Report on Sustainable Development in 1987; and the United Nations Conference on Environment and Development (UNCED) - the Rio Earth Summit in 1992. According to Agenda 21, the knowledge and traditional way of life of the local, rural communities play a vital role in environmental management (Farsani et al., 2010). Thereafter, the push towards local community's participation in conservation, especially of unique earth features including geodiversity led to the need of a universal criterion for establishing global geoparks (UNESCO, 2006, 2011).

Subsequently, UNESCO came up with Statutes and Operational Guidelines to guide in establishing UGG (UNESCO, 2006, 2019) to promote geotourism. By 2024, there were 213 UGGs in 48 countries spread across the globe (KNATCOM, 2023; UNESCO, 2024). The bulk of these UGGs are in Europe (109) and China (48), other Asian countries (33). The rest are distributed as follows; Russian (1), Middle East- Iran (3), North America - Canada (5) and Mexico (2), South America (11), and New Zealand (1) with 60 million visitors per year (Strba et al., 2023). Africa region has only two; M'Goun UNESCO Global Geopark in Morocco and Ngorongoro-Lengai UNESCO Global Geoparks in Tanzania (Scoon, 2020; UNESCO, 2024).

In Morocco, the diversity of landscapes including; the Anti-Atlas area, Tabanit, and Bani Mountains in southeastern offer variety of experience to tourists and increases the attractiveness of the area. Consequently, the number of tourists increased, mainly from European and Asian countries (Mohamed et al., 2019). The M’Goun geopark has led to diversifying tourism products, local community’s participation, sustainable tourism, and rural development, especially in arid areas without intensive agriculture and industry (Beraaouz et al., 2019). Apart from Morocco and Tanzania, most countries in Africa have weak policy framework towards geodiversity and establishment of Global Geoparks (Ngwira, 2018; UNESCO, 2024). According to KNATCOM for UNESCO (2023), UNESCO Global Geopark Network endorsed the Baringo Great Rift Valley Aspiring Geopark in Kenya for its unique geological heritage, although it has not yet attained UGG status.

In spite of Africa’s rich geodiversity, biodiversity, and cultural heritage, Henriques and Neto (2015) argued that planners and policymakers have given greater attention to biodiversity than to geodiversity in tourism development. In line with this argument, Ngwira (2015) carried out a study on geotourism and geoparks for sustainable rural and economic development in Zimbabwe. The study indicates that geotourism and Global Geoparks are relatively new concepts, but present plausible opportunities for alleviating poverty through sustainable rural community development. Further, research also observed that geodiversity research is critical in creating awareness among local communities; which are important stakeholders in establishment of UGG and geotourism (Beraaouz et al., 2019; Kayima & Karasiewicz, 2024).

Gray (2008), Hose (2011), and UNESCO (2006) indicate that geodiversity, global geoparks, and geotourism are new concepts in tourism, but the resources on which they are founded are not new. What is new though is the growing interest in inventory, assessment, and management of geodiversity (Ólafsdóttir & Tverijonaite, 2018). This growing interest prompted UNESCO (2016, 2019) to set criteria for assessing geodiversity sites and establishing UGG. However, there is a discrepancy between geodiversity resource potential and exclusion of geotourism products from mainstream tourism product such as wildlife and cultural tourism. Furthermore, there exist geographical variation in assessment of geodiversity and establishing geoparks in different tourism regions. For example, although Africa is rich in geodiversity, the continent is lagging behind all tourism regions in establishing UGG and promoting geotourism (Kayima &

Karasiewicz, 2024; Ngwira, 2018; UNESCO, 2021, 2024). Despite rich geodiversity that is characterized with WHS, Ramsar site, Rift system, geysers and hot springs geotourism remains limited, especially in involving stakeholders such as local communities, national and county governments. This presents a gap for research on existing policy framework, and stakeholders' awareness and their involvement in geotourism. In this regard, a survey on knowledge of stakeholders; local community, tourists, the county government and other stakeholders, becomes imperative.

2.2.2 Geotourism Potential in the Study Area

Recognition of the importance of geoheritage and its potential on a global scale has led to enhanced scientific interest in geodiversity and its tourism value (Strba et al., 2023). In line with this global trend, Baringo County showcases spectacular geodiversity, including the Great Rift Valley, waterfalls, volcanic landforms, rocky outcrops, caves, and gorges, shaped by its long and complex geological history (GoK, 2017a, 2013a). Some of the landforms are rarely found in other parts of the world and have variously been classified as World Heritage: - the Lake system in the Great Rift Valley and Ramsar sites: - LBNR. As in the rest of the country, tourism stakeholders in the study area base tourism primarily on wildlife in protected areas and partially on geodiversity resources both within and outside these areas (CIDP, 2018; KNBS, 2022). The potential of tourism in Baringo County not only depends on the biodiversity attractions in protected areas but also on its niche products arising from unique geodiversity. However, in spite of rich geodiversity and potential geosites of international importance such as the Great Rift Valley system and the Lake system, exclusion of geotourism from mainstream tourism products still persist in the study area (CIDP, 2018; KNBS, 2022; KNATCOM, 2023). Thus, further research is needed to understand the role of stakeholders in supporting promotion of geotourism in the study area.

To underscore the potential of geotourism in Baringo County, KNATCOM (2023) noted that the study area has unique geological and geographic features such as geoheritage, cultural heritage, biodiversity, and culture that merit establishing UGG. The County government of Baringo also acknowledged the need to grow geotourism and allocated Ksh 30 million (CIDP, 2018) to diversify tourism, through marketing Aspiring Geosites, which form part of the proposed Baringo Great Rift Valley Aspiring Global Geopark (BGRVAGGp).

UNESCO (2012) and (2016) report that geoconservation and geotourism rely on the principle of local community participation. However, GoK (2018) observed that local communities exclude geotourism from mainstream tourism products due to inadequate government policies and neglect. The reasons for exclusion are in part due to the weak policy framework, which does not address itself to the promotion of geotourism (GoK, 2022a); but instead puts greater emphasis on biodiversity conservation and wildlife tourism products (GoK, 2022a; KNBS, 2022). In addition, the National Tourism policy framework has neglected geotourism as a strategy for diversifying tourism products (GoK, 2022a), yet geotourism is a rapidly growing area of tourism globally, especially in Europe (Ólafsdóttir & Tverijonaite, 2018; Strba et al., 2023). In addition, local communities, tourists', and stakeholders' knowledge of geotourism as a means of diversifying tourism products is lacking in the study area, yet their role is clearly articulated in KNATCOM (2023) and UNESCO (2016) reports. Therefore, there is need for further research on local community involvement in geotourism and how the local and national policy framework influence growing geotourism in the study area.

2.3 Perception of Geotourism

Perception can be defined as the process by which an individual select, organizes and interprets stimuli into a meaningful and coherent picture of the tourist destination (Haarhoff, 2018; Rajesh, 2013). Perception comprises consumers' motivations, learning, attitudes, and previous experience. It is subjective in nature and will therefore be different for each individual. Perception thus refers to the way in which individuals interpret messages via their senses in order to make sense of their environment. Furthermore, Solomon (2002) defines perception as the process by which sensations are selected, organized, and interpreted by sensory receptors, i.e. eyes, ears, nose, mouth, skin to basic stimuli such as sights, sounds, smells, taste, and feelings in order to give meaning to their environment. As a result, there are different types of perceptions; visual perception (vision), auditory perception (sound), haptic perception (touch), gustatory perception (taste), and olfactory perception (smell) (Robbins & Coulter, 2005; Robbins, 2005). The individuals perceive the taste, quality, and nature through the five senses and perception may be different from one individual to another (Gnanapala, 2015). For example, some tourists may perceive the foods and beverages served by the hotel as tasty, of quality, and cheap while some other tourists may perceive them as tasteless, of low quality, and expensive.

This study aimed at understanding stakeholders' knowledge of the potential of geotourism that is based on geodiversity resources. Therefore, appreciating that success of geotourism depends on stakeholders' perception, this study then examined the nexus between stakeholders perspectives and geodiversity in order to understand geotourism potential in the study area. Therefore, the success of geotourism as a means of growing tourism depends on stakeholders' awareness, knowledge and attitudes in the study area, particularly local communities, tourists and government stakeholders. Nevertheless, perception remains one of the most engrossing concepts in tourism (Haarhoff, 2018) and a variety of perception studies exist in the tourism field (Bhat & Moolchandani, 2020; Gnanapala, 2015; Lamb et al., 2014; Mohammad, 2014; Rajesh, 2013; Rua, 2020; Stylidis et al., 2017; Tukamushaba et al., 2016) on geotourism mainly dealt with individual interpretation without reference to tourism stakeholders. Hence there is limited understanding of how perception influences involvement of local communities, tourists, government and stakeholders in growing geotourism. Additionally, several scholars have claimed that stakeholders are significant as tourism players because their views can help to shape development of tourism (Chidakel et al., 2020; Haarhoff, 2018).

On tourism and tourists, George (2008) states that the decision-making process is not always as straightforward as it appears, as prospective tourists can withdraw at any stage prior to the travel. Thus, understanding their perception is extremely complex, as each tourist has unique perceptions due to diverse characteristics of tourism products, specifically at the destination (Mohammad, 2014). According to Cohen et al. (2014) differences in perception often lead to variations in behaviour of tourists, and therefore perceptions, like attitudes, are critical in constructing tourist involvement in tourism. Furthermore, in order to promote tourism and market destination, it is important to explore tourists' and community's perception (Mohsin, 2005). Further research is therefore needed on stakeholders of geodiversity destinations that shape the growth of geotourism. Therefore, there is need to provide information that would help in promoting geotourism at geodiversity destinations.

Research scientists have developed various methods for assessing geotourism potential of geodiversity sites. For example, Brilha (2005) argued that the process of eliciting perceived geodiversity data should include; inventorying, quantification, classification, conservation,

promotion, and monitoring geosites. The first two (inventory and quantification) constitute geosite assessment, while the other four (classification, conservation, promotion, and monitoring) comprise geosite management. According to Strba and Rybar (2015), the methods of geodiversity assessment vary according to source of data (direct or indirect), participants (experts or laypersons) and procedure (quantitative or qualitative). Few studies have examined and measured perception of tourism stakeholders in both protected and unprotected areas. There is need therefore to assess knowledge of local communities and perception of tourists in in the study area.

According to a study carried out in Uganda by Tukamushaba et al. (2016) the items to measure tourism product were selected based on the five A's (attractions, accommodation, amenities, accessibility, and ancillary services) model of a tourism product, that was anchored by a seven-point Likert scale where 1 = *Strongly disagree*, and 7 = *Strongly agree*. In another study carried out in Tanzania, Philemon (2015) the eight items to measure international tourists' perceptions included culture, wildlife, landscape, accommodation, restaurants, security and safety, infrastructure, and tour guidance, which were measured on a 5- point Likert Scale from 5= Strongly Agree to 1= Strongly Disagree. However, a one item 5-point scale from 1= Lowly Satisfied to 5= Highly Satisfied was used to examine respondents' level of satisfaction. These assessment methods focused on tourism product and international tourism and leaving out geotourism and also local tourists. Thus, there is need for a study that focuses on assessment of local community, local and international tourism regarding their involvement in geotourism.

Therefore, this study varied the measure of perception to capture experience of local community, tourists, and Baringo County Government and other stakeholders based on study objectives. Hence, perception refers to the local community's, tourists', and stakeholders' subjective interpretation of geotourism potential (products) and geodiversity sites (places), tourists perceived value of geysers and hot springs (places), visits of tourist destination (places), and promotion of geotourism (products) respectively, which results in having particular; experiences, opinions, and attitudes towards geotourism as a potential tourism products in the study area.

From a methodological perspective, this study determined perception as the tourist's perceived knowledge of geysers and hot springs. As such, perceived value of landform is the composite value of intrinsic and extrinsic values of geysers and hot springs. The perceived landform value score was measured and expressed as a pair value of numbers derived from aggregated intrinsic and extrinsic score values expressed as; $gvs = aiv/aev$. Where the overall geodiversity value score (gvs) is a conceptual function of aggregate intrinsic value score (aiv) paired against aggregate extrinsic value score (aev). A score of 25/25 represents the maximum overall pair value, indicating that experts consider the site iconic and of high touristic value, providing a strong basis for geotourism and universal recognition as a geosite or geopark. The higher the overall pair value of numbers, the higher the geotouristic value. Hence, a pair value of numbers closer to 25 indicates high geotouristic value and vice versa. The pair value of numbers, which is high and closely paired, indicates a geodiversity site having exceptional geotouristic value and vice versa. A score of 5/5 represents the minimum pair value, indicating that experts consider the site ordinary and of low touristic value, serving as a basis for non-geodiversity tourism. The lower the overall pair values of numbers the lower the geotouristic value of geodiversity. However, a pair value score of 25/5 has a high intrinsic value but low extrinsic value. Inversely, a pair value score of 5/25 has low intrinsic value but high extrinsic value. In both cases, the landforms (geysers and hot springs) have low geotouristic value.

2.4 Local Community Knowledge of Geotourism Potential in the Unprotected Areas

From the foregoing literature review, local community's involvement is critical in promoting geotourism (Ólafsdóttir & Dowling, 2014; Ólafsdóttir & Tverijonaite, 2018; UNESCO, 2016). Furthermore, Litheko and Potgieter (2021) posits that local communities represent essential stakeholders in tourism destinations, and their perceptions of tourism serve as a critical foundation for formulating development strategies aimed at promoting sustainable tourism - geotourism. Despite the growing interest in geotourism (Ngwira, 2018), there is a little understanding of how local communities participate in offer of geotourism products in the unprotected areas. Research thus far has not elicited and presented local community's own knowledge, and meanings related to offer of geotourism products in the unprotected areas. This study conceptualizes the local community's knowledge to infer their experiences, opinions, and attitudes towards geotourism products and geodiversity sites in the study area. This study

examined community's knowledge of geotourism products and geodiversity sites, documenting potential geosites, and offer of geotourism products in the unprotected area.

According to Lee and Jan (2019) local community's knowledge of tourism shows variation across different aspects of tourism dimensions, namely, the physical-ecological, sociological, which includes cultural and psychological aspects, and economic dimension. The ecological dimension assesses the knowledge of the existence of natural tourism resources. For example, abundant natural resources, unique terrain, beautiful scenery, unique species of flora and fauna increase people's awareness of the environment, which leads to more excellent environmental protection. The socio-cultural and psychological dimensions assess the positive and negative community's acceptance towards destinations, management, and development putting aside the expected impact. Finally, the economic dimension identifies the attitude and belief that can provide alternative livelihood for the community and improving their living standard (Latjuba & Sari, 2022).

Gray (2004), Kubalikova (2013), Pralong and Reynard (2005), and Reynard (2014, p. 440) argue that people cannot tap geodiversity in its entirety as a geotourism resource, but only those parts (potential geosites) that they perceive to have acquired geotouristic value. This means that the local community should inventory (identify, assess, and offer) geodiversity sites of universal importance for geotourism purposes. Thus, in accordance with the principles of geotourism (Marlina, 2016) local community's knowledge of geosites and geotourism products is integral to assessing and promoting geotourism in the unprotected areas (UNESCO, 2016, 2019). However, in spite of local community mandate and jurisdiction, their level of inclusion in geotourism depends on competence, capacity, and /or technical support provided by other stakeholders such as governments and research scientists (Marlina, 2016). This implies that despite the newness of geotourism, geodiversity, and global geoparks, local community's knowledge is imperative in promoting geotourism and conservation of geodiversity that sustainable use of geodiversity resources to create employment, income and local community livelihoods. Therefore, further research is needed to find out local community knowledge on geodiversity and geotourism, and how they are involved in planning and promoting geotourism in the study area. The analysis and interpretation of local community knowledge of

geodiversity sites and geotourism products are not only pertinent in promoting geotourism but also in identifying community need gaps in the study area.

The need for inclusion of local communities in geotourism and geoconservation (Dowling, 2010; Ólafsdóttir & Dowling, 2014), raises critical questions about methodological procedures of local community's participation in assessment of geodiversity sites (documenting) and managing geosites and geopark for promoting geotourism in the study area. The government and other stakeholders ought to empower local community to take part actively in promoting, inventorizing, and offer of tourism products based on potential geosites (Marlina, 2016). The requisite inclusion of local community knowledge is further strengthened by SDG; 12-(b), which states that the public should take part in promoting the development of tourism at national and local levels (SDG, 2017).

In order to inventory and exploit potential geosites for local community benefits; creating employment, livelihoods and alleviating poverty, there is need to capture their knowledge on geotourism products and offer of geotourism products. This argument is crystalized by Lindsey et al. (2007) assertion that communities tend to conserve environmental resources only when they perceive that they are benefiting directly from their environmental protection efforts. Furthermore, in many underdeveloped countries, ecological conservation is only secondary to basic needs of the local people (Lindsey et al., 2007 cited in KNATCOM, 2023).

Additionally, geodiversity resources are ubiquitous and thus, local communities in unprotected areas can access and participate in inventorying potential geodiversity sites for promoting geotourism; including use of indigenous knowledge system. This view was popularized by Farsani et al. (2010) arguing that geological knowledge can be encouraged by the local community through their offer of geotourism products by creating geo-tours, geo-products, geo-museums, geo-lectures, and geoparks. Furthermore, Suzuki and Takagi (2018) observed that the inventory and assessment of geodiversity sites is a necessary requirement for geotourism promotion and management of geoparks. Vujičić et al. (2011) also emphasized that the inventorying geodiversity sites should be carried out before the promotion of geotourism products. As such, inventory of potential geosites puts geographical location of geosites, inventorying and geotourism activities, and local communities at the centre of geotourism

promotion in a given area or geopark territory. There is need in this study to find out how and to what extent are local communities involved in geotourism.

CIDP (2013, 2018), and KNATCOM (2023) report indicate that the study area richly endowed with diverse geological and geomorphological formations, which tourism developers can fully harness to diversify and grow tourism products. Existing research has not adequately addressed the growing geotourism in the study area. For this reason, a study that focuses on assessment of geodiversity sites and the local community knowledge of geotourism products as well as stakeholders' promotion of geotourism that is likely to expand product portfolio and tourists' number and the local economy. The County government of Baringo encouraged the local communities across the County to establish community conservancies in order to diversify tourism products both in terms of spatial coverage and the tourism product portfolio (CIDP, 2018). The community conservancies are people-centred and affiliated to BCCA, which does advocacy, capacity building, networking, and collaboration for the social economic and environmental development of people living in Baringo (BCCA, 2020). In practice, inventorying and establishing geosites of the BGRVAGGp ought to include the input of the local community through the BCCA (BCCA, 2020; CIDP, 2022b). Little is known though about the operations of local community conservancies in offer of geotourism products and their contributions to diversifying tourism products in the study area. There is need to evaluate local community knowledge and their role in growing geotourism in the study area.

However, the review of literature on inventorying geodiversity sites indicates that local community knowledge of geotourism is given low attention (Ólafsdóttir & Tverijonaite, 2018) yet local community knowledge and participation is crucial in the success of promoting geotourism (Dowling, 2010; Strba et al., 2020; UNESCO, 2016) and also locally beneficial (Marlina, 2016). Additionally, several studies including Bruschi and Cendrero (2005); Coratza and Giutsi (2005); Serrano and Gonzalez-Trueba (2005); Strba and Rybár (2015); and Vujicic, et al. (2011) have shown that most inventories of geodiversity sites have tended to focus on expert-based methods to the neglect of experience-based methods. In this context, the expert-based assessment methods ignore local communities experience yet their (local communities) perceptive value of geodiversity sites form an integral component of geotourism product promotion (Dowling, 2010; Strba et al., 2018, 2020; UNESCO, 2016). Further, Hose (2007)

observed that experience-based interpretation method is suitable in providing broad knowledge potential of geodiversity sites, geotourism activities, challenges and community gaps regarding local community knowledge of geotourism. There is scanty empirical research on local community knowledge of geodiversity and geotourism as well as their involvement in the assessment of geosites and geopark, in the study area. This study considers that local community knowledge through a Focus Group Discussion (FGD) is helpful in providing useful information on the knowledge of local communities in assessment of geosites and promoting geotourism in the study area.

2.5 Tourists' Perception of Value of Geodiversity Attractions

Tourists often assess the value of landforms based on their personal opinions and attitudes towards geodiversity features of a destination (Swarbrooke & Horner, 1999). As a result, tourists' perception reflects the subjective value they assign to these landform, which often influences their travel motivations. However, tourism stakeholders have paid limited attention to how tourists perceive geodiversity as a tourism resource in protected areas (Benur & Bramwell, 2015; Farmaki, 2012; Haarhoff, 2018). Most tourism destinations including those with low profile, tend to focus on biodiversity tourism products to the neglect of potential niche products, such as geotourism (Benur & Bramwell, 2015; GoK, 2013a; Ngwira, 2018). Consequently, the existing knowledge of tourism perception mainly focuses on overall destination products without singling out the specific value of geotourism. This highlights a clear need to analyze how tourists perceived the value of geodiversity attractions at a particular destination.

Further, Ólafsdóttir and Tverijonaite (2018) have argued that expert-based interpretation of landforms has shown less interest in the perception by tourists: - the people for whom tourism products are developed. Indeed, Strba et al. (2018) observe that the process of developing geotourism products within protected areas and geoparks has been the works of scientists and practitioners such as geologists, archaeologists, and environmentalists whose focus is on nature's intrinsic value. For this reason, Ólafsdóttir and Tverijonaite (2018) argue that tourists' perception, is neglected in the assessment of geosites and the promotion of tourism products yet their perception (experienced-based interpretation) influences the consumption of tourism products at destination. For this reason, little is known about tourists' perception of

geodiversity, especially in potential geosite and geopark destinations, suggesting a critical gap in the literature in the study area. Therefore, there is need for a study that focuses on preferences and levels of awareness of geotourism in the study area.

Besides expert-based approach to assessment of geotourism, Alan et al. (2008) argue that without tourists there would be no tourism and tourism products. This is to suggest that perceptions and participation of tourists influence consumption of tourism products and growth of tourism. Further, UNWTO (2019) noted that tourists are involved development of tourism, which is a key driver of global and national socio-economic development. To underscore the need to study perception of tourists towards geotourism, Allan et al. (2015), Ólafsdóttir and Tverijonaite (2018), and Strba et al. (2018) argued that most of the geotourism studies have paid more attention to assessment of geosites and geoconservation to the neglect of tourists that visit geosites for recreation. For the reason that geotourism would not succeed without clearly understanding perception of tourists, Strba et al. (2018) and Strba et al. (2023) argue in favour of studies on perception of tourists. This indicates there is knowledge gap in this area of tourist perspective of geosites. However, no studies to date have investigated the role of tourists in assessing geotourism potential of geysers and hot springs in the study area. Hence, there is need to acquiring greater understanding of geodiversity and geotourism by analyzing tourists perceived value and reasons for visits - especially tourists that visit LBNR.

As averred by Alan et al. (2008) “without tourists there would be no tourism and tourism products”. It is implicit that perception of tourists influences consumption of tourism products including geotourism. Indeed, tourism in and of itself is about people visiting places of interest-including geoparks and consumption of (geo) tourism products (Gray, 2013; UNWTO, 1991), during leisure time. The perception of tourists does vary from one tourist to another because tourists are heterogeneous. Consequently, a study on perception of tourists towards a destination product may be helpful when deciding on the kind of products to develop and offer to tourists at a destination (Strba et al., 2018). Therefore, when destinations are developing geotourism products, perception of tourists ought to be included in the geosite assessment process, so that their perceptions can act as a guide in the promotion of geotourism (Strba et al., 2015). Indeed, Saqib (2019) opines that the measurement of tourists’ perception and

satisfaction with the destination's attributes can serve as basis for future offer of tourism product to a more specific niche-market that satisfy the needs of the target tourists.

Since the term geodiversity emerged in the early 1990s, there has been gradual but steady growth of geotourism through geoconservation, and assessment of geodiversity (Hose, 1995; Kubalikova, 2013; Strba et al., 2023). The resource value of geodiversity to tourism arises from their intrinsic and extrinsic values and for this reason, assessment of geosites as basis for geotourism has since strongly emerged (Gray, 2004). Subsequently, many countries around the world have carried out valorization of geodiversity sites by involving expert-based practitioners in geology, geomorphology and other research scientists, which has a bias towards physical intrinsic value of geodiversity; scientific character, scientific use and geosite data. Similarly, many countries have gone ahead to establish Global Geoparks to protect and conserve valuable attributes of geosites of universal importance for tourism purposes. As such, the resultant geotourism products contribute to expansion of product portfolio at the destinations (Dowling, 2013). However, most of the geosite assessment studies have neglected human value of landscapes: - experience-creation process, especially the role of tourists in assessing geodiversity sites, geotourism potential of geosites, landform values for stakeholders use in developing geotourism in geosites in UGG and protected areas.

According to Strba and Rybar (2015), the methods of geodiversity assessment vary according to source of data (direct or indirect), participants (experts or laypersons) and procedure (quantitative or qualitative). While noting that experts and research scientists have mainly participated, this study argues tourists' assessment of geodiversity sites: - geysers and hot springs, within the study area would provide useful information towards promoting geotourism in the study area. Thereby this study would contribute to Kenya's Vision 2030 agenda and SDG, especially on sustainable tourism and economic empowerment of local people.

Further, Brilha (2016) observed that analysts do not universally employ any single method to analyze the tourism potential of geosites. This explains why different researchers have developed various methodological procedures that are particular to geosite specificities (location, size, form) and objective of study; geoconservation, geoheritage management and geotourism (Bonachea et al., 2005; Bruschi & Cendrero, 2005; Coratza & Giusti, 2005; Lima

et al., 2010; Reynard et al., 2007; Zouros, 2007). Most of the assessment methods include use of Likert scale with various scores; 0 to 1; 0 to 8 or 1 to 4 to measure geosite values; scientific, added, cultural, economic use, and management (Table 2.1). Furthermore, there is general lack of research about assessment of geosites in some parts of the world, especially in Africa (Brilha & Reynard, 2018 cited in Tessema et al., 2021, p.3), suggesting a critical gap in the literature on assessment of geodiversity sites in the study area. Therefore, this study may find it challenging or unsuitable to apply assessment methods from previous studies conducted in other regions, as those methods were developed outside of Kenya and the geosites differ in their form and characteristics. In this regard, there is need for innovation of a methodological framework for documenting and assessing geosites in the study area.

Review of literature (Bonachea et al., 2005; Bruschi & Cendrero, 2005; Coratza & Giusti, 2005; Lima et al., 2010; Reynard et al., 2007; Strba et al., 2023) on geodiversity assessment methods indicates that several studies in different European countries employed experts-based assessment methods (Table 2.1). The researchers designed the methods to suit the prevailing environment of the study area. After several years of application in Poland and Western Carpathians Mountains in Slovakia, results from Strba and Rybar (2015) assessment method, showed that many misunderstandings resulted from names of some assessment categories. For example, the criterion on *general classification*, which evaluates geosites according to their membership in Geopark and geosite network. For this purpose, the use of Strba and Rybar (2015) method to assess landforms outside Slovakia and geosites in Europe, require modifying some descriptors to suit local geodiversity sites, which do not belong to global geopark and tourists, who are the participation.

Table 2.1

Distribution of Researchers and Geodiversity Assessment Methods

Researchers	Year	Method	Criteria	Assessors	Scope of assessment	Country
Coratza & Giusti	2005	Quantitative	7	Experts	Scientific & added values	Italy
Bruschi & Cendrero	2005	Quantitative	13	Experts	Scientific & added values; intrinsic qualities, potential threats/protection & use	Spain
Serrano & Gonzalez-Trueba	2005	Quantitative	14	Experts	Scientific, cultural, use, management values	Spain
Zouros,	2005, 2007	Quantitative	6/7	Experts	Geology & landscape, management, interpretation & environmental education, geotourism, & sustainable development	Greece
Pralong	2005	Quantitative	4	Experts	Scientific, scenic, cultural, economic values	Portugal
Pereira et al.,	2007	Quantitative	18	Experts	Scientific, added, geomorphological, use, protection & management values	Slovakia
Reynard et al.,	2007	Quantitative	13	Experts	Scientific & added values	Slovakia
Bruschi et al.,	2011	Quantitative	21	Experts	Scientific, economic & potential threats & protection	Slovakia
Fassoulas et al.,	2012	Quantitative	25	Experts	Scientific & added values	Slovakia
Strba & Rybár	2015	Quantitative	10	Experts	Scientific, educational, economic, added values	Poland
Vujicic et al.,	2011	Quantitative	23	Experts	Scientific, aesthetic, protection, functionality & scenic value/tourist values.	Serbia

Source: Derived from Kubalikova, 2013 and Strba et al. (2014)

Considering that nearly all geosite assessment results in some level of geotourism potential, it is notable that these methods do not incorporate the perspective of potential visitors – tourists and other stakeholders. In this regard, there is an assessment in the inclusion of tourist and other stakeholders in promotion of geotourism. While making a case for inclusion of tourists in assessment of geosites, Daniel (2001) and Strba et al. (2023) argued that perception-based approach of geodiversity assessment involves impression of visitors and so it is more reliable than the expert-based scientific approach which is based on formal knowledge (Daniel, 2001 cited in Tessema et al., 2021, p. 2; Ginting et al., 2020). As such, there is need for inclusion of tourists' perception in assessing geosites to ensure sustainable promotion of geotourism products and geoconservation, as has been provided in this study. Furthermore, Strba et al. (2018) and Strba et al. (2023) argued that geosite assessment methods primarily focus on various aspects of geoheritage, such as location, scientific value, and representativeness, but they pay very little attention to the majority of geotourism participants – tourists, suggesting a critical gap in the literature. In this regard, this study has taken into account the role of tourists in the assessment of geodiversity sites and geotourism potential. In addition, Vujicic et al. (2011) argued that scenic value should be assessed by visitors only to capture intrinsic and extrinsic worth of geosites in real-time. This suggests that when tourists are involved in assessment of landforms, as the case in this study, they are likely to establish any present form of geotourism through landform value rating.

The modified assessment method is capable of capturing and revealing the influence of geodiversity sites on tourists' perception expressed as interest, motivation, and choice of destination. Finally, if researchers do not include tourists' perceptions in the assessment of geodiversity sites, they might not effectively utilize the assessment results to promote geotourism products and geoconservation. The results on perceived geotouristic value of landforms by tourists may importantly contribute to the overall geotourism promotion, especially in offer of geotourism products as a means to diversify tourism in the study area. This would help in addressing exclusion of geotourism and detractive wildlife tourism image among the tourists visiting the study area.

2.6. The Role of Government and Stakeholders in Promoting Geotourism

The Ministry of Tourism and Wildlife and other government agencies have developed a system of protected areas to conserve Kenya's rich biodiversity and geodiversity resources largely for

developing tourism. Thereby, tourism has contributed to the country's socio-economic development (GoK, 2018; GoK, 2022a). The protected areas are under different forms of conservation management namely, national parks (23), national reserves (28), marine national reserves (6), marine parks (4), and national sanctuaries (4); comprising 8% of the country's landmass and 1% of marine space (GoK, 2021).

Moreover, out of the ten recognized categories by the Commission of National Parks and Protected areas of International Union for Conservation of Nature (IUCN), Kenya has established six of them. Namely national parks, national reserves, national monuments, Biosphere, World Heritage Sites and Ramsar sites. Additionally, Kenya has a host of UNESCO heritage sites which include; The Cradle of Mankind on the shore of Lake Turkana, Mount Kenya National Park and Natural Forest, Fort Jesus, Old Town Lamu, the Lake system in the Great Rift Valley, the Sacred Mijikenda Kaya Forest and Turkana National Park (GoK, 2011; GoK, 2013a). Further, it has more than 160 community and private conservancies covering 11% of Kenya (BCCA, 2020). The global community embraces global geoparks and geotourism as avenues for sustainable tourism. However, Kenya is yet to establish a UNESCO Global Geopark, except for the Baringo Great Rift Valley Aspiring Global Geopark (KNATCOM, 2023), suggesting a critical gap in the literature. Thereby, there is need to assess the role of Baringo County government and other stakeholders in promoting geotourism.

The concept of park system in Kenya dates back to 1946 when the first national park -Nairobi National Park, was established, following the National Parks Ordinance of 1945 (BCCA, 2020). Since then, WTTC Report (2017) ranked Kenya 4th as one of the competitive tourist destinations in Africa after Morocco, Egypt and South Africa in that order. Conservation and economic policies have since continued to shape the park system, aiming to protect nature while promoting economic benefits; generating foreign exchange revenue, creating job opportunities, and alleviating poverty. Some of the foremost guiding policy documents include; Sessional Paper No. 8 of 1969, Tourism Act, 2011 (GoK, 2011), Sessional No.1 of 2010 (GoK, 2010a), National Tourism Strategies (GoK, 2018, 2022a), County Government Act (GoK, 2012), and Kenya's Vision 2030. The existing research and reports have not adequately addressed the underdevelopment of geotourism in Kenya. Hence, the need to assess the role of government in promoting geotourism. The assessment of the County government and other

stakeholders within the study area anticipates to provide useful information towards addressing underdevelopment of geotourism and Kenya's lopsided tourism image as "the Big Five" wildlife destination.

Several studies on tourism development in Kenya indicate that low profile tourist destinations including those in Baringo County received a paltry 2% compared to South Eastern Circuit, which received 60-70% of all the tourists in the country (Ikiara et al., 2006; KNBS, 2022). Ikiara et al. (2006) further indicates that 66% of tourism expenditure takes place in the south coast, 14% within Nairobi and only 2% on the low-profile tourist destinations. This has implications on distribution of tourism benefits such as employment, income, rural development, and poverty alleviation. The skewed nature of Kenya's tourism, in terms of product offer and geographical concentration, calls for a paradigm shift in product development strategy and diversity (GoK, 2007; GoK, 2013a; GoK, 2021). However, existing research and reports has not adequately addressed the skewed nature of tourism in Kenya. Hence, the low number of tourists in destinations such as LBNR is persistent in spite of rich geodiversity (GoK, 2022a; KNBS, 2021). It is quite clear though from reviewed literature (GoK, 2008; KNBS, 2016; Sindiga, 1999) that the main problem facing tourism in low profile destinations such as LBNR is detracted by Kenya's image among tourists as a "the Big Five" destination. The rich and diverse indigenous cultural and geoheritage products in such destinations remain much less developed, underfunded, and under-marketed for tourism. Therefore, further research is needed to understand the role of government and other stakeholders in promoting geotourism in low profile destinations such as LBNR.

The major tourism products in Kenya; "the Big Five" wild animals, coastal tourism, business and conference travel have been associated with success and shortcomings such as mass tourism, geographic concentration, and low product yield on the demand and supply sides (Divot et al., 2012; KNBS, 2016; Sindiga, 1999). Insecurity and travel ban advisories often affect beach tourism while wildlife-based tourism, centred on the Big Five wild animals, suffers from uneven distribution, diminished appeal, and vulnerability to weather fluctuations and climate change. The government and tourism stakeholders have excluded many parts of the country that are least endowed with the Big Five wild animals including the study area, by under-investing in infrastructure such as hotels, product range, and tourism promotion,

resulting in low tourist numbers (KNBS, 2022). This indicates a gap in literature regarding overdependence on wildlife and beach tourism. Thereby there is need to assess the role of government and other stakeholders on how they contribute to diversifying tourism in low profile destinations such as the study area.

The MoT&W advocates for sustainable tourism and diversifying tourism products to address seasonality, geographic concentration, mass tourism, low yield, product uniformity, and competitiveness in tourism. Some of the niche products to offer include; avitourism, mountain-climbing cultural tourism, water-sports tourism, sports tourism, MICE and ecotourism especially in new and least visited destinations (GoK, 2018, 2022a; UNWTO, 2016; WTTC, 2016). Additionally, KNATCOM (2023) observes that promoting geotourism is likely to tilt national tourism in favour of excluded destinations such as Baringo County. However, just like past tourism policies, the New Tourism Strategy for Kenya (GoK, 2022a) ignored the role geotourism in diversifying tourism products yet geotourism is given significant consideration in research and tourism reports in other parts of the world including Europe, Australia and China (Ngwira, 2018). This indicates the need to evaluate the role of government in influencing promotion of geotourism through establishing geoparks and geotourism products.

In order to address tourism marketing challenges, the National government advocates for developing new and existing markets. By expanding and diversifying international source market issues of; market diversification, low yielding visitors, product value addition and overdependence on tour operators will be addressed (GoK, 2022a). Some of the targeted source markets include; United States of America (USA), United Kingdom (UK), China, United Arab Emirates, Saudi Arabia, Brazil, Japan, Uganda, South Africa, Nigeria, Russia, and Australia (GoK, 2022a; KNBS, 2022). The creation of County governments has reinvigorated the mandate of counties in promotion of tourism, especially through County Integrated Development Plan (CIDP), which aims at creating opportunities for uplifting the livelihoods of rural communities (CIDP, 2018; GoK, 2012). Aggressive marketing also especially by the National and county governments targets domestic market, namely youth, high-earners, and families through specific 2–3-day events or cultural festivals such as Lamu Cultural festival, Maralal International Camel Derby, and Lake Turkana Cultural festival: - *Tobo-longore* (GoK, 2013a, 2022b; KNBS, 2016).

From the foregoing review of literature, (CIDP, 2018; GoK, 2022a; KNBS, 2022) it is clear that tourism policies have shaped Kenya's global tourism image as a "the Big Five" destination and given it a competitive edge in the continent of Africa (WTTC, 2017). However, lack of tourism product diversity in the study area is a consequence of pulling away of tourists, particularly from low profile destinations, which are least endowed with "the Big Five" wild animals (GoK, 2018; KNBS, 2018; Sindiga, 1999). In absence of "the Big Five", geotourism has the potential to address detractive wildlife tourism image and geographic concentration of tourism (KNATCOM, 2023). However, in terms of brand repositioning national tourism policy (GoK, 2022a) does not address diverse sustainable geotourism, even though international frameworks give it significant consideration (Ngwira, 2015, 2018). Additionally, in developing products and internationally renowned new niche experiences, the focus is on rare birds (avionics tourism), rare and unique wild animals, sports tourism, kite surfing (water sports) and mountain climbing. Therefore, current tourism strategy has missed geotourism and such the policy is weak in diversifying tourism through geotourism (GoK, 2022a).

2.6.1 Sustainable Development of Tourism through Global Geoparks

The finite nature of tourism resources has meant that resource conservation underpins the present and future development of tourism (Marlina, 2016; SDGs, 2017). Based on the principle of sustainable development; - meeting the present needs without compromising needs of future generation, geoparks encourages geoconservation by local communities and diversifying tourism through geotourism that is beneficial to the environment, and the local people (Gray, 2008; Rop, 2020; Schutte, 2003). Therefore, geoparks is a tool for sustainable tourism that is geo-based and requires involvement of all stakeholders. Marlina (2016) observes that since the paradigm shift in the utilization of the natural resources from extractive to conservative, sustainable tourism is an integral part of tourism development, which promote community participation in management of tourism and shared benefits, without compromising the environment (SDGs, 2017; UNESCO, 2016).

Efforts to push for sustainable tourism can be traced back to 1989 when development became an issue for the United Nations World Commission on Environment and Development (UNWCED) that led to the subsequent drafting of Millennium Development Goals (MDGs) in 1999; and later on, the Sustainable Development Goals (SDGs) when sustainable tourism became an issue of international concern (UNWTO, 2016). Since then, many countries

worldwide have ratified the SDGs and committed themselves to principles of SDGs, particularly on SDGs 8 and 12, which seek to promote development of sustainable tourism through supportive physical and regulatory policy framework (SDGs, 2017).

The increasing demand from Earth scientists and non-government organizations for a global framework to promote and protect geodiversity of outstanding value led to the introduction of the geoparks concept (KNATCOM, 2023; UNESCO, 2006). Since 1997 UNESCO, together with national governments and local communities, have continued to establish Global Geoparks based on unique geological formations (Henriques & Brilha, 2017) to foster sustainable tourism through geotourism (Henriques & Brilha, 2017; UNWTO, 2016, 2021). The following principles form the foundation of the global geoparks concept, to: preserve geological heritage for future generations, and thus, promote the conservation of the geological heritage of the Earth; provide research facilities for geoscientists, thus contributing to enhancing knowledge concerning earth sciences. In addition to; ensure sustainable development of tourism through geotourism; educate and teach the public about issues in geological landscapes and environmental matters. Thus, promoting the public's understanding of geosciences (UNESCO, 2014; Eder & Patzak, 2004). Tavares et al. (2015) who argued that by establishing global geoparks and promoting geotourism through local community participation in conservation, creating job opportunities, and livelihoods, UNESCO aims at achieving SDGs Nos. 8, 12 and 17, elucidate these, principles. This is confirmed by UNESCO Reports (2006 & 2017) which underscore the primary goal of geoparks is to; promote Earth heritage, and sustain local communities by using; - a landscape approach for geological heritage conservation, research, and sustainable development.

In 2006, UNESCO developed operational guidelines and criteria to regulate all countries in establishing global geoparks for the development of geotourism. UNESCO check-list for establishing global geoparks include; (i) size and settings of geodiversity, (ii) management and local environment, (iii) sustainable economic development, (iv) education, (v) protection and conservation of unique geodiversity and (vi) global network. UNESCO undertakes establishing of global geoparks jointly with research scientists and practitioners in earth science and environment (UNESCO, 2017). In contributing to promotion of sustainable tourism, Dowling, (2009) argued that geotourism; stakeholders such as government planners could contribute to

sustainable tourism by encouraging establishment of global geoparks based on geological formations in their jurisdiction. UNESCO carries this responsibility to enforce Global Geopark standards and provide capacity to national governments and stakeholders who lack the knowhow to valorize unique geosites of international value (Gray, 2004).

Based on reviewed literature, (GoK, 2007; KNATCOM, 2023) as a signatory to SDGs, Kenya is obliged to promote sustainable tourism based on geoconservation and diversifying tourism through global geoparks and geotourism respectively. Kenya's National Tourism Policy frameworks (GoK, 2013a, 2018, 2022a; UNESCO, 2017; World Bank Report, 2010) neglect both geoconservation and geotourism. For example, Kenya has no known UNESCO global geopark (UNESCO, 2017) except the BGRVAGGp that was identified by KNATCOM for UNESCO as having unique geological and geographic features of universal importance and merits listing on UNESCO Global Geopark network (KNATCOM, 2023). UNESCO (2006) bases the geopark and geotourism concepts on the principle of community participation through a bottom-up assessment and management of geosites. Further, the argument in favour of the bottom-up approach to development is implied in the County Government Act, 2012 (GoK, 2012) and Constitution of Kenya 2010 (GoK, 2010b). Through the CSDP and CIDP frameworks, the County government of Baringo has jurisdiction to map and exploit resources within its territory. Indeed, KNATCOM (2023) observed that the establishing BGRVAGGp as a tool for sustainable development and local community benefits, was informed by the desire for geoconservation and diversifying tourism through geotourism.

Additionally, the success of UGG and geotourism requires inclusion of local communities and other stakeholders (SDGs, 2017; UNWTO, 2016). The existing tourism management structures indicate exclusion of local communities yet public participation is important in geotourism and management of geosites particularly in unprotected areas (UNESCO, 2006). The global community universally accepts the SDG as a good practice, and in tourism, geotourism serves as one of the main avenues for realizing the SDGs. All levels of tourism development; from the global to the local level, including the study area, embrace the same approach. Therefore, from the global to the County government and to the local community, SDG pervades all levels of tourism in a multi-layered governance structure. Ideally, SDGs should inform tourism policies and roles of stakeholders in establishing Global geoparks and diversifying tourism.

However, despite emphasizing stakeholders' roles in geosite assessment and geopark management, researchers have published little about their role in establishing Global Geoparks and promoting geotourism products (GoK, 2018, 2022a).

2.6.2 Diversifying Tourism Products at Tourist Destinations

Diversifying tourism is a product innovation of broadening experiences of tourists through additional products (Benur & Bramwell, 2015). It is also strategy in the management of tourist destinations with a view to solving a number of problems such as; seasonality, adverse effect of climatic changes, geopolitics, and environmental risks such as diseases to optimize regional tourism (Zigern-Korn & Ko, 2018). Contextually, overdependence on wildlife-based products in Kenya, often leads to mass tourism, spatial tourism, and low tourism yields and therefore, diversifying tourism is critical in promotion of tourism (GoK, 2018, 2022b; KNBS, 2016). The concept of diversifying tourism is examined within the context of geotourism based on the following parameters; knowledge of geotourism products, presence of geotourism products and recreation activities, high geotouristic value of landforms (geosites), new destination image, presence of; signage of geotourism, repeat visits to geosite destinations, variety of unique landforms, and geoparks and geosites.

Several studies have opined that diversifying tourism products through tapping geodiversity resources has potential to add value by broadening tourism products, tourism experiences and attracting different types of tourists including those that might not otherwise have visited (Benur & Bramwell, 2015; Farsani et al., 2011; GoK, 2022a; KNATCOM, 2023). Diversifying tourism products is applied whenever; existing products and markets fail to yield profits, destinations and their competitiveness remain unexploited and with the intention to attract new markets with a variety of new products, such as in the case of this study area (Carlsen & Butler, 2011; Farmaki, 2012; GoK, 2022a). Furthermore, Zigern-Korn and Ko (2018) assert that diversifying tourism products creates value and alternative options for the visitors and ultimately catering to a wider range of tourist interests, and motivations; thereby, promoting growth in tourism by providing a wider range of tourism products. Lue et al. (1996) who observed that tourists might prefer destinations with diverse attractions that are more likely to satisfy their varied needs or interests support this.

Diversifying tourism products may in the first instance, involve the packaging and promotion of existing products to create additional products in the same tourist destinations (GoK, 2022a; Zigern-Korn & Ko, 2018). Destinations can also develop new tourism products that quite relate to existing ones, at least initially at small scale to expand destination portfolio. By combining existing and new tourism products destinations are enriched to the extent that they end up attracting new tourists while retaining the existing ones (Benur & Bramwell, 2015; KNBS, 2022; Lue et al., 1996). Tourism developers diversify tourism products by creating, managing, and marketing primary tourism products separately to attract significantly different consumers or by marketing and developing alternate parks and new tourism experiences (GoK, 2022a). Farmaki (2012) is also of the view that diversifying tourism products is often practiced in two ways. First, by focusing on tourists' demand, which include diversifying into new source markets, product value addition, addressing overdependence on tourism products and low yielding visitors. This is also the shared position of the New Tourism Strategy (GoK, 2022a). Second, focusing on the supply side or destination activities by addressing; seasonality, geographic concentration of tourists, mass tourism, low yield, product uniformity and lack of competitiveness. In 2012, Farmaki further suggested that diversifying tourism requires the use of existing resources, which are already under strain and underexploited to develop new products and supplement existing ones, hence increasing destination competitiveness. Carlsen and Butler (2011) also share these views.

Stakeholders within a geographical unit such as geosites or geoparks (Carlsen & Butler, 2011) can also link diversifying tourism products through synergistic relationships and collaborative arrangements such as joint marketing. As a result, collaborative marketing will increase tourist choice and economies of scale for individual attractions and stakeholders. Several other studies and policies have argued that diversifying tourism products increases tourists' preferences for destinations and as such, more likely to satisfy interests of different tourist types (Carlsen & Butler, 2011; Crompton & Stewart, 1996; Benur & Bramwell, 2015; GoK, 2022a; Farmaki, 2012; KNBS, 2022).

Review of literature (CIDP, 2018; GoK, 2022a) indicates that diversifying tourism products can address problems arising from overdependence on a narrow product range such as wildlife-based tourism (GoK, 2022a; Farmaki, 2012). Hence, the need to embrace tourism product

diversification in low yield destinations cannot be ignored, especially by stakeholders such as national and county governments whose mandate include; product developing, promotion, and policy making (GoK, 2022a; KNBS, 2016). However, national policies are weak in embracing of geotourism in the study area. A focus on the mandate of county government and other stakeholders in promoting tourism products can contribute to a better understanding of diversifying tourism in low yield areas.

2.7 Factors that Influence Tourists' Visits to Destinations

Since the 1990s, several studies including Panizza and Piacente (1993), Grandgirard (1999), Pereira (2010), Pereira et al. (2007), Rybar, (2010), and Strba and Rybar (2015) focused on identifying and assessing geotourism potential. However, the assessment methods focused on the scientific value dimension of geosites to the neglect of added value, which is equally important in promotion and development of geotourism. Similarly, researchers and expert practitioners conducted past studies assessing geosites, often neglecting the role of tourists.

Practically every destination can become a tourist destination in a specific situation because different types of tourism such as geotourism, cultural tourism, and wildlife tourism, each rely on distinct attractions and products (Kubalíkova, 2013). It is necessary to note however, that not all destinations can develop valuable attributes to warrant visitation by tourists. This explains why developers advance certain destinations while leaving others underdeveloped (Buhalis, 2000; Lew & McKercher, 2006). The rarity and value of a destination directly increase its attractiveness. In other words, tourism products shape a tourist destination's image, motivate visitors, create experiences, generate satisfaction, and evoke emotional responses, all of which provide tourists with an integral experience (Buhalis, 2000). Studies have shown that understanding the factors that influence tourists' visit to destinations is critical in developing and marketing tourism products (Lue et al., 1996; Pearce et al., 1998) and diversifying tourism products. Therefore, researchers should assess the factors that influence tourists' visits to a destination based on tourists' real-time experiences. In contributing to the factors that influence tourists' visits to destinations, Allan et al. (2015) argued that researchers should pay attention to visitors' experiences at geosite destinations. In 2003, Williams argued that the travel choices and directions that tourists make in terms of where to visit largely depends on what tourists are moving away from as opposed to what they are moving towards, for example, boredom, cold climate, and anticipated experiences.

In contributing towards the factors that influence tourists visit to tourism destinations, Jamal and Goode (2003) argued that the image, which a product has ingrained in the mind of the consumer, is more important when selecting destination than the product itself. In other words, destination image is critical in influencing a tourist in choosing one destination but ignoring the others. According to Saqib (2019) destination image influences destination choice, satisfaction, and post-experience behaviour of tourists. Thereby, matching the needs of tourists with destination products is arguably the most critical part of creating satisfactory tourism experience that creates enduring destination image in the mind of tourist. The destination image is a direct outcome of destination experience, which depends on tourism resources geodiversity, biodiversity, cultural diversity, and infrastructure. This view concurs with Jangra et al. (2021) who argued that tourist experience is fundamental for destination image and development of tourism. Further, tourists' attitudes and knowledge shape their satisfaction with the destination (Jangra et al., 2021), but these perceptions vary among individuals.

Concerning the influence of geotourism products in meeting tourists' needs, Strba (2018) argued that geotourism aims to generate tourist satisfaction, which visiting tourists can reliably measure at the destination. Saqib (2019) stated that satisfaction refers to the degree to which a tourist has perceived value of destination exceeds expectations for those attributes. Thus, attractiveness of a destination reflects the feelings, opinions of, and image of its visitors about the destinations' perceived ability to satisfy the recreation needs of tourists. The more a destination satisfies tourists' interests, the more tourists perceive it as attractive, and they are more likely to choose it (Farmaki, 2012; Kubalikova, 2013). Saqib (2019) found that the most important factor that influenced tourists' satisfaction in Kashmir North India was safety. Consequently, the study recommended that tourism managers should ensure that the provision of safety was given priority in developing geotourism in the study area. Therefore, safety has both affective and conative influence on tourists' choice of destination.

Besides the choice of tourist destination infrastructure such as; information signs, guides, maps, pictorial, and images on the road, constitute reassurance sought by tourists regarding choice of destination (Beraaouz et al., 2019; Yolal, 2012). This view concurs with Styliadis et al. (2017, 2022) who argued that destination image is an experience continuum in the mind of tourist; before travel- cognitive (destination image), at destination - affective image (satisfaction based

on experience) and after experience- conative image (post experience behaviour) including return visits and recommending destination to others. Stylidis et al. (2017) indicated that there was a link between destination image-satisfaction-frequency of visit and future behavioural intentions of tourists in choosing tourism destinations. Further, Stylidis et al. (2017) concluded that domestic and repeat visitors may rely more on their affective image, but first-time tourists may depend on their cognitive image.

In 2006, Newsome and Dowling indicated that many of the Earth's geological and geomorphologic wonders have motivated tourists. Dowling, 2010 observed that one of the principles of geotourism is to generate tourism satisfaction and many examples abound of outstanding geological formations that have motivated visitors since time immemorial (Dowling, 2010). Geotourism provides high quality experience for tourists and many countries including Portugal, Chile, USA, and Australia have increased their tourism numbers and product portfolio by focusing on geotourism. Naturtejo and Azores Global Geoparks in Portugal represent some of the notable attractive sites in geoconservation and geotourism development (Brilha 2009, 2016). In addition, the Lesvos Petrified Forest attracts visitors annually and benefits the local people by creating employment opportunities. The Geopark is the island's main visitor attraction and an excellent example of how sustainable tourism can successfully involve the local community (Farsani et al., 2010). Whilst there is a growing amount of research and understanding on the supply side of geotourism and geoparks, there is relatively little knowledge about motivation of tourists' choice of geosite destinations. This indicates a critical knowledge gap in the literature that call for examining the role of geodiversity and destination attributes in motivating tourists' visit.

In Chile, tens of thousands of tourists are attracted to renowned geotourism destination- Temuco active volcanic geosite and Villarrica Volcano (Nicholls, 2003). Newsome and Dowling (2010) found that Australia and USA had introduced its geotourism attractions as the main tourism product in protected areas. As a result, these countries have protected and promoted many iconic geological sites, such as Uluru and Kata Tjuta in Australia and Grand Canyon in the USA. The Grand Canyon is a WHS that attracts over 1 million tourists annually due to outstanding landform features. Australia's tourism industry has experienced enormous growth in both domestic and international tourists that are attracted to a number of unique

geological heritages sites like mountains and waterfalls. A geotourism study on motivation of tourists at Crystal Cave in Australia (Allan et al., 2011) noted that the outcome of successful geotourism experiences is to fulfil the needs of tourists and thereby increase the likelihood of their re-visitation. Jangra et al. (2021) share this view and explain that tourist experience fundamentally shapes an impressive destination image in the minds of tourists. Allan et al., (2011) further indicates that various aspects motivated tourists to participate in geotourism in Australia and the leading was curiosity (52%), education/gain knowledge, (47%), friends, (20%), and cave (19%) was the least.

Studies have shown that there is scanty information on factors influencing tourists visit to geosite destinations and geotourism activities and experience at the destinations (Kubalikova, 2013; Negm, 2010). This suggests a knowledge gap in the literature. Therefore, there is need to fill this gap by examining the influence of destination attributes; destination image, travel motives, experience, satisfaction and frequency of visit to establish why tourists visits geodiversity attractions at LBNR. Tourists' assessment of geotourism within the study area hopes to provide useful information towards the reasons why tourists frequent geodiversity destinations promotion of geotourism. Therefore, the study contributes to the National Tourism Strategy in providing information on diversifying tourism products and increasing tourism numbers at the destination.

2.8 Theoretical Framework

The theoretical framework used in this study is to limit the scope of relevant data by focusing on local community knowledge of geodiversity and geotourism potential, tourists perceived value of landforms, the role of Baringo County government and other stakeholders in promoting geotourism products, and destination attributes that influence tourists visits to the study area. However, tourism is a multidisciplinary phenomenon without theoretical underpinnings of its own, and therefore this study adopted theories from other disciplines such as psychology, anthropology, geography, sociology, and economics (Williams, 2003). In this connection, the purpose of adopting multidisciplinary methodology is to distil relationships from the identified variables in the conceptual framework of this study. Conversely, the relationships that would arise from the more structured form of analysis based on own theory tend to be lost (Williams, 1998). As an intrinsically eclectic discipline, geographic approach to

the study is able to address this concern by providing the type of holistic perspective that merits a multi-dimensional phenomenon such as tourism. Therefore, the theoretical framework of this study is nested on three theories, namely Kirkpatrick model theory, Maslow theory on hierarchy of human needs and Self-Determination theory (SDT) (Allan, 2011).

2.8.1 Kirkpatrick's Perception Model

The Kirkpatrick model, initially presented by Donald Kirkpatrick in the late 1950s, is a well-known framework in perception studies (Udeshika, 2024). Over the years, it has evolved into a fundamental aspect of assessment methods, especially within the business and service industries (Udeshika, 2024). The model consists of four separate levels: Reaction, Learning, Behavior and Results. The Learning level captures the knowledge, and attitudes from the participants, which is critical for assessing immediate cognitive outcomes in an interactive session (Kirkpatrick & Kirkpatrick, 2006). The Kirkpatrick perception model is commonly used in the hospitality and tourism industry to assess training programs and their effects on employee performance and organizational results (Choudhary, 2020; Huang, 2013). However, the Model is yet to be applied in geotourism studies.

Nevertheless, recent studies, including Udeshika (2024) and Gunarathne et al. (2024) have emphasized the importance of adapting the model frameworks to include local cultural aspects and environmental settings. Then, on the strength of this emphasis and relevance of the model to perception studies and multi-stakeholder analysis, this study used it to evaluate local communities' participants' opinion about their knowledge of geodiversity and geotourism trigger perception (reaction) within their environmental settings; whether the local community participants have knowledge of geodiversity and geotourism, need-based/ experiences/ interest, from their interaction with environment (learning); whether they experienced any consequent changes/patterns in perspective of tourism (behaviour); and how interaction with their environment has impacted their views in tourism within the study area (results). This approach aligns with Sindiga's (1986) use of thematically coded narratives derived from qualitative data obtained from respondents, which examined perception and development in Maasai land.

The model is useful in explaining how different stakeholders in geotourism perceive and interpret geotourism potential in the study area. For example, how the tourists react to the

landscape in terms of visitation and satisfaction. For the local communities, whether geotourism benefits and influences their support. As for the government, whether geotourism is beneficial and aligns with tourism policy. The theory is useful in multi-stakeholder analysis such as this study, which addresses experiences and outcome of different stakeholders in geotourism potential. The model is also helpful in analysing qualitative data (Alturkistan et al., 2019), and interpreting the results, especially in linking perception with destination image and behaviour outcome of stakeholders in geotourism. There is limited literature on the use of Kirkpatrick's perception model to assess local communities' perception of geodiversity and geotourism and thus, the use of Kirkpatrick perception model can help tourism stakeholders in understanding the role of local communities in the promotion of geotourism.

2.8.2 Maslow Theory on Hierarchy of Human Needs

In 1943, Abraham Maslow postulated a theory based on a five-level hierarchy of human needs that determine overt human behaviour. The theory indicates levels of human behaviour from the lowest to the pinnacle of the hierarchy. The levels are; physiological needs, security and safety needs, love and affiliation, self-esteem needs and self-actualization. These levels are sequential in attainment and cascading in occurrence. In 1954, Maslow also added another group of needs; the need to know and understand aesthetic needs (Fig. 2.1).

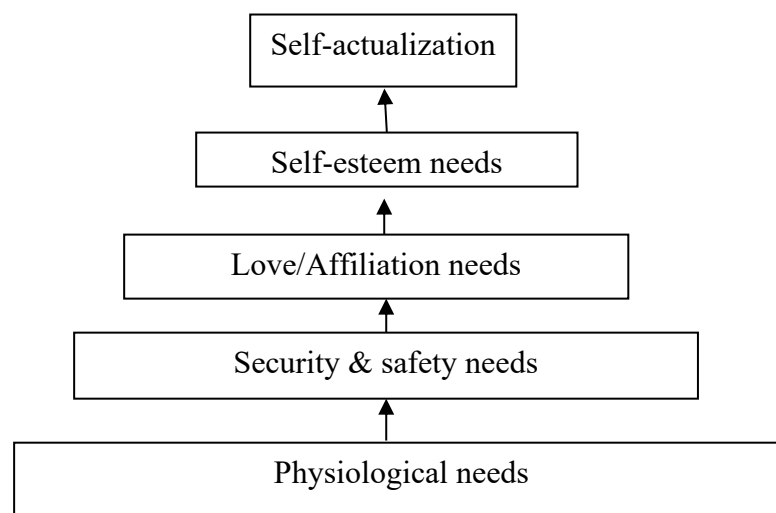


Figure 2.1: Maslow's Theory on Hierarchy of Human Needs

Source: Adapted and modified from “*Towards a Better Understanding of Motivations for a Geotourism Experience: A Self-Determination Theory,*” by M. Allan, 2011.

According to Maslow, motivation causes people to carry out some activity to satisfy a drive, generated either externally or internally. According to the theory, human actions represent strive for self-actualization, the ultimate state of self-fulfillment (Allan, 2011; Simkova, 2014)). Researchers originally developed this theory in the field of clinical psychology, but scholars have since applied it to various fields such as marketing, business, and tourism as a relevant theory of motivation (Kay, 2003, cited in Allan, 2011, p. 38). A number of tourism studies have also employed the theory to explain what motivates tourists to move away from their work place or home environment to new settings where they seek to satisfy their drive needs. For example, individual levels of Maslow's hierarchy of needs will be satisfied as follows; physiological and safety needs of tourists through accommodation (food, shelter, sleep, water) and security (free from crime, theft, assault, and vandalism); love needs through mutual interaction and coexistence with local populace and fellow tourists, and self-esteem and actualization through satisfaction with destination, which may be indicated by repeat visits. The reviewed literature (Witt & Wright, 1992 cited in Allan, 2011, p. 39) has pointed out that some of the shortcomings of Maslow's theory include; its tendency to concentrate on needs which is one aspect of motivation, lack of an exact definition of need concept and lack of complete need types.

In order to capture perceived intrinsic and extrinsic values, the theory is modified to include the following parameters, the urge to; gain knowledge, relax/refresh, enjoy oneself, experience sense of wonder, escape from work, make friends, and for prestige. To capture the influence of destination attributes on tourists' visits, this study added destination image, destination experience, satisfaction and frequency of visit to the theory.

2.8.3 Self-determination Theory

Ryan and Deci (1985, 2000) developed the SDT at the University of Rochester as a large-scale theory of motivation and personality. SDT is an approach to human motivation and personality that uses traditional empirical methods while employing an organismic metatheory that highlights the importance of inner drive and behavioural self-regulation. The theory pays full attention to autonomy and volition in choice of activity by individuals. Deci and Ryan (2006) defined SDT as, "When self-determined, people experience a sense of freedom to do what is interesting, personally important, vitalizing and satisfying". The theory has achieved a common

acceptance and success in many fields concerned with human behaviour such as education, organizations, environment, sport and exercise, psychotherapy, public policy (Deci & Ryan, 2006) and tourism (Allan, 2011; Correia & Moital, 2009; Pearce, 2005; Pearce et al., 1998).

The SDT asserts that humans are active, curious, and adventurous from birth, even without the promise of rewards. According to Correia and Moital (2009), motivation is possibly one of the most researched areas in the field of tourism research. Majority of these studies have focused on a comprehensive understanding of what motivates the individual as a whole. However, this study noted that the in-depth study of what motivates individual tourist in the choice of specific tourism products at geosites is infrequent. There is also little information in terms of disaggregated personality attributes and choice of attractions or tourism products. Hence, through SDT this study sought to contribute to the existing body of knowledge on tourism by establishing what influence tourists' independent decisions in consumption of tourism products at the destination. Researching on conditions of landform values that foster tourism or undermines it, has both theoretical import and practical significance because it contributes to not only formal knowledge about causes of tourist behaviour but also the nature of the tourism destination.

Pearce (2005) advocates for the use of SDT in tourism studies on account of its wholeness in explaining what motivates tourists' visit of destination, its application in many disciplines, usefulness in many countries and its relevance to any country and study group any time. In the context of this study, SDT is capable of explaining the whole range of ways in which intrinsic values of landforms affect visits of destination by tourists. This study considers the influence of landform values on tourism motivation at three levels (Fig. 2.2). First, amotivation, where landforms least influence tourists' visitation of destinations and therefore, dominant form of tourism is wildlife tourism. Second, extrinsic motivation, where both landforms and wildlife have a bearing on tourism both wildlife tourism and geotourism. Lastly, intrinsic motivation occurs when landforms such as geysers and hot springs strongly influence tourists to visit a destination, leading to a form of tourism based on landforms—geotourism. This study modified the SDT by; incorporating geodiversity (geysers and hot springs) component in the motivation of tourism and focusing on the influence of tourism motivation at the destination.

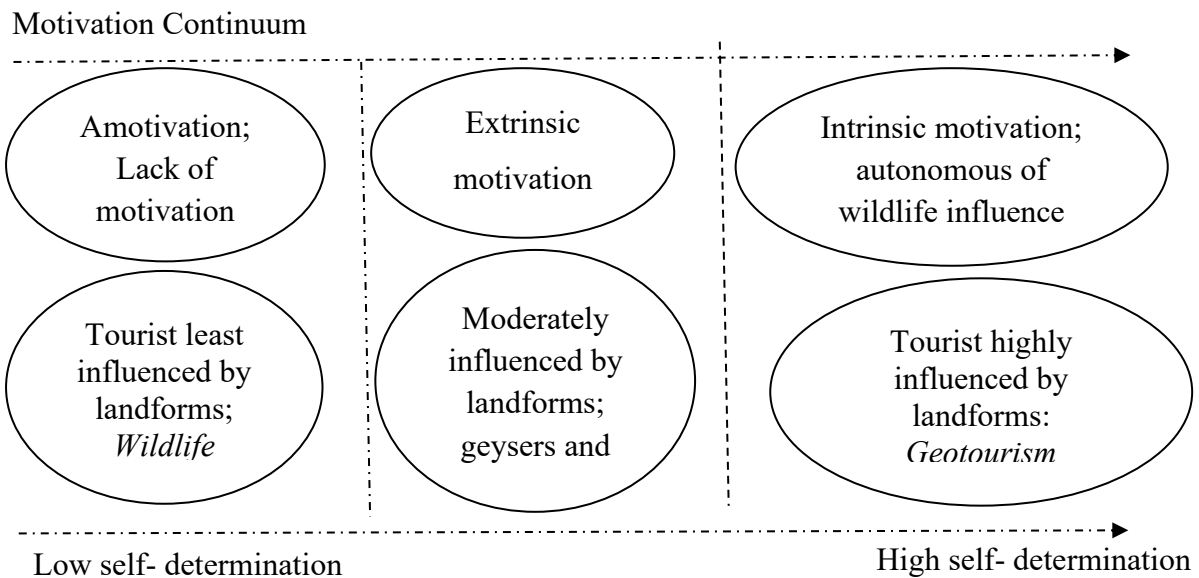


Figure 2.2: Self-Determination Theory and Motivation of Tourists

Source: Adapted and modified from Deci & Ryan (1985, 2006)

The theoretical literature reveals that several tourism studies have employed different theories relating to motivation such as Maslow (1943, 1954) and SDT (1985, 2000). However, most of the theories are limited in addressing the different aspects of motivation in geotourism research. Thus, further research is need to understand the influence of landforms' attributes on tourists' visits. Without delving into geodiversity destination attributes, Correia and Moital (2009) and Allan (2011) argued that a theory of motivation ought to explain and predict causal relationships between study variables such as destination image, satisfaction and experience. Further, Pearce (2005) and Pearce et al. (1998) identified seven elements, which are used to determine the appropriateness of a motivation theory for use in tourism studies. Namely the explanation and prediction ability, its appeal to different users, ease of communication among potential users, universality, amenability to empirical study whereby ideas are translated into questions and responses for assessment purposes, ability to model the pattern of traveller's needs or flexibility to allow many motives, and response to societal change over time and lastly accounts for extrinsic and intrinsic motivation. The SDT embraces these elements as well as those of Pearce (2005).

This study leaned more towards the SDT and Maslow's theories in interpreting the relationship between; intrinsic and extrinsic value of landform and geotourism potential, destination

attributes and tourists' visits – growing geotourism. The theories also explain why tourists travel to geotourism destinations. These theories (Maslow's theory and SDT) were instrumental in the construction of data collection instruments, for example items (to gain knowledge/education/learn, relax/rest/refresh, enjoy one-self, experience sense of wonder, escape from work/boredom, make friends and for prestige) in the questionnaire (Appendix IV) for assessing visits of tourists. Maslow's theory (1954) is usefulness in interpreting geotourism potential- consumption of tourism products and needs of tourists in the study area. With respect to second and fourth objectives, this study employed Maslow theory to examine the influence of extrinsic and intrinsic values on what constitute landforms attractions and visits of attractions respectively.

Furthermore, SDT covers a large range of motivations; intrinsic motivation by tourists, extrinsic motivation provided by destination and amotivation which occur when tourists have no interest on geotourism products (Figure 2.2). The SDT theory is also strong in exploring internally and externally generated motivation by tourists. The theory strengthens the concept of autonomy and volition in choice of activity and destination by tourists. Levels of motivation are relevant in understanding the role of landforms in influencing the choice of destinations by tourists. It is also appropriate for investigating tourist preferences for tourism products. Thus, SDT was chosen based on the capability to explicate how interaction between tourists and landforms constitute geotourism potential in the study area.

2.9 Gaps in Knowledge

Based on the guidelines of geotourism (UNESCO, 2006), a study of geotourism ought to consider inclusion and experiences of stakeholders; government, tourists, (Dowling, 2010; Ólafsdóttir & Dowling, 2014; Ólafsdóttir & Tverijonaite, 2018) and local community (UNESCO, 2012a, 2016, 2017) whose participation is crucial in the success of geotourism. Therefore, further research is needed to understand the role of stakeholders in assessment of geotourism. The literature review (Benur & Bramwell, 2015; CIDP, 2018; GoK, 2022a; KNATCOM, 2023; Swain & Mishra, 2012) shows that tourism development depends on biodiversity, geodiversity, and cultural diversity (GoK, 2013a, 2022a; UNESCO, 2017; UNWTO, 2016; World Bank Report, 2010), yet geotourism is rapidly growing niche area that is embraced globally as an emerging new tourism direction for tourism diversification, based on global geoparks and geodiversity products (Ngwira, 2018; KNATCOM, 2023). Thus, little

is known about geotourism as a means of diversifying tourism products, particularly in low profile destinations. In view of this neglect, this study focused on stakeholders' assessment of the potential of geotourism in the study area, which a low-profile tourist destination.

Most of the studies on geotourism are limited in scope to; its origin, meaning, and concepts, of geodiversity and geotourism (Farsani et al., 2009; Hose, 1995; Joyce, 2006; Newsome & Dowling, 2006). In addition, most of the studies on assessment of geodiversity as well as geosites and geoparks, have mainly involved researchers and expert practitioners (Panizza, 2001, Bruschi & Cendrero, 2005; Serrano & Gonzalez-Trueba, 2005; Zouros, 2005, 2007; Pralong, 2005; Kubalikova, 2013; Strba & Rybar, 2015; Strba et al., 2023) to the neglect of experience-based assessments. In this regard, extensive research is required on how geoheritage and its interpretation appeal to visitors, especially among the lay public (Strba et al., 2023). Tourists, local communities, and other stakeholders are essential in the development of global geoparks and the promotion of geotourism, as their knowledge and participation underpin these efforts. Despite their importance, existing research has not sufficiently applied perception-based approaches to assess geodiversity and geotourism potential, particularly in low-profile tourist destinations. Olafsdottir (2019) highlights that the quality of the visitor experience is central to the success of geotourism. Therefore, future studies should critically examine visitor perceptions, motivations, expectations, and opinions, alongside stakeholder roles and interactions. Gaining deeper insight into these dimensions is crucial for guiding the effective and sustainable promotion of geotourism.

Moreover, reviewed literature, Daniel (2001) and (Ólafsdóttir & Tverijonaite, 2018) pointed out that tourists' perception-based assessment of geodiversity assessment is more reliable than the expert-based approach. Further, Vujicic et al. (2011) argued that researchers should assess potential geosites based solely on visitors' experiences to capture tourists perceived value of landforms. Thus, reviewed literature shows that the existing body of knowledge primarily focuses on expert-based approach leaving experience-based approach. To address this neglected sphere of knowledge, this study considered experience-based interpretation of geodiversity sites and geotourism by focusing on tourists perceived value of landforms and local community knowledge of geodiversity and geotourism potential in the study area. In particular, this study used modified Strba and Rybar (2015) scale quantitative method to

examine tourists perceived value of landforms and fill this knowledge gap. The study also used FGD to assess local community knowledge of geodiversity and geotourism, and stakeholders' analysis to evaluate the role and function of Baringo County government and other stakeholders in promoting geotourism in the study area.

In reference to methods of assessing landforms for establishing UGG, few studies have employed both quantitative and qualitative methods (Bruschi & Cendrero, 2005; Kubalikova, 2013; Ólafsdóttir & Tverijonaite, 2018; Serrano & Gonzalez-Trueba, 2005; Strba & Rybar, 2015; Zouros, 2005, 2007). Also, researchers have not yet developed methodological frameworks in Africa, specifically Kenya, to assess landforms of universal importance for promoting geotourism (KNATCOM, 2023; Tessema et al., 2021). In view of these limitations, this study attempted to bridge the gap in knowledge through use of mixed method approach. First, to assess local community's knowledge of geodiversity and geotourism potential and second tourists perceived value of geysers and hot springs in the study area, respectively. Furthermore, one of the available conceptual and qualitative methodological approach that is potentially valuable but underutilized in the study of local community experiences in geotourism is phenomenology. The basis of using phenomenological approach was to discover geotourism potential from the perspective of the local community members that were assessing potential geosites and offer of geotourism products in the unprotected areas. In addition, the adoption of modified Strba and Rybar (2015) scale method helped in assessing geosites of universal importance that have potential to contribute to establishing geosites and growing geotourism portfolio in the study area.

Many countries in Asia, Europe and South America have established UGG and embraced geotourism in diversifying tourism (Newsome, et al., 2012; UNESCO, 2024) but in Africa global geoparks and geotourism is still underdeveloped with only two Global Geoparks (UNESCO, 2021, 2024); this is despite the huge geotourism potential in the Continent (Ngwira, 2018). Furthermore, researchers consider geotourism, and it is rapidly expanding globally (Tessema et al., 2021). Similarly, KNATCOM (2023) has recognized the importance of geotourism in Kenya, and specifically Baringo County, which is endowed with some of the world's most iconic geological formations yet the Government of Kenya through national tourism policy framework (GoK, 2018, 2022a) does not address itself to geotourism, which is

a niche area for diversifying tourism. There is little information concerning neglect of geotourism in Africa, specifically Kenya and its weak policy framework. Therefore, further research is needed to understand stakeholders' knowledge of the potential of geotourism and how it contributes to diversifying tourism in the study area. Thus, the objective of this research is to contribute to the literature on stakeholders' knowledge of geotourism as a means of diversifying tourism products. To this extent, this study would help fill the research gap and provide recommendations for stakeholders and policy makers aiming to embrace promotion of geotourism and diversifying tourism products in the study area and beyond.

2.10 Conceptual Framework

This study's conceptual framework draws insights from the reviewed literature, theoretical framework, and study variables related to each study objective. This study conceptualizes that stakeholders' knowledge of geotourism and perspectives contribute to growing geotourism products in the study area. In particular, this study focuses on local community knowledge of geotourism potential, tourists' perceived value of landforms that constitute tourism products, the role and function of Baringo County government and other stakeholders in promoting geotourism, and influence of destination attributes on tourists' visits to LBNR.

The conceptual framework also guides the choice of research design, data collection methods and analysis adopted in this study. This study examined the linkage between stakeholders' interest-influence and geotourism potential in the study area. In order to understand geotourism potential through stakeholders' assessment, this study used the following parameters; awareness or existence of geotourism knowledge, presence of geotourism products and recreation activities, high geotouristic value of landforms, presence of variety of unique landforms, presence of geoparks and geosites, presence of signage of geotourism sites and repeat visits to geosites in the study area. As direct beneficiaries of geotourism, this study considered local community's knowledge of; geotourism, geodiversity, and offer of geotourism products as important in contributing to diversifying tourism products in the unprotected areas. Similarly, the tourists' perceived intrinsic and extrinsic value of landforms, geysers and hot springs, contribute to diversifying tourism products at destinations through creation of new tourism image- geotourism and high geotouristic value of landforms in the study area. The

tourists' perceived intrinsic value of geysers includes general classification, uniqueness, and degree of preservation, observation condition, and availability of information.

Furthermore, extrinsic value of geysers includes; accessibility, security, value of provided services, visual value/attractiveness, and touristic importance of landform. The destination image, motivation to visit, destination experience, visitor satisfaction and frequency of visits constitute provide feedback on why tourists would visit LBNR over other destinations. Therefore, geotourism activities within a geosite provide a basis for geotourism and diversifying tourism products through the presence of a variety of unique landforms, geoparks, and geosites. County governments and other stakeholders play a key role in promoting tourism by influencing policy to diversify tourism products. Tourism stakeholders have interests and influence, which determine their roles in promoting geotourism. Some of the interests include environmental protection and conservation, creating employment, wealth creation and development of infrastructure. Some of the perceptions are based on geosite assessment, geosite management, community participation, sustainable development, infrastructure development, and marketing tourism products.

Intervening variables, namely tourism policy and legal framework, alternative tourism destinations, and wildlife tourism image, moderate, mediate, or control the link between stakeholders' knowledge (independent variables) and the diversification of tourism products (dependent variable). Intervening variables may enable or impede growing geotourism and diversification of tourism products in the study area. For example, the national tourism policy has not clearly spelt out the role of geotourism in diversification of tourism products. Thereby the absence of geotourism policy down plays the growth of geotourism in Baringo County. Lack of geotourism policy slows down the creation of the Baringo Great Rift Valley Global Geopark to take off in the study area. Additionally, lack of geotourism policy implies continued narrow product range, spatially confined tourism, exclusion of geotourism, and prevalence of wildlife tourism in the study area. Figure 2.3 shows stakeholders' knowledge of geotourism potential and its effects on diversification of tourism products.

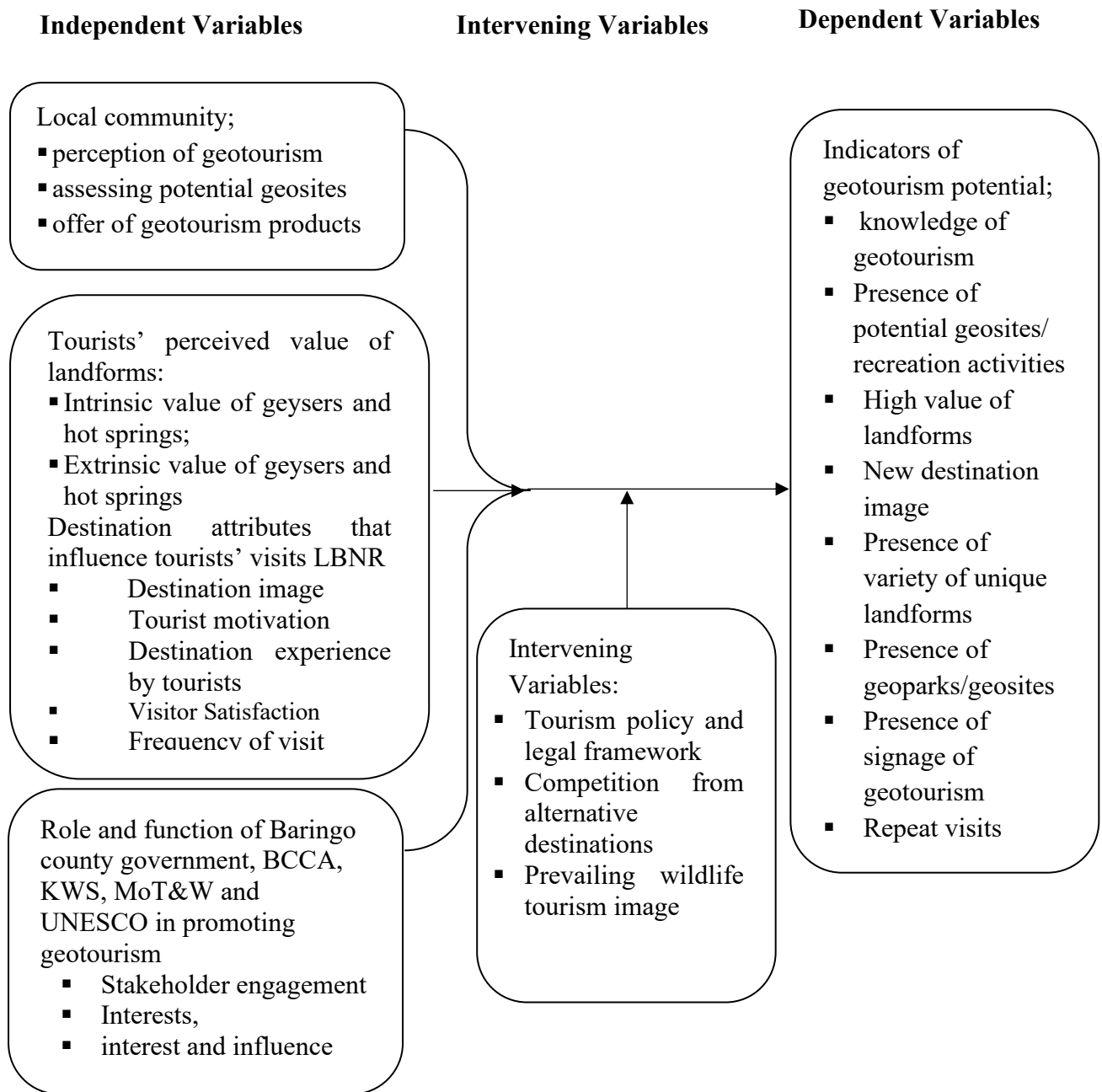


Figure 2.3: Stakeholders' Assessment of Geotourism Potential

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents a description of the study location, physical and economic characteristics of the study area and the adopted research process with a view to addressing the research problem. The research process include; research design, study population, sample size, and sampling procedure, data collection; sources of data and instruments, and data analysis. Additionally, the study discusses validity, reliability, and ethical considerations. This study aimed at collecting both quantitative and qualitative data. Because of the desired data, this study adopted both positivist and interpretivist research philosophies in data collection and analysis. Positivists hold the view that, reality exists independent of the researcher and thus, can be examined objectively through causal relationships while interpretivist contend that reality is subjective and can be constructed from the lived experiences of individuals about a phenomenon as participants describe (Levin, 1988; Mohajan, 2018). Hence, positivist philosophy informed the use of questionnaire to collect quantitative data and data analysis for objectives two and four while interpretivist philosophy/phenomenological approach informed the use of FGD to elicit qualitative data for objective one and thematic analysis of data. In objective three, the researcher used stakeholder analysis to obtain data on the study variables, and analyzed the data using stakeholder analysis. Details of the adopted research design, data collection process and related methodological procedures are provided in the following section.

3.2 The Study Area

This study was conducted in Baringo County, which is located in the North Rift region of Kenya (Fig 3.1). A complex geological landscape characterizes the study area due to various geotectonic landforms and morphological processes, which create a unique geodiversity (GoK, 2017b). For this reason, the whole County could be classified as one extensive geopark (Aman, 2017; KNATCOM, 2023). Geologically and geographically, Baringo County is located within the Eastern Africa Rift System. The study area has rich geological and geomorphological history comprising several hills with highland stretching from Tiaty through Kabarnet to Koibatek and the highest point located to the south of Eldama Ravine town. The lowest point is located to the north east of Chemolingot town (Fig. 3.2).

Baringo County is an Arid and Semi-Arid Land (ASAL) with suppressed development of intensive rain-fed agriculture, diminishing biodiversity resource base, and disruptive effects of climate change (CIDP, 2018). Further study area is without major manufacturing, hence leading to high levels of unemployment (68%) and poverty incidence rate of 52.2% with a majority of its population living below poverty line (BCCA, 2020). However, the unique geodiversity formations such as hills, Rift Valley, caves, gorges, and hot springs present opportunities for promotion of geotourism (CIDP, 2018; KNBS, 2018). The study area also has important archaeological and cultural heritage sites. According to KNATCOM Report, Baringo County has unique geological and geographic formations that are of universal importance and suitable for establishment of a Global geopark (Aman, 2017; KNATCOM, 2023). Thus, with appropriate government policies and infrastructure development, geotourism can add value to economic development in the study area by creating opportunities for employment, rural development, and alleviating rural poverty among local communities. Consequently, growing geotourism will contribute to realization of SDG 8 target 8.9, which seeks to promote sustainable tourism that creates jobs based on local-cultural integrity and product diversity (GoK, 2013a; UNWTO, 2016, 2017).

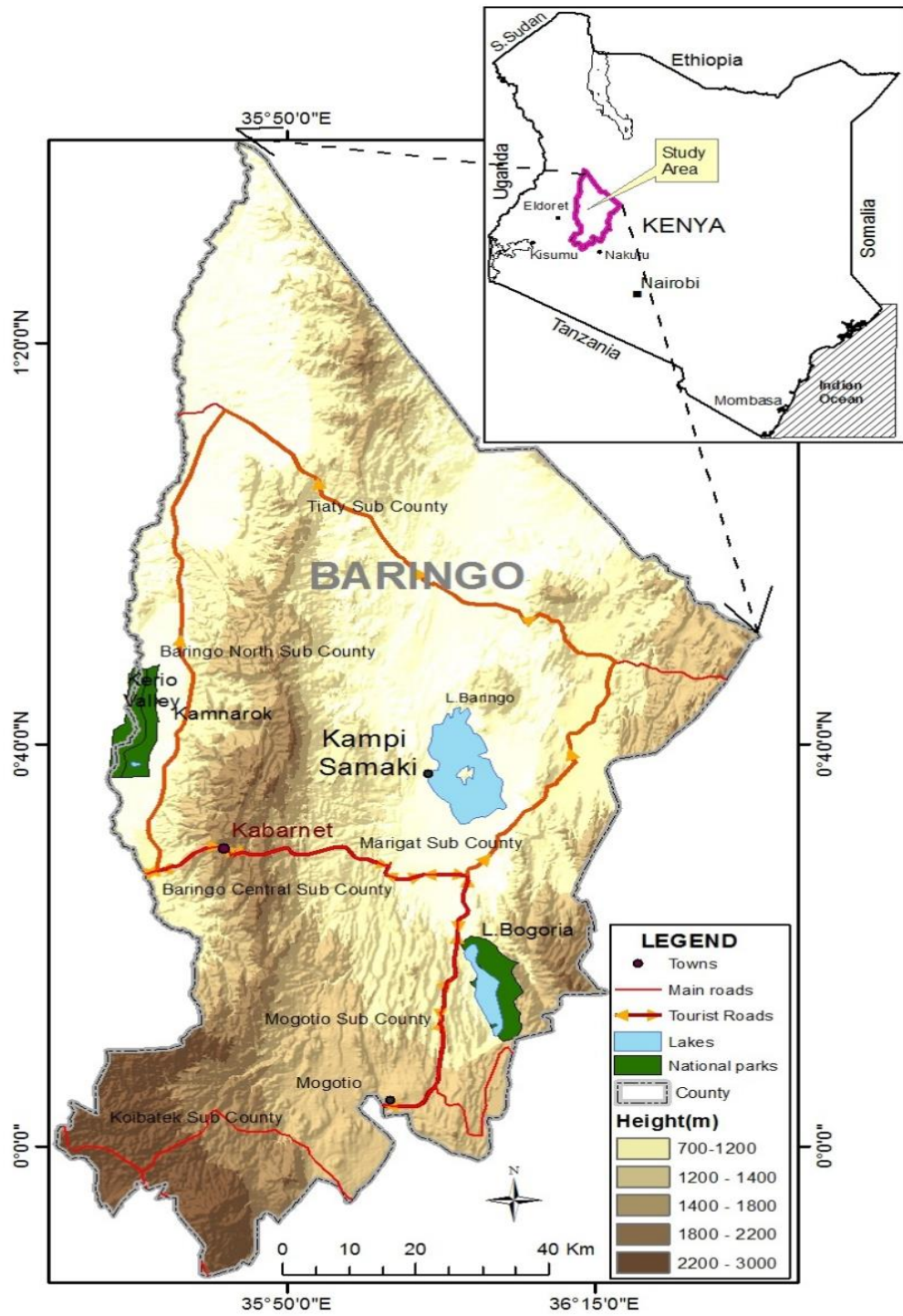


Figure 3.1: The Study Area

Source: Adapted from *Kenya Population and Housing Census* (GoK, 2019a)

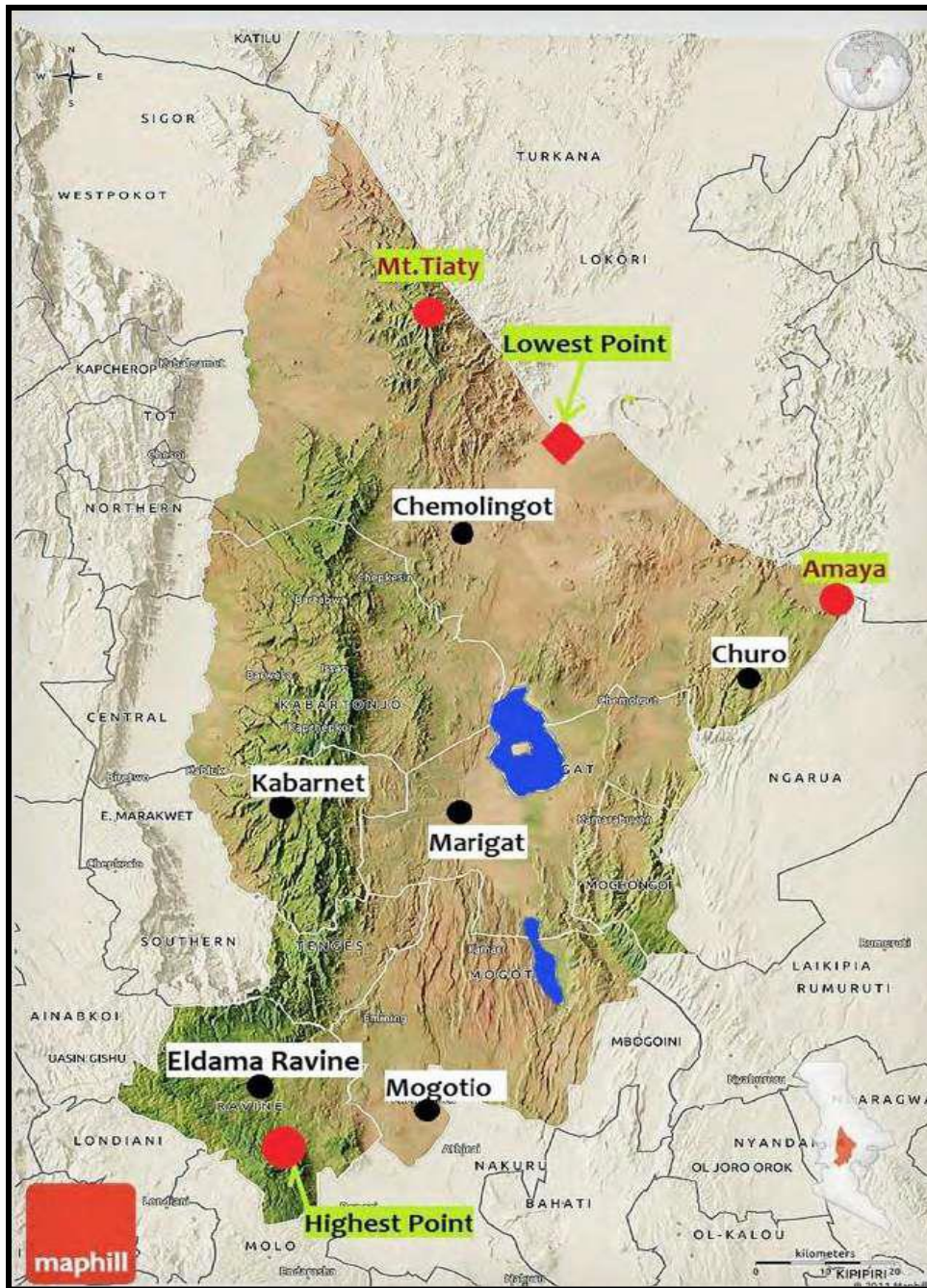


Figure 3.2: Relief of Baringo County

Source: Adapted from *County Spatial Development Plan* (GoK, 2017b)

UNESCO designated a number of landforms of outstanding scientific and aesthetic value as WHS such as Rift Valley Lake system (GoK, 2017a). The researchers chose the study area because of its unique geological formations that remains underutilized in terms of tourism development. Thus, this geodiversity presents untapped potential that stakeholders such as

local community, government and government agencies need to assessment for creating Global Geoparks and growing geotourism. The resultant benefits from geotourism contribute to realization of SDG 8 target 8.9, which seek to “promote sustainable tourism that creates jobs based on local-cultural integrity and product diversity”. In addition, contribute to the UNESCO Global Geoparks framework of integrating geodiversity sustainable tourism.

3.2.1 Lake Bogoria National Reserve

Lake Bogoria is located in Baringo County between 0 ° 20' and 0 ° 35' North and 36 ° 4' and 36 ° 7' East and about 270 km North West of Nairobi and 60 km East of Kabarnet Town. The Lake has an altitude between 970 m at the lake and 1650m on Siracho Escarpment to the east of the Lake. It lies close to Laikipia Escarpment to the eastern wall of the Great Rift Valley and on a volcanic region in a half-graben basin south of Lake Baringo and north of Menengai Caldera. Lake Bogoria is shallow (about 10 m deep), and is about 34 km long by 3.5 km wide, with a drainage basin of 930 km² (GoK, 2017b).

The lake holds the highest concentration of true geysers in Africa, with at least 18 geysers located along its banks and within the lake (GoK, 2017b). Observers can see up to 10 geysers erupting as high as 5 meters in four locations around the lake. However, fluctuations in the lake water level affect geyser activity by inundating or exposing some geysers. The lake ecosystem is home at times to one of the world's largest populations of lesser flamingos numbering up to a million and 350 bird species, especially along the shores of Lake Bogoria (GoK, 2017b). Furthermore, Lake Bogoria is a WHS (2013) and a Ramsar site (No. 1057). The 107sq km Lake Bogoria National Reserve has been a protected area since 1973. The main access is along the Nakuru-Marigat road; 20 km off the junction at Kapchereren, (CIDP, 2013; CIDP, 2018). The geysers and hot springs in LBNR are strategically located on the County and LBNR is renowned for wildlife tourism and ecotourism.

3.2.2 Tourism Attraction Sites in the Study Area

Tourism plays an important role in the economy of Baringo County (CIDP, 2018). It is a major source of revenue, employment, income, and economic opportunities. As such, the County government of Baringo has developed a working partnership with the private sector to remove hindrance to its growth, and to strengthen the linkages between tourism and the rest of the

economy (GoK, 2017b). The tourism attraction sites in the County include the unique diverse scenic features such as; the Gregory Rift Valley, Kerio Valley, Tiaty hills, hot springs and geysers at Lake Bogoria (CIDP, 2018). The County also boasts of diverse wildlife including numerous bird species around Lakes Baringo, and Bogoria (CIDP, 2018). The County also has diverse large water resources such as; lakes Baringo, Bogoria, and Kamnarok, which are a host to diverse aquatic life including; crocodiles, flamingos, and pelicans (GoK, 2017b). As one of the low-profile tourist destinations, LBNR ranks low in tourist visits and benefits (GoK, 2017a). In 2021, there were 12,800 tourists down from 72,400 in 2019 (KNBS, 2019). To diversify tourism, the County government of Baringo plans to undertake marketing, rehabilitate tourism infrastructure, and develop niche tourism products - sports tourism, education tourism, eco-tourism, cultural tourism, bird watching, and heritage tourism (CIDP, 2018).

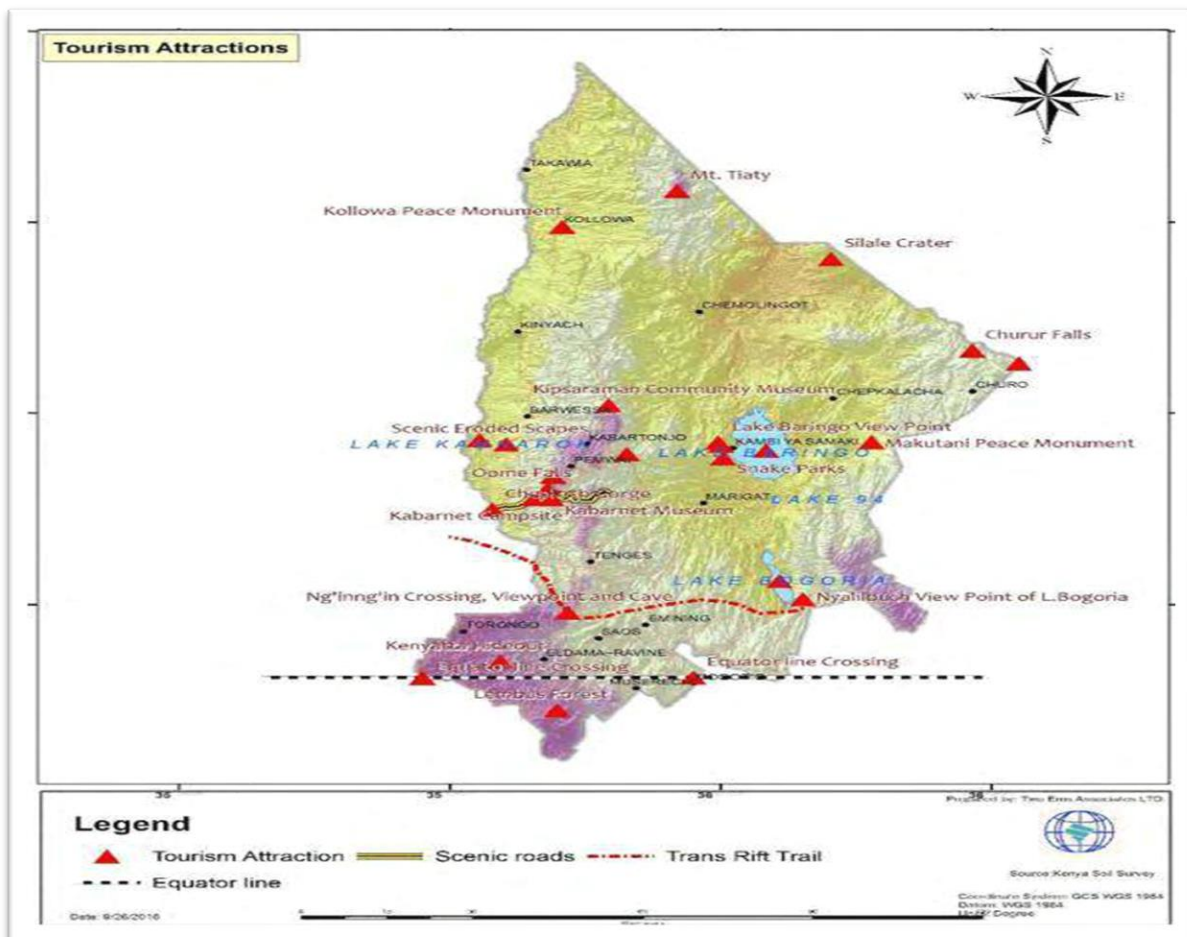


Figure 3.3: Tourist Attractions in Baringo County

Source: Adapted from *County Spatial Development Plan* (GoK, 2017b)

Lake Baringo is a unique destination that has 450 bird species, crocodiles, hippopotamus, 13 islands and vantage points that provides magnificent views of the lake. The largest island being Ol-kokwe and the smallest is Samatian. Other tourist attractions include; Lake Baringo Reptile Park, at Kampi ya Samaki which is the largest in the Rift Valley, Ruko Wildlife Conservancy that has scenic attractions ranging from wildlife to cultural villages, Korossi volcano that rises 1,449m above sea level, an ideal spot for bird-watching, Kabarnet National Museum and Kipsaraman Community Museum. There are a few waterfalls such as Kursalal and Simoot twin falls (CIDP, 2013). There are a number of community conservancies, which include Ruko and Kaptuya in Tiaty, Ngenyin and Irong in Baringo South, Morop-Tarambas and Kipngochoch in Baringo Central. The major attractions in the conservancies are; geoheritage, wildlife, birds, geysers and hot springs, flora and landscape and vantage points (GoK, 2017b).

3.2.3 Tourism Transportation Network

Road transport supports tourism in Baringo County, with air transport providing additional access. The road conditions in the County are motorable throughout the year. However, the rural access roads between the trunk roads and the tourism destinations are poor and inadequate due to neglect (CIDP, 2018). The County has no airport, the nearest being the Eldoret International Airport, which is 130 km away to the west of Kabarnet town and there are no major airstrips either. The few that exist are dilapidated, for example Kapchomuso, Lake Baringo airstrip and non-gazetted and unclassified airstrip located to the northern part of LBNR (GoK, 2013, 2019b). The main trunk road is Nakuru-Marigat-Kabarnet-Iten and Marigat-Chemolingot. The other feeder roads that facilitate movement of tourists are; Karandi-Mochongoi-Marigat, Mogotio-Maji Moto and Mogotio-Kisanana-Nyalilbuch (GoK, 2017b).

3.2.4 Justification and Selection of the Study Area

This study sought to assess stakeholders' knowledge of geotourism potential in Baringo County. The study area has unique geodiversity formations, biodiversity and cultural resources that the local community and County government has largely underdeveloped and underutilized (CIDP, 2018). In addition, the study area has indigenous people that has established community conservancies to promote conservation and geotourism. Thus, LBNR is endowed with iconic geodiversity and biodiversity attractions, which makes it the leading tourist destination in Baringo County. For this study, LBNR presented an excellent case to

examine the geotourism potential of iconic geodiversity formations against the backdrop of Kenya's wildlife tourism image, which is a detraction among tourists at destinations.

Thus, justification and the criteria for selecting LBNR, was particularly due to its diverse landscape including; unique geothermal features (geysers and hot springs), alkaline lake ecosystem, Important Birdlife Areas (IBA) and Key Biodiversity Area (KBA) and WHS as well as community conservancies surrounding the protected area. In addition, convenience sampling involved tourists that visited LBNR. The researcher designed it to obtain real-time perceptions from tourists exposed to geysers and hot springs in the study area. The experience-based perception of tourism activities (things to see and do) by tourists while at LBNR, was also considered important in influencing offer of geotourism products.

3.3 Research Design

This study adopted mixed method research design to obtain primary data about attitudes, experiences, and knowledge of tourists, members of the local community and the County government of Baringo and other stakeholders in promoting geotourism. The survey involved purposive selection of representative sample of respondent tourists, members of the local community, and members of the County government and other stakeholders. Through survey method, data was collected on the study variables for each study objective.

Structured survey was used to collect quantitative data from tourists on the perceived value of landforms and factors that influence tourists' visits to LBNR. In particular, data was obtained through self-administered questionnaire to all selected tourists aged 18 years and above at the tourist destination- LBNR. Unstructured survey involved use of an FGD and stakeholders' analysis to obtain qualitative data directly from selected members of the local community on understanding of geodiversity and geotourism and the County government and other stakeholders in promoting geotourism. Furthermore, this study used qualitative approach to obtain insights from Key Informants (KI).

The collected data was processed and analyzed through editing, classification, and tabulation to summarize and organize to address the research questions. To identify the main themes that emerged from the responses, the study analyzed qualitative data from objectives one and three

using phenomenological approach and stakeholders' analysis respectively. In addition, quantitative data from objectives two and four were analyzed using frequencies and percentages as well as independent t-test. Finally, the study discussed the results, interpreted, and reported the findings objectively, and generalizations made to the larger study population where relevant.

3.4 Target Population

The study population included all the tourists that visited LBNR in Baringo County. The study populations also included members of the local community and County government of Baringo and other stakeholders. The study constituted the following representative samples for each of the study population; tourists aged 18 years and above, FGD, and members of County government and other stakeholders respectively. The sample unit for this study is Baringo County and the study sites included; LBNR, which is a protected area, and Irong, Chuine, Kiborgoch community conservancies, Cheploch, and Equator at Mogotio that are non-classified geodiversity sites within the County.

The actual number of tourists visiting Baringo County may not be accurately known as some of them may go unrecorded. However, the study relied on the Economic Survey (KNBS, 2019) to obtain the number of tourists that was 72,400 in the study area. This study used the Economic survey to derive the study population in the study area. Collecting data from all the tourists visiting the study area was no doubt an important requirement in ascertaining the research problem. However, the study area is extensive, number of tourists is large, and extraneous factors could not allow a study of the entire County. To make up for any disparity in coverage and representation of the population of tourists, this study obtained a representative sample. To address the dynamic nature of tourists at the destination, the study developed a questionnaire designed to be completed within a short length of time, approximately 20 minutes. To be able to get the targeted tourists (385), the administration of the questionnaire was done over a period of two months. This was also carried out with the help of two trained research assistants.

3.5 Sample Size and Sampling Procedures

This study considered choice of an appropriate sample as vital in obtaining results that can answer the research hypotheses for objectives two and four. Furthermore, this study also considered it important to collect information from all the tourists visiting Baringo County and

from all the destinations in the study area. However, this study purposively selected a representative sample of tourists at LBNR due to the expansive study area. This study established that the finite number of tourists who visited LBNR were 72,400 (GoK, 2019b); then, adopted the formula:

$$n = \frac{z^2 p \times q \times N}{e^2(N-1) + z^2 pq}$$

by Kothari (1990) to determine the sample size. Where:

n – Required sample size

N – Population size – 72, 400 tourists (GoK, 2019b)

p – Population proportion, $p = 0.5$, $q = 1 - p = 0.5$

z – Critical z-value at a given significance level, i.e., $z = 1.96$ for 5% significance level

e – Acceptable error (degree of accuracy) whose value is 0.05

In substituting these values in the equation, estimated sample size (n) was determined as:

$$n = \frac{(1.96)^2(0.5)(0.5) \times 72,400}{(0.05)^2(7,400 - 1) + (1.96)^2(0.5)(0.5)} = 385.3402 \approx 385$$

From the calculations on the finite number of tourists, the required sample size was 385 tourists.

The study purposively selected 385 respondents through convenience sampling from among tourists visiting LBNR. The sampling process of selecting respondents at the destination, LBNR, was repeated until the required number of tourist respondents (385) was realized.

For objective one, this study purposively selected eight participants from among members of the local community to constitute a single FGD. The small group allowed greater potential for interactive discussions among the participants. In selecting the eight participants, this study considered homogeneity of the participants that based on their involvement and experience in tourism, conservation activities, and membership in the local community. The eight participants were from; local administrative leadership (1), opinion leaders (1), Irong and Kiborgoch community-based conservancies (2), youth groups (2), and service providers (2). The researcher carried out the selection with the support and consent of the local community and local leadership in the study area. The participants took part in identifying and assessing geotourism potential of non-classified geodiversity sites within Lake Bogoria landscape. For objective three, this study identified the stakeholder groups through brainstorming with key informants drawn from KWS, BCCA, and the County Government of Baringo. Further, the stakeholder groups were identified using secondary sources of data. Thereafter, this study

purposively selected six stakeholder groups namely Baringo County government, BCCA, KWS, Ministry of Tourism and Wildlife, Local Community conservancies, and UNESCO to constitute the stakeholders in the study area.

3.6 Data Collection Instruments

This study used the following data collection instruments; FGD, questionnaire, and stakeholders' engagement/analysis. To complement primary data, the study reviewed secondary sources of data, namely academic journals, published reports, conference proceedings, and government reports in the course of this study. The study also collected secondary data from reports on tourism such as; UNWTO, WTTC, SDGs, World Bank, UNESCO Global Geoparks, GoK, Baringo CIDP, MoT&W, and KNBS. Similarly, the researcher also utilized direct observation and key informant interviews to supplement the data collection tools used in this study.

3.6.1 Focused Group Discussion

The first objective of this study focused on evaluating local community's knowledge of geodiversity and geotourism potential in the unprotected areas in Baringo. Thereby, this study used the FGD schedule to collect data (Appendix III). This study collected qualitative data from members of the local community on their attitudes, opinions, and experiences regarding geodiversity and geotourism potential in the study area. The FGD used face-to-face interaction between participants and the researcher to enable an in-depth understanding of geodiversity and geotourism embedded in the local community participants' views and perspectives. The researcher moderated FGD because of requisite depth about the topic and adequate background knowledge on the subject of discussion. The FGD schedule was structured to capture three aspects of geotourism potential, namely, local communities' knowledge; (a) on geodiversity and geotourism, (b) assessment of geodiversity sites with geotourism potential, and (c) local community of offer geotourism products in unprotected areas. For each category of questions, open-ended questions yielded information about participants' knowledge, attitudes and opinions on the three aspects of geotourism potential based on objective one of this study.

From a philosophical point of view, the study applied the interpretivist phenomenological approach to address objective one. This study took a phenomenological approach to local

communities' experience of geodiversity and geotourism, as crucial in understanding their knowledge in promotion of geotourism in the unprotected area. Therefore, during the FGD the researcher captured the lived experiences of participants about geodiversity and geotourism potential in the unprotected areas. The study captured different views on how local community participants made sense of their experiences of geodiversity sites and geotourism potential in the study area.

Similarly, during the FGD this study considered groups in the community, gender, age, and literacy level as important in determining individual and group knowledge and participation in decision making in the community. Thus, an FGD was held with purposively selected participants drawn from members of the local community including; local administrative leadership, opinion leaders, community-based conservancies, namely Kiborgoch and Irong conservancies, youth groups, and service providers.

This study informed the participants about the objective of the study and the type of information required from them. The study also sought informed consent confidentiality, anonymity and voluntary participation from the participants before the commencement of the discussion. The researcher also requested permission to record the proceedings and assured participants that the published findings of the study would be shared with relevant stakeholders in a meeting, to which the FGD participants would be invited. During the FGD, the participants took part in the discussion by freely sharing their knowledge, ideas, experiences, and concepts about insights in diversifying tourism products as sought in objective one. The thematic interview proceeds from the themes and the related specific questions (Appendix III). The questions were based on the variables in the Conceptual framework for this objective that focused on knowledge of geodiversity and geotourism, knowledge on inventorying of geosites and offer of geotourism products in the unprotected areas. A single FGD encouraged interactive discussion of study variables by the participants. The FGD also provided opportunity to explore the worldview of participants in terms of their attitudes, opinions, and experiences on geotourism and geodiversity.

3.6.2 Questionnaire

In collecting data for objective two and four, this study used a questionnaire (Appendix IV) to

obtain quantitative and qualitative data from tourists at LBNR. The tourists' perception section contained questions to determine tourists' opinions, understanding, expectations, feelings and interpretation of the destination – based on the destination experience and insight. A set of questions based on the literature review of this research was prepared to elicit responses from tourists on their socio-demographics, perceived value of geysers and hot springs, and destinations attributes influencing tourists' visit to LBNR (Appendix IV). The questionnaire, was written in the English language, which is familiar and used for communication within the community and internationally. The structured questionnaire consisted of three parts, namely: Part A (Appendix IV) which sought information on characteristics of tourists; gender, employment, place of residence, purpose of visit, type of travel, and mode of access; Part B (Appendix IV) which focused on measurement of tourists' perception of intrinsic and extrinsic value of geysers and hot springs.

A five-point Likert scale, from ordinary (1) to iconic (5) was used for this B; Part C (Appendix IV) sought to measure knowledge of tourists on; destination image, tourist motivation, destination experience, destination satisfaction, and frequency of visit, used a five-point Likert scale from 1 to 5 with variable descriptors. This information was required to realize research hypothesis for objective 2 and research question for objective 4 as outlined in section 1.4 of this thesis. The study variables for objective two are; intrinsic and extrinsic values of geysers and hot springs. As for objective four the study variables are; destination image, tourist motivation, destination experience, visitor satisfaction and frequency of visit. In order to measure and analyze the knowledge of tourists this study operationalized the variables as outlined in section 1.8 of this thesis. For each variable, the concept was established, dimensions specified, and indicators for measuring each concept were developed. Similarly, this study developed an index by assigning scale values to tourists' responses and integrating the corresponding scores into an overall index - geodiversity value score (Appendix IV).

This study sought to have the tourists assess both intrinsic and extrinsic values of geysers and hot springs in the study area. The reviewed literature indicates that there are three ways to constructing a measurement scale, namely, selecting a method that had previously been developed and used, modifying an existing method by introducing new items or developing a new method (Ritchie & Goeldner, 1987 cited in Saqib, 2019, p. 135). In considering the

intrinsic and extrinsic variables of geysers and hot springs and perception of tourists for objective two, this study used modified Strba and Rybar (2015) assessment method to measure the perceived value of geysers and hot springs by tourists. This study modified Strba and Rybar (2015) assessment method by adding more detailed items to suit the study area (geysers and hot springs) and its usage by tourists in LBNR. Similarly, tourists assessed geotourism potential of the geodiversity site as opposed to expert practitioners and researchers whose focus tended to be on the scientific character of geosites. Additionally, the assessment method focused on tourists to provide data on sustainability of geotourism and their own satisfaction.

Additionally, this study modified the value of landforms that constitute tourist attractions into intrinsic and extrinsic values. For each of the dimensions (intrinsic and extrinsic values), modified Strba and Rybar (2015) assessment method employed a five-point Likert scale to allow sufficient perception differentiation of tourists' knowledge in assessing the value of geysers and hot springs at LBNR. This was a departure from the original Strba and Rybar (2015) that used an eight-point weighting (0 indicating lowest value and 8 highest value) Likert scale to measure landforms value. To suit the study area, this study varied the value label for each criterion. For example, to evaluate geosites in the Western Carpathians mountainous regions of Slovakia and Poland in Eastern Europe, the *uniqueness* criterion had six assessment options/value labels Strba and Rybar (2015) (Table 3.2). However, each criterion had five assessment options (indicators) for the two dimensions; intrinsic and extrinsic (Appendix IV). This study used value labels/ assessment options and descriptors for intrinsic and extrinsic value of landforms. To measure the perceived value of landforms, this study modified Strba and Rybar (2015) method and expressed it as geodiversity value method. As a result, to measure geotourism potential of geysers and hot springs at LBNR this study collected quantitative data (Table 3.5).

To ensure appropriateness of the questionnaire in data collection, computation of geotouristic value of geodiversity site (geysers and hot springs) and assessing of geotourism potential of LBNR, this study modified the Strba and Rybar (2015) assessment method. Table 3.1 shows a comparison of Strba and Rybar (2015) method and modified Strba and Rybar (2015) geodiversity value method.

Table 3.1

Geodiversity Value Method Modified from Strba and Rybar (2015) Method

Strba and Rybar (2015) method			Modified Strba and Rybar (2015) method			
Intrinsic value	Value label	Value score	Intrinsic value	Value label	Value score	Descriptors
Criterion			Criterion			
Uniqueness			Uniqueness			
	Worldwide within continent	8		worldwide within continent	5	Iconic
	orographic unit nationally	6		nationally county	4	Fascinating
	typical for region	5		nationally county typical for	3	Authentic
	another object	4		county typical for locality	2	Unexpected
		2		locality	1	Ordinary
		0				

Source: Adapted and modified from the method by Strba and Rybar (2015)

This study expresses the perceived overall index value of geysers and hot springs as a composite of their intrinsic and extrinsic values (geodiversity). Therefore, the overall index value; called *geodiversity value score* (gvs) is expressed as:

$$Gvs = (aiv / aev)$$

Where; g – *geodiversity (geysers and hot springs)*

vs – *value score*

aiv – *aggregated intrinsic value and*

aev – *aggregated extrinsic value*

/ - *Symbol for pair.*

Geodiversity value score is conceptualized as the inherent (intrinsic) and attributed qualities (extrinsic) of geysers and hot springs that tourists perceive as valuable in the study area. To determine the geotouristic value of geysers and hot springs at LBN, this study measured the perceived value for both intrinsic and extrinsic dimensions. To generate the overall index value of geysers and hot springs (perceived geodiversity value score) the tourists used the geodiversity value method to assign specific five-point value and totals of intrinsic and extrinsic values.

The intrinsic value score was equally based on five-point criteria, which included general classification (gc), uniqueness (u), integrity (i), tourist observation (to) and information availability (ia) (Table 3.4 & Appendix IV). Similarly, the extrinsic value score was based on five-point criteria, which included accessibility (a), security (s), scenic value (sv), value of provided services (vps), and touristic importance (ti) (Table 3.5 & Appendix IV).

A pair of numbers gave the overall index value for the assessed geysers and hot springs as follows: (gvs) = aggregated intrinsic value score (aiv) / aggregated extrinsic value score (aev)

(a) Aggregated intrinsic value score was expressed as;

$$aiv = gc + u + i + to + ia;$$

Where; aiv- *aggregated intrinsic value*,

gc- *general classification*,

u- *uniqueness*,

i- *integrity*,

to- *touristic observation condition/attractiveness*,

ia- *information availability*.

(b) Aggregated extrinsic value score was expressed as;

$$aev = a + s + sv + vps + ti;$$

Where; aev- *aggregated extrinsic value*,

a- *accessibility*,

s- *security*,

sv- *scenic value*,

vps- *value of provided services*,

ti- *touristic importance*.

Thereby, the overall value *Geodiversity Value Score (GVS)* was expressed as follows; (gvs) = aggregate *intrinsic value score (aiv)* / aggregate *extrinsic value score (aev)*.

Where; g - *geodiversity*

v- *value*

s - *score*

aiv – *aggregate intrinsic value score*, and ev – *aggregate extrinsic value score*.

/ - *is pair*

The overall value gives useful information about the geosite not only in terms of geotouristic value but also to stakeholders about the geotourism potential of geosites in the study area.

This study purposively selected tourists at LBNR, informed them about the study, and obtained their consent while ensuring confidentiality, anonymity, and voluntary participation. All the respondent tourists completed the self-administered questionnaire and returned before leaving the tourist destination. This also enhanced personal contact with the tourists. This study held the view that the respondents' filling of questionnaire directly increases the completion and returned rate of questionnaire to the researcher. The researcher, assisted by two trained research assistants, carried out data collection in person at LBNR. Questionnaire's cost-effectiveness and simplicity in application informed its use in collecting data from tourists. For example, questionnaire made it possible to collect data from selected respondents with little cost because the respondents could perform all portions of the questionnaire tasks, such as, reading, and completing. In addition to cost-effectiveness and simplicity, the self-administered questionnaire ensured the privacy of tourist respondent. Administration of questionnaires took place at the tourist destination, geysers and hot springs at LBNR. Although the suggested completion time of the questionnaire is about 20 minutes, the researcher allowed more time for the tourist respondents to complete the questionnaire, where necessary.

3.6.3 Stakeholders' Analysis

To ensure inclusion of all stakeholders' interest and influence in promoting geotourism in Baringo County, this study engaged them through a stakeholder' analysis meeting. As a result, the study engaged Local community conservancies, BCCA, KWS, MoT&W, and UNESCO, alongside Baringo County government to capture their experiences in promoting geotourism in the study area. Similarly, through purposive sampling, this study-collected data from ten respondents drawn from the six stakeholder groups representing different organizations in the study area. Precisely, the study collected data on the power of stakeholders; mandate, modes of engagement, stakeholder influence on geotourism, levels of stakeholders' interests and influence that informed their roles and contributions in promoting geotourism in the study area.

Thus, this study brought in the County government of Baringo and other stakeholders with a view to; first, understand their role (they could play or have been playing) in promoting geotourism in the study area. Second, to find out how can their views, insights, and experience

could be used or captured by the County government of Baringo for geotourism to be promoted successfully. Third, to ensure inclusivity of all the relevant stakeholders for purposes of exhaustively capturing their views, insights, and concerns so that an understanding of geotourism promotion can be established if geotourism is to succeed. The study also used secondary data to beef up the responses obtained from respondents. The Stakeholders' engagement meant to contribute to decision making, implementation, identify impediments to promotion of geotourism, and indicate those affected negatively or positively and those that will influence the outcome of geotourism.

In addition to FGD, questionnaire and stakeholder analysis, direct observation was used to gather information on the behaviour of tourists, tourism activities, and destination conditions; both natural and added values in the study area (Appendix VI). Direct observation involved non participant and structured watching and taking notes or photographing of tourists' activities, safety standards of tourist, scope and quality of provided services; tour guiding, natural attributes of landforms, conservation area and infrastructure, scope of tourist activities, and initiatives by the County government to develop geotourism in the study area.

Besides direct observation, this study used in-depth face-to-face interviews with key informants to capture information (Appendix VI). Therefore, this study carried out interview schedule with selected key informants drawn from; Game warden, tour guide, researcher, Tourism officer, BCCA, and Kenya Wildlife Conservancies Association (KWCA). Direct observation supplemented the information given by the respondents and provided insight into the study. By creating rapport with the key informants, the discussions were insightful on the potential of geotourism as attention was given to individual remarks with a view to underscoring participant experience and how individual perspectives on geotourism varied from one person to another. For example, some informants had more experience than others had and varied in age. These differences influenced their responses to a question aimed at determining whether their knowledge of geotourism potential differed in any particular way. During face-to-face interviews, this study considered all details and answers provided by informants to the questions.

3.6.4 Validity of Research Instrument

Prior to actual data collection this study established validity of the data collection instruments. To ascertain the accuracy of the questions in addressing the research problem, this study used content validity technique to test the validity of the questionnaire. To measure the concepts operationalized (Table 3.2) as outlined in section 1.8 of this thesis, this study designed the questionnaire. Validity was ensured through expert reviews from supervisors and pre-testing of questionnaire on knowledge of tourists and stakeholders on the potential of geotourism in the study area.

This study established the internal validity of the questionnaire by ensuring that the data collection instrument measured only the variables under study. First, by ensuring that the question items captured; information on geodiversity and geotourism potential in the unprotected areas, and the perceived value of landforms that constitute tourist attractions. As a result, in this the study, data collection instruments FGD, questionnaire survey, and stakeholder analysis, were developed in tandem with the specific objectives of study. Second, internal validity was determined by using supervisors to scrutinize the phrasing of statements and relevance of the data collection instruments against each of the study objectives to ensure the alignment between study variables and how well the data collection instruments capture the variables. Moreover, this study trained the research assistants so that they uniformly performed assigned tasks.

The researcher established external validity by designing the study to include a sample size large enough and representative of the entire population of tourists visiting LBNR. The sample size was necessary to ensure generalizability of results on geotouristic value of landforms to the tourists and geodiversity within the study area and similar destinations. This study used non-probabilistic sampling in the selection of study site and the sample size to capture tourists' experience-based knowledge of landforms. In addition to a large sample, this study analyzed the findings against the backdrop of reviewed literature and adopted theoretical framework. Lastly, this study gauged the answers to the research questions to determine their applicability elsewhere.

3.6.6 Reliability of Research Instrument

Different items for each of the data collection instruments; FGD, questionnaire survey and stakeholder analysis were framed clearly and accurately to provide consistent answers/responses from the respondents. Similarly, the researcher conducted a pilot study to test the reliability and accuracy of each data-collection instrument item and eliminate inaccuracies in instrument administration, data collection, and scaling. Further, during the pilot study, the researcher used Cronbach's Alpha Coefficient to measure internal consistency of the items in the data collection instruments, particularly items in the questionnaire that used Likert scale to measure responses. Cronbach's Alpha is a reliability coefficient that indicates how well the items in the questionnaire (Appendix IV) positively correlated to one another. Sekeran and Bougie (2011) considered reliabilities less than 0.60 as poor, above 0.60 to 0.70, ranges as acceptable and 0.80 as good. The pilot study yielded a reliability coefficient of 0.65, which fall within acceptable range and thus, reflected the internal consistency of the questionnaire (Appendix IV). Should be per concept- extrinsic and extrinsic.

3.7 Data Analysis

Data analysis focused on answering the following hypothesis and research questions:

- i. How knowledgeable is the local community about geodiversity and geotourism potential in unprotected areas of Baringo County?
- ii. H₀₁: There is no statistically significant difference in the perceived intrinsic and extrinsic values of landforms across categories of tourists.
H_{a1}: There is a statistically significant difference in the perceived intrinsic and extrinsic values of landforms across categories of tourists.
- iii. What is the interest and influence of the County Government of Baringo and other stakeholders in promotion of geotourism in Baringo County?
- iv. H₀₂: There is no statistically significant difference in the perceived destination image and motivation of the respondents about geotourism across categories of tourists.
H_{a2}: There is statistically significant difference in the perceived destination image and motivation of the respondents about geotourism across categories of tourists.

Field data from the completed questionnaire (Appendix IV) was edited; for possible missing values (blank spaces, non-responses, NA, No or do not know), outliers, and data entry errors. This study coded data by assigning numerals to responses to allow categorization of data such

as gender, occupation, and thematic patterns. In addition, the study classified data according to common characteristics such as literacy level, tourism interest and frequency of visit. Furthermore, this study tabulated data to facilitate comparison and give basis for various statistical analysis and processed data using the Statistical Package for the Social Sciences (SPSS).

This study measured and analyzed stakeholders' knowledge of geotourism potential in the study area using mixed method approach. In particular, for objective two and four, perception of tourists was measured using modified Strba and Rybar (2015) scale and independent t-test for data analysis. Through the third objective, perception of the County government of Baringo and other stakeholders influence was measured on a five-point Likert scale ranging from 1-5, where; 5 = affect all stakeholders, 4 = affect 3 or all stakeholders, 3 = affect 2 or 3 stakeholders, 2= affect 1 or 2 stakeholders, and 1 = affect 1 stakeholder only while interest was measured on a five-point Likert scale ranging from 1 - 5; where 1= little interest, 2 = some interest, 3 = moderate interest, 4 = high interest, and 5= critical stakeholder. The obtain results was then presented using stakeholders' analysis chart.

For objective one the perception of the local community was measured using phenomenological approach and Kirkpatrick perception model, in which the lived experiences of members of the local community were captured through thematic analysis and results further analyzed using independent sample t-test. The researcher analyzed the narrative data from the FGD (Appendices III) using qualitative thematic analysis. Table 3.2 shows the established concept for each study objective and the number of dimensions that were analyzed either quantitatively on a scale of values by which judgments are quantified or qualitatively through thematic analysis.

Table 3.2

Concepts and Number of Dimensions for Each Study Objective

Study objective	Concept	Dimensions of concept measurement levels
Objective one	Community knowledge of geotourism	Awareness of geodiversity and geotourism Inventorying of potential geosites Offer of geotourism products
Objective two	Perceived value of landforms	Intrinsic value of geysers and hot springs Extrinsic value of geysers and hot springs
Objective three	Promotion of geotourism	Stakeholders' identity and power Stakeholders interest Stakeholders influence and interest
Objective four	Influence of destination attributes	Destination image Tourism motivation Destination experience Satisfaction Frequency of visit

Data analysis was completed by performing thematic analysis. Interview recordings were transcribed verbatim, anonymized, and analyzed. The Kirkpatrick evaluation model was used to organize and structure themes and sub-themes identified from interviews. Furthermore, this study employed a mixed method approach to enhance the validity of findings that was informed by the qualitative analysis of data. Further analysis involved quantitative results derived from tourists insights on perceived destination image and motivation. The mixed methods approach integrating quantitative data on tourist destination image and motivation targeting tourists and qualitative data gathered through FGD from local community participants. This study therefore used the independent samples *t*-test to assess significant differences in mean destination image and motivation, providing a clearer understanding of the local community's knowledge levels of geodiversity and geotourism.

The first objective of this study employed thematic analysis to derive thematic patterns and get the world-view of the FGD respondents regarding their knowledge, namely thoughts, beliefs, and opinions, of geodiversity and geotourism potential (Table 3.3). This study conceptualized Community knowledge as attitude, opinions, and experiences as outlined in section 1.8 of this thesis. This was required to organize, categorize, and identify the main patterns, which emerged from the collected data. Using phenomenological approach, thematic analysis of data involved deriving of thematic patterns based on descriptors of concept (Table 3.3). For each of the dimensions of community knowledge, geodiversity/geotourism, potential geosites and geotourism products, the study developed indicators for measuring each concept element. This study derived the following thematic patterns; understanding of geotourism and geodiversity, local community inventory /characterization of potential geosites and involvement in offer of geotourism products. Table 3.3 shows the value labels of community knowledge of geodiversity and geotourism.

Table 3.3

Value Labels of Community Knowledge of Geodiversity and Geotourism

Dimensions	Descriptors	Thematic pattern
Geodiversity/ Geotourism	Experience, opinions, and attitudes	Knowledge of geodiversity and geotourism
Potential geosite identification and characterization	Experience, opinions, and attitudes	Inventoring of potential geosites
Geotourism products	Experience, opinions, and attitudes	Offer of geotourism products

This study measured the quantitative data derived from objective two using the modified Strba and Rybar (2015) method – geodiversity value score. The choice of geodiversity value method was based on its suitability to measure knowledge of tourists on a scale of values for both intrinsic and extrinsic value of landforms. The geodiversity value score has two dimensions intrinsic and extrinsic values, and explicated by ten criteria. Using five-point Likert scale ranging from 1 (low) to 5 (high), this study analyzed on the following elements of intrinsic value: general classification (gc), rarity/uniqueness (u), degree of preservation/integrity (i), tourists’ observation (to), availability of information (ai). Similarly, analysis of extrinsic value

included; accessibility (a), security (s), scenic value (sv), value of provided services (vps), and touristic importance (ti). This study measured the knowledge of tourists on a composite scale of value, which quantified; experience, opinion, and attitude towards geodiversity. To ensure tourists' clarity and distinction of perception, this study assigned specific values to each assessment option for a single criterion assessed. For intrinsic and extrinsic value, each tourism response was assigned a numerical value on a scale of 1 (low) to 5 (high); where *ordinary is (1); unexpected (2); authentic (3); fascinating (4); iconic (5)* (Table 3.4). The results were subjected to further analysis using independent t-test for purposes of making generalizability of results and conclusion on the findings. Furthermore, this study corroborated the results of Independent Sample t-test using the Pearson's Chi-Square test (χ^2) as a test of independence (association) by transforming the indices (continuous variables) into categorical variables in terms of levels for the independent and dependent variables. Since the χ^2 test deals with associations of categorical variables, this study transformed perceived value (in objective two) and destination image and motivation scores (in objective four) into categorical variables in terms of ordinal levels i.e. levels of perceived value and levels of destination image and motivation scores, respectively. The study compared the frequency of cases found in the formed categorical variables by cross tabulating the levels of perceived values across categories of tourists. The significance of the χ^2 test results was also tested at $\alpha = 0.01$ (1%) significance level.

Table 3.4

Criteria for Analyzing the Tourists' Perceived Value of Landforms

Variable /Concept	Descriptors	Value label	Value Score
Intrinsic value			
Geosite general classification	Suitable for recognition globally	Iconic	5
	Suitable for recognition regionally	Fascinating	4
	Suitable for recognition nationally	Authentic	3
	Suitable for recognition at the county	Unexpected	2
	Locally important for recognition	Ordinary	1
Uniqueness/ or rarity	Unique worldwide	Iconic	5
	Unique within continent	Fascinating	4
	Unique at national level	Authentic	3
	Unique at county level	Unexpected	2
	Typical for locality	Ordinary	1
Degree of preservation/integrity	No destruction	Iconic	5
	Mostly preserved	Fascinating	4
	partial destruction	Authentic	3
	Mostly destructed	Unexpected	2
	Totally destructed	Ordinary	1

Tourists' observations	Excellent	Iconic	5
	Very good	Fascinating	4
	Good	Authentic	3
	Fair	Unexpected	2
	Unsuitable/ poor	Ordinary	1
Availability of information	High quality information	Iconic	5
	Moderate information	Fascinating	4
	Little information	Authentic	3
	Incomplete information	Unexpected	2
	No information	Ordinary	1
<hr/>			
Extrinsic value			
Accessibility	Comfortable/optimal access	Iconic	5
	Highly accessible for most persons	Fascinating	4
	Moderately accessible	Authentic	3
	Low access for different reasons	Unexpected	2
	Inaccessible for different reasons	Ordinary	1
Geosite Security	Surroundings of landform is safe	Iconic	5
	Landform secured by security elements	Fascinating	4
	Dangerous land terrain with warnings	Authentic	3
	Dangerous land terrain without warning	Unexpected	2

	No security elements	Ordinary	1
Scenic value of geosite surroundings	Mountainous landscape; with great view	Iconic	5
	Plain landscape with great view	Fascinating	4
	Slope with great view	Authentic	3
	Landscape with no view	Unexpected	2
	Negative effects of Man-made features on geosite	Ordinary	1
Value of provided services at the site	Study room/ library & labs for research purposes	Iconic	5
	Accommodation and catering	Fascinating	4
	Selling of souvenirs, historical objects & books	Authentic	3
	Availability of tour guide	Unexpected	2
	Object with services	Ordinary	1
Touristic importance	Marked on touristic maps and connected to cultural features	Iconic	5
	Partially connected to cultural/ historical monuments	Fascinating	4
	Visited by holiday makers	Authentic	3
	Along the road serving other attractions visited by tourists	Unexpected	2
	No touristic importance	Ordinary	1

Key for aggregate value score

$$5 \times 1 = 5 \quad (\text{low})$$

$$5 \times 3 = 15 \quad (\text{Average})$$

$$5 \times 5 = 25 \quad (\text{High})$$

This method of analysis was based on two dimensions of value of landform concept, in which each has ten-point criteria (Table 3.4). The maximum pair value score is 25/25 for each dimension when analyzed on all the five criteria (Table 3.5) on a maximum 5-point rate (intrinsic $5 \times 5 = 25$ /extrinsic $5 \times 5 = 25$ hence 25/25). This study measured and expressed the perceived overall index value of geysers and hot springs as a composite value of paired numbers derived from aggregated intrinsic and extrinsic value scores. The overall conceptual equation is expressed as $gvs = aiv/aev$. Where the overall *geodiversity value score* is a function of aggregate intrinsic value score (*aiv*) paired against aggregate extrinsic value score (*aev*). The maximum pair value score is 25/25 and the minimum is 5/5 for intrinsic and extrinsic respectively. The higher the pair value of numbers, the higher the geotouristic value and the lower the pair value of numbers the lower the geotouristic value. A pair value of numbers closer to twenty-five (25) indicates high geotouristic value and vice versa. The pair value of numbers, which is high and closely paired, indicates an exceptional geotouristic value and vice versa. A pair value score of 25/5 means that a geodiversity has a high intrinsic value but low extrinsic value. Inversely, a pair value score of 5/25 means that a geodiversity site has low intrinsic value but high extrinsic value. In both cases, the geodiversity site has low geotouristic value. Thus, geotouristic value is a function of both intrinsic and extrinsic values.

Among other analyses done was the use of percentages, frequencies, and mean. To analyse non-spatial tourist data such as gender and nationality (Appendix IV, Part A), this study used descriptive statistics. This study presented the analyzed data using frequencies and percentages. To analyze quantitative data (Appendix IV, Part B), frequency and percentage were used for descriptive analysis, while the independent t-test was applied for inferential statistics. The researcher edited field data for; possible missing values, outliers, and data entry errors. This study used tabulation to enable comparison and support statistical computation and processing using SPSS version 17.0 software. To determine the degree and frequency of destination attributes influencing geotourism, this study quantified tourists' judgments, as presented in Table 3.5

Table 3.5

Destination attributes Influencing Geotourism in LBNR

Variable	Value label	Value score
Destination image	Iconic	5
	Fascinating	4
	Authentic	3
	Unexpected	2
	Ordinary	1
Tourist motivation	Highest	5
	High	4
	Moderate	3
	Low	2
	Very low	1
Destination experience	Iconic	5
	Fascinating	4
	Authentic	3
	Unexpected	2
	Ordinary	1
Satisfaction	Most satisfied	5
	More satisfied	4
	Satisfied	3
	Least satisfied	2
	Not satisfied	1
Frequency of visit	Most often	5
	Often	4
	Less often	3
	Rarely	2
	Never	1

Moreover, descriptive statistics were used to summarize tourists' knowledge, with quantitative data analyzed and generalized to the study population, as shown in Table 3.6

Table 3.6

Data Analysis Matrix for Study Objectives

Objective	Required data and source	Variables	Method of data collection, analysis and tools
To, 1. Evaluate local community knowledge of geodiversity and geotourism in the unprotected areas in Baringo County.	Data: Local community knowledge; experience, opinions, and attitudes, and their socio-economic demographic characteristics Source: members of local community	Geodiversity/ geotourism; knowledge of geodiversity and geotourism inventorying of potential geosite; number of geodiversity sites, variety of attraction, range of leisure activities /status of geotourism, offer of geotourism products	Data collection using FGD (Appendix III) Data analysis: thematic analysis/Kirkpatrick perception model/phenomenological approach and use of Independent Sample t-test to triangulate results

<p>2. Analyze tourists' perceived value of landforms that constitute tourism products in Lake Bogoria National Reserve in Baringo County.</p>	<p>Data: perceived value of landforms and socio-economic demographic characteristics of tourists</p> <p>Source: from tourists,</p>	<p>Intrinsic value; general classification, rarity, degree of preservation, tourists' observation, availability of information</p> <p>Extrinsic value; accessibility, security, scenic value, value of provided services, touristic importance</p> <p>Non spatial data of tourists; type of tourists</p>	<p>Data collection: questionnaire survey (Appendix IV)</p> <p>Data analysis: Quantitative analysis, descriptive method; percentages, frequencies, geodiversity value score, Chi-Square test, Independent Sample t-test</p>
<p>3. Assess role and function of Baringo County government and other stakeholders in promoting development of geotourism in Baringo County.</p>	<p>Data: jurisdiction and interest of County government of Baringo and other stakeholders'</p> <p>Source: The County government, MoT&W KWS, BCCA, UNESCO, local community stakeholders</p>	<p>Inventory of geodiversity resources, geotourism infrastructure, offer of geotourism product</p> <p>stakeholder power; interest, engagement</p> <p>- Stakeholder interest, influence</p>	<p>Tool: geodiversity value method, SPSS, Data collection; stakeholder analysis (Appendix V)</p> <p>Data analysis: Qualitative analysis; thematic analysis and stakeholder analysis</p>

<p>4. Examine the influence of destination attributes on tourists' visits to Lake Bogoria National Reserve in Baringo County.</p>	<p>Data: destination. attributes and visit of LBNR Source: tourists'</p>	<p>Destination image, motivation of tourists, destination experience of tourists, satisfaction of tourists, frequency of visit; return visits/repeat visits, recommendation</p>	<p>Data collection: questionnaire survey, (Appendix IV) Data analysis; Quantitative analysis; descriptive method; percentage, frequency, mean, and Independent Sample t-test. Tool: SPSS, Likert scale</p>
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3.8 Ethical Considerations

The researcher took a number of ethical considerations into account before and in the course of carrying out this study. Before commencement of data collection, this study sought research permission and ethical clearance from Graduate School, Egerton University Ethics and Research Committee (EURECS) and research permit from National Commission for Science, Technology and Innovation (NACOSTI) (Appendix IX). Additionally, respondents were enlightened on issues including their informed consent, confidentiality of the collected data and disseminations of findings.

The researcher assured respondents beforehand that collected data would be used only for academic purposes and further guaranteed their confidentiality, anonymity, and the right to withdraw from the study at any time. To ensure confidentiality- information and privacy, the respondents did not identify themselves by their names. This study obtained verbal consent from each respondent selected to participate in the study. In addition, freedom on not to answer a question was emphasized to the respondents. Where a respondent withdrew from the study, another qualified and willing respondent replaced such a respondent. The researcher gave every respondent a letter of consent (Appendix II), which they attached to the questionnaire to assure the authenticity of the study.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents the results and discussion on analysis of stakeholders' assessment of the potential of geotourism in Baringo County. The findings are based on; the study variables of; local community perception of geodiversity and geotourism in the unprotected areas, tourists' perceived value of landforms that constitute geotourism products, the role of Baringo County government and stakeholders in promoting geotourism, and finally destination attributes that influence tourists' visits to LBNR. The findings are presented using tables, percentages, and plates. This study used Kirkpatrick's perception model, stakeholders' analysis, and independent samples t-test to analyze data. Results were interpreted to provide meaning and understanding of salient findings. The discussion of results is supported with relevant empirical literature and theories. The results and study also highlighted the socio-demographic characteristics of sample respondents. These aspects are discussed in the following subsections.

4.2 Socio-Demographic Characteristics of the Sample Respondents

The study collected data to describe the socio-demographic profiles of local community participants and tourist respondents.

4.2.1 Socio-Demographic Characteristics of the Local Community

This section presents the sample characteristics of the respondents, focusing on age, gender, and educational attainment among selected local community members as shown in Table 4.1

Table 4.1

Sample Characteristics of Local Community Members

Local Community Participants	Gender	Age in Years	Level of Education
Local Administration	M	33	Postgraduate
Opinion Leader	M	55	Basic (CPE)
Community Conservancies	M	36	Postgraduate
	F	34	Diploma
Youth	F	22	Graduate
	M	36	Diploma
Service Providers	M	42	Diploma
	M	40	Tertiary

Information in Table 4.1 indicates that the focus group comprised of six males and two females. The oldest was a male aged 55 years and the youngest was a female aged 22 years. All the participants were aged 18 years and above. Furthermore, all the respondents had formal education that varied from basic education (primary) to tertiary education (postgraduate).

4.2.2 Socio-Demographic Characteristics of the Tourists

This section outlines the socio-demographic characteristics of tourists who visited the geysers and hot springs at LBNR, including gender, employment status, country of residence, purpose of visit, type of travel, and mode of access as shown in Table 4.2

Table 4.2

Socio-Demographic Characteristics of the Tourists Visiting the Study Area

Indicator	Variable	Frequency	Respondent (%)
Gender	Male	211	54.8
	Female	174	45.2
Employment	Employed	286	74.2
	Unemployed	99	25.8
Tourist source markets	Kenya	301	78.2
	East Africa	18	4.7
	Africa	2	0.5
	European Union	26	6.8
	Asia	32	8.3
	USA	6	1.6
Purpose of visit	Educational	175	45.5
	Recreation	95	24.7
	Educational & recreation	115	29.9
Type of travel	Independent	99	25.7
	Group	286	74.3
Mode of access	Road	384	99.7
	Air	1	0.3

As shown in Table 4.2, male respondents accounted for 54.8% and female 45.2%, indicating a higher proportion of male visitors to the study area. Among the surveyed tourists, 74.3% were employed, while 25.7% were unemployed. Additionally, the majority of tourists were domestic (78.2%), with international tourists comprising 21.8%. Of the international visitors, 8.3% were from; Asia, 6.8% Europe, 4.7% East Africa, 1.6% the USA, and 0.5% other African countries. Regarding the purpose of visit, 45.5% of tourists indicated education, 29.9% reported both education and recreation, while 24.7% cited recreation as their primary purpose. In addition, the majority of tourists (74.3%) travelled in groups, whereas only 25.7% travelled individually. Finally, 99.7% of the respondents accessed the geysers and hot springs at LBNR via road, with only 0.3% using air transport. Plate 4.1 illustrates a section of the 30 km earth road linking Lobo Gate to the geysers and hot springs in LBNR.



Plate 4.1: A Section of the Road Connecting the Geysers and Lobo Gate

4.3 Local Community Perception of Geodiversity and Geotourism

For Objective One, the study employed a mixed method approach to enhance the validity of findings. Consequently, a mixed methods approach was adopted integrating quantitative data collected through questionnaire targeting tourists and qualitative data gathered via an FGD targeting stakeholders. This study therefore used the Independent Samples t-test to assess significant differences in mean destination image and motivation, providing a clearer understanding of the local community's knowledge levels of geodiversity and geotourism. This

also contributed to answering the research question: *How knowledgeable is the local community about geodiversity and geotourism potential in the unprotected areas of Baringo County?* This study used thematic analysis to interpret data by forming themes from FGD data. This study employed Kirkpatrick’s perception framework that focuses on four levels of human response to environment through; reaction, learning, behaviour, and results. Consequently, this method was used to evaluate participants’ opinion, knowledge and attitude about geodiversity and geotourism (reaction); what the local community learnt from experiencing geotourism (learning); and this experience shaped and changed their opinion, attitude and behaviour (behaviour); and the extent to which this shaped their awareness and engagement with geotourism potential in their locality. The Kirkpatrick perception model provided a practical and systematic way for evaluating local community knowledge as shown in Table 4.3

Table 4.3

Summary of Themes and Sub-themes and Codes from FGD

Themes and sub-themes	Codes
Theme 1: Perception of geotourism potential; Knowledge of geodiversity and geotourism potential geodiversity sites	Meaning of geotourism/geodiversity Identifying unique geodiversity sites
Theme 2: Assessment of potential geodiversity sites; Characterizing geodiversity sites possible geotourism activities Assessment of geotourism offer	Intrinsic and extrinsic values of landforms Identifying potential geotourism activities
Theme 3: prevailing geotourism products; local community participation in geotourism challenges associated with geotourism	Information on on-going geotourism Information on role of local community Nature of problems facing geotourism

Information in Table 4.3 indicates that the Kirkpatrick’s perception model yielded three themes, namely local community knowledge of geodiversity and geotourism, inventorizing of potential geodiversity sites and offer of geotourism in the study area. Each of the themes are presented and discussed in the following subsections. As shown in Box 1, the FGD established three levels of local community knowledge.

Topic: Local Community Perception of Geodiversity and Geotourism in the Study Area.

Venue: Lake Bogoria Education Centre.

Respondents: Members of local administration, opinion leaders, community conservancies, youth, and service providers.

Size of the group: 8, Gender; six male and two female. Education; varied from basic to tertiary education.

The following three levels of knowledge emerged about the local community perception of geodiversity and geotourism in the unprotected areas;

- ✓ Knowledgeable category: members of the local community that displayed ability to describe geodiversity and geotourism and could identify potential geosites such as Kormoson Hill, for growing geotourism in the study area.
- ✓ Insufficient knowledge category: these respondents have heard of term geodiversity and geotourism but could not explain it due inadequate exposure.
- ✓ Lack of knowledge category: The respondents had deficient knowledge as the terms were unknown to them.
- ✓ Levels of local community knowledge are variable in how they perceive geotourism and geodiversity in the study area.



Box 4.1: Focused Group Discussion Session at Lake Bogoria Education Centre

4.3.1 Local Community Knowledge of Geodiversity and Geotourism

After identifying local tourists' preferences regarding destination image, specifically geodiversity, wildlife, cultural heritage, and birds: the study recognized that these tourists originated from various counties across the country. Building on this, the research then aimed to assess the local community's knowledge of geodiversity and geotourism within the study area. This evaluation was guided by the geodiversity aspects highlighted in the destination image preferences. The primary objective of the FGD was to gain deeper insights into the community's knowledge and experiences of geodiversity and geotourism within the study area.

This section presents insights into how participants conceptualized their knowledge of geodiversity and geotourism, as summarized in Table 4.3. The study specifically investigated the question: *What is the local community's knowledge of geodiversity and geotourism within the study area?* Drawing on thematic analysis guided by Kirkpatrick's perception framework, participants' interpretations of the terms *geodiversity* and *geotourism* were examined to assess their levels of knowledge/awareness (reaction) and understanding (learning). These insights were contextualized within the broader experience of geodiversity and tourism in the Lake Bogoria landscape. The findings indicate that respondents' knowledge focused on two primary dimensions: first, an understanding of geodiversity as encompassing the variety of abiotic natural features, such as rocks, caves, gorges, geysers and fumaroles and hills; and second, recognition of geotourism as a means of promoting tourism in the study area. These responses reflect experience-based awareness of how geodiversity underpins both geoconservation and the touristic potential of the study area.

From in-depth discussion and thematic analysis of data (Table 4.3), this study presents some of the local community verbatim quotations to illustrate their perspectives of geodiversity and geotourism. The knowledge of geodiversity among respondents was illustrated by a 34-year-old female participant from Irong Community Conservancy, who explained that:

Geodiversity refers to variety of non-living things such as cliffs, rocks, mountains, geysers and hot springs, vantage points, archaeological remains, which can be used to develop tourism. And geotourism is a type of tourism based on non-living things such as landforms, relief, landscape or geology (34-year-old female participant, personal communication, March 19, 2022).

The respondent's explanation reflects the community awareness of geodiversity and its importance for geotourism. By identifying features like rocks, geysers, and archaeological remains, the respondent recognizes geodiversity as a tourism resource. This aligns with definitions that include geological and geomorphological diversity (Gray, 2004). This perspective also aligns with geotourism principles that emphasize not only intrinsic value but also added value - cultural and educational features (Dowling & Newsome, 2010). The mention of archaeological sites highlights an integrated view of natural and cultural heritage, supporting community-based conservation and tourism (Reynard & Brilha, 2018).

Nevertheless, another respondent observed that: "Papyrus reed like the ones at Kiborgoch Community Conservancy is an example of geodiversity and a potential resource for geotourism development" (40-year-old male participant, personal communication, March 19, 2022). This statement demonstrates a lack of understanding of geodiversity within the community, where biotic elements such as papyrus reeds are mistakenly identified as components of geodiversity. The confusion of biodiversity with geodiversity reflects a conceptual gap, which indicates the need for targeted community capacity-building to clearly distinguish between geodiversity and biodiversity that is essential for geotourism promotion and geoconservation in the study area.

Additionally, one other respondent explained that, "Geodiversity refers to things which are neither flora nor fauna" (36-year-old male participant, personal communication, March 19, 2022). The explanation remains vague and lacks reference to specific geodiversity elements such as rocks and landforms, which are central to geotourism development. This suggests a need for further education to deepen local knowledge of the specific attributes.

The responses clearly indicate that the local community participants have varied interpretations of geodiversity and geotourism in the study area. To examine the local community's knowledge of geodiversity and geotourism, this study analyzed qualitative data derived from participants' awareness and experiences. The interview data were thematically organized (Table 4.3) using Kirkpatrick's perception model (Kirkpatrick & Kirkpatrick, 2006), which conceptualizes human responses to the environment across four levels: reaction, learning, behaviour, and results. Accordingly, when asked about their understanding of the term "geodiversity" and "geotourism", the respondents gave multiple qualitative responses based on knowledge and

their experiences. The following three levels of local community knowledge emerged: (i) participants who demonstrated clear knowledge: those who were familiar with the terms and could explain them accurately; (ii) participants who lacked knowledge: those to whom the terms were entirely unfamiliar; and (iii) participants with limited knowledge: those who had heard the terms but were unable to define or explain their precise meaning.

Further, this study examined each level/aspect of local community knowledge. The study established that the knowledgeable respondents could explain the term “geodiversity” and “geotourism” because of exposure to geodiversity and geo-based tourism activities in the study area. Therefore, the knowledgeable respondents were able to demonstrate the linkage between geodiversity and geotourism. To this extent, one of the local community participants from Irong Community Conservancy belonged to this category and described that:

Geodiversity refers to variety of non-living things such as cliffs, rocks, mountains, geysers and hot springs, vantage points, archaeological remains, which can be used to develop tourism. And geotourism is a type of tourism based on non-living things such as landforms, relief, landscape or geology (34-year-old female participant, personal communication, March 19, 2022).

Among the participants with this category of knowledge, there appeared to be consensus with the 34-year-old female participant on the description of geodiversity. The specificity of knowledge on the term “geodiversity” and “geotourism” by the 34-year-old female participant was associated with the experience gained in geoconservation at Kormoson Hill in Irong community conservancy. Furthermore, those with this level of knowledge were able to identify unique geodiversity sites, including Kormoson Hill, Arus Fumaroles, and Kuruche Gorge that had potential or contributed to geotourism in the study area. The respondents revealed that a few geotourism activities occur at Kormoson Hill, which is one of the iconic geosites within Irong community conservancy that constitute the Baringo Great Rift Valley Aspiring Global Geopark (Plate 4.2).



Plate 4.2: Geotourism Information Panel at Kormoson Hill Geosite, Irong Conservancy

Furthermore, another category of the local community participants had no knowledge of the term “geodiversity” and “geotourism” and they could not explain their meaning. As a result, one of the local community participants that belonged to this category, demonstrated lack of knowledge and described that: “Papyrus reed like the ones at Kiborgoch Community Conservancy is an example of geodiversity and a potential resource for geotourism development” (40-year-old male participant, personal communication, March 19, 2022).

This description was at variance with the knowledgeable category and the inability to interpret correctly geodiversity and geotourism was associated with lack of awareness and entrenched influence of biodiversity conservation and wildlife-based tourism at Kiborgoch community conservancy. Those respondents of this category of knowledge indicates that wildlife conservation shaped their knowledge (reaction) and experience (learning) in spite of the presence of geodiversity in the study area.

Another level of knowledge that emerged from the local community participants was the insufficient knowledge category, who had heard of the term “geodiversity” and “geotourism” but could not explain it. One of the participants that belonged to this level of knowledge demonstrated the inability and described that; “Geodiversity refers to things which are neither flora nor fauna” (36-year-old male participant, personal communication, March 19, 2022). This interpretation of geodiversity showed deficiency of understanding and complete lack of knowledge in the meaning of geodiversity and geotourism. The perception indicates difficulty in comprehending geodiversity and geotourism among this category of respondents. The reasons for inadequacy of knowledge for both geotourism and geodiversity, was associated

with lack of awareness and newness of the concepts: geodiversity and geotourism, in the study area. The findings of this study align with those of Litheko and Potgieter (2021), who found that community awareness plays a critical role in supporting tourism, as informed local residents are better positioned to influence and guide tourism development within their rural communities. Box 4.1 shows FGD session at LBNR and summary of different levels of local community knowledge that emerged in this study.

4.3.2 Tourist Insights for Validating Local Community Knowledge

Results from subsection 4.3.1 summarize the levels of knowledge of local community perception of geodiversity and geotourism in the study area. Further, the study explored the relationship between local community knowledge and geotourism in the unprotected area. To enhance the validity of the findings, a mixed method approach was employed to assess community knowledge levels. This approach was guided by qualitative data analysis and supported by quantitative findings on the perceived destination image, providing a comprehensive understanding of local community perceptions of geodiversity and geotourism in the study area. To further examine these perceptions, the study operationalized Objective Four through the second null hypothesis, which stated: “There is no statistically significant difference in the perceived destination image (geodiversity, wildlife, cultural heritage, and birds) and motivation of the respondents about geotourism across categories of tourists.” This study grouped tourists into two categories; international/foreign and local/domestic tourists, in which from a sample of 385 respondents 78.2% (301) were local tourists.

As a parametric test, the common underlying assumptions of the Independent Samples t-test included scale of measurement, independence of observations, normal distribution of the dependent variable, homogeneity (homoscedasticity) of variances, and no significant outliers in the data set. In this study, the dependent (test) variable was a continuous (interval) variable measured in the actual scores (intrinsic and extrinsic value scores), while the independent (grouping) variable was a nominal variable (categories of the tourists – local and international). The study drew observations from respondents in the categories of tourists. The study tested for normality of the dependent variable (destination image score and motivation score) using the Q-Q Plot, which revealed a normal distribution of the mean scores for both groups (the categories of the tourists). The Levene's Test for Equality of Variances given by $F = 16.7234$, $p = 0.128$ for intrinsic value score and $F = 1.22$, $p = 0.202$ for extrinsic value score indicate

homoscedasticity of variance. Since p values are all greater than 0.05 significance level, group variances were treated as equal. Therefore, the study established non-violation of any of the assumptions, which made the Independent Samples t-test suitable to determine significant difference in the destination image and motivation mean scores between the two categories of tourists at 0.05 significance level (Table 4.4).

Table 4.4

Summary of the Output of the Independent Sample t-test

	Category of tourists	N	Mean	Std. Dev.	T	df	Sign. (2-tailed)
Destination image index score	Local/domestic	301	15.04	3.019	-2.078	383	.038
	Foreign/International	84	15.82	3.205			
Motivation index score	Local/domestic	301	22.97	6.918	-2.671	383	.008
	Foreign/International	84	25.25	6.919			

Table 4.4 shows that the foreign tourists recorded a higher destination image and motivation mean scores (15.82 ± 3.205 , and 25.25 ± 6.919 , respectively) compared to domestic tourists who had mean score of 15.04 ± 3.019 , and 22.97 ± 6.918 , respectively. The study supported these differences using the t-values, namely $t(383) = -2.078$, $p = (0.038) < 0.05$ significance level for destination image, and $t(383) = -2.671$, $p = (0.008) < 0.05$ significance level for motivation. Since p values < 0.05 significance level, the second null hypothesis is rejected suggesting that: “*There was no statistically significant difference in the perceived destination image and motivation of the respondents about geotourism across categories of tourists*”. The results indicate that different categories of tourists (international and domestic tourists) perceive the destination image and are motivated by geotourism differently.

This study associated the differences in knowledge of tourists to variations in travel expectations, adventure, uniqueness and exposure to destination image. Therefore, the greater the knowledge about destination the more likely it is associated with a more positive and informed perception of the destination's image. As for the domestic tourists the difference was attributed to them being more knowledgeable and familiar with the destination attributes (geodiversity, wildlife, cultural heritage, and birds) leading to slightly lower perceived

uniqueness of destination and thus reduced motivational to travel to the destination. The results are consistent with past studies such as, Hose (2012), which found that geotourism is enhanced when tourists have prior understanding or familiarity with the geological and natural attributes of a destination. Furthermore, the findings suggest that when domestic tourists are knowledgeable about local geological features and value them for recreation, their perception of landform uniqueness shapes both the destination image and their motivation to participate in tourism. This aligns with Larsen et al. (2019), who found that domestic tourists often have lower novelty-seeking tendencies due to familiarity with local attractions.

The results on perceived destination image and motivation by tourists is consistent with those of local community participants which indicated that three levels of knowledge; knowledgeable, insufficient knowledge, and lack of knowledge affected their informed perception of geotourism and geodiversity in the study area. The greater the knowledge of geodiversity the more the appreciation of geodiversity and geotourism in the study area. And level of knowledge or awareness of geodiversity corresponds with awareness of geotourism and its promotion in the study area. Furthermore, the findings on levels of community knowledge on geodiversity and geotourism corroborate earlier studies by Avelar et al. (2015) indicating that local community awareness influence their engagement in geoconservation through creation of geoparks and promoting geotourism. In conclusion, the significant differences across local community participants suggest that levels of knowledge are unevenly distributed and these differences in knowledge is helpful in understanding why local community perception of geotourism and geodiversity vary in the study area.

4.3.3 Local Community Assessment of Potential Geosites in the study Area

Following the evaluation of local community knowledge on geodiversity and geotourism (Theme One), the study explored community perspectives on assessing potential geosites as a key factor in promoting geotourism (Theme Two; see Table 4.3). Data from the FGD were analyzed using thematic analysis. The data were coded, transcribed verbatim, anonymized and discussed. During the Focused Group Discussion, three aspects of geodiversity potential emerged, namely (i) characterizing identified geodiversity sites, (ii) possible geotourism activities, and (iii) assessment of geotourism offer. Based on local community knowledge, experience and perspectives as well as Kirkpatrick's perception model, the potential geosites were identified and described as presented in Table 4.5

Table 4.5

Inventory of Non-classified Geodiversity sites and Their Geotourism Potential

Potential geosites	Intrinsic values	Extrinsic values	Potential geotourism activities
Kormoson Hill; “Kissing stones” Located at Irong Community Conservancy to the north west of lake Bogoria and about 15km. Size: 61, 450 Ha	<p><i>Its rarity or uniqueness:</i> Internationally and nationally unique</p> <p><i>Degree of preservation:</i> the hilly rock is intact and well- preserved artefacts including; geoheritage site- Fortress</p> <p><i>Generally, classification:</i> internationally important</p> <p><i>Observation condition:</i> excellent/ fascinating vantage point/has great view of the surrounding landscape;</p> <p><i>Availability of information;</i> incomplete information</p>	<p><i>Touristic importance;</i> Ascribed value of ‘kissing’ stones, aspiring geosite, connected to the folklore, myths, history and culture indigenous people; Endorois and Toicho/kipchoi communities.</p> <p>- <i>Accessible</i> by road, 15km from Marigat town</p> <p><i>Safety:</i> The surroundings and geosite is safe; - guided safety to avoid falls, guides are available and security services from local community.</p> <p><i>Provided services;</i> presence of temporary guard, toilet, tents and partial signage; geo-interpreted services on archaeological fortress/cultural heritage of Maa-speakers and Tugen.</p>	<p>Experiencing of sense of wonder, learning, sightseeing, filming, educational hiking-path, photographing, rock climbing, relaxing, enjoying, viewing rock hyrax - Kormoson: important information about archaeological past of the hill- geo- interpretative services at fortress; culturally and geologically - history of Endorois and Kipchoi indigenous people -rock artifacts reflect the dwellings. Has opportunity for research/ no study on fossils yet</p>

<p>Kapillat Cave. Located to the East of Lake Bogoria about 40km from Marigat Size: unknown</p>	<p><i>Its rarity or uniqueness:</i> unique locally and nationally. <i>Degree of preservation:</i> well, preserved/ not destructed <i>Generally considered:</i> locally and nationally important <i>Observation condition;</i> normal <i>Availability of information;</i> incomplete/No information/undocumented/ unknown</p>	<p><i>Touristic importance;</i> the ascribed values include home of lightning and thunder/connected to myth and culture of the local people <i>Accessibility;</i> difficult to access except on foot/ absence of marked trail/ found in hilly landscape <i>Safety-</i> Surrounding land is safe but needs guiding to avoid falls; safe for tourists <i>Value of provided services;</i> No provided services Scenic value: fascinating view of the surrounding</p>	<p>Experience of sense of wonder, photographing Trekking and hiking, sightseeing, learning, filming, caving (speleology tourism) and oral narratives.</p>
<p>Kapyomat Fumarole - Kuruche Gorge. Located at Chuine Community conservancy to the north of Lake Bogoria and about 35km from</p>	<p><i>Its rarity or uniqueness:</i> Unique/rare locally and nationally. <i>Generally considered:</i> locally and nationally important <i>Degree of preservation:</i> mostly preserved, fumaroles partially preserved.</p>	<p><i>Touristic importance;</i> locally and nationally <i>Accessibility;</i> nature trail accessible on foot and partially by road/ partially marked nature trail <i>Safety;</i> safe to visitors/ but guides needed to avoid falls. <i>Scenic value;</i> A clear view of surrounding landscape; Culturally connected to the local people in many respects through beliefs, culture and myths</p>	<p>Sense of wonder, a nice place/ panoramic view photographing, learning rock climbing, trekking suspended foot bridge Education significance, sightseeing, filming, geotrail connecting many geological features within the hiking trail.</p>

Marigat town Size: 1800 Ha	<i>Observation condition</i> ; excellent observation condition of fumarole and gorge and unique landscape <i>Availability of information</i> ; not documented/no information	<i>Value of provided services</i> ; no provided services	Interpretative walk of geological features.
Nyalilbuch Vantage Point. Located on the southern slopes of Lake Bogoria. Size: unknown	<i>Its rarity or uniqueness</i> : locally unique and nationally important <i>Generally considered</i> : nationally important. <i>Degree of preservation</i> : Mostly preserved <i>Observation condition</i> ; Excellent panoramic view of landscape. <i>Availability of information</i> ; incomplete or scanty	<i>Touristic importance</i> ; Easy access on foot and road from Nakuru-Kisanana-Nyalilbuch <i>scenic value</i> ; Excellent view of surrounding landscape overlooking Lake Bogoria <i>Safety</i> ; Safe for tourists <i>Accessibility</i> ; accessible by road - <i>Provided services</i> ; lacks provided services	Relaxation, photographing relieving stress, Filming Provides spectacular view/sight-seeing of Lake Bogoria and Baringo plains and surrounding landscape, education and learning significance, sense of wonder, cultural artefacts

Table 4.5 presents five potential geodiversity sites identified in the unprotected areas: Kormoson, Kapyomat Fumarole, Kuruche Gorge, Nyalilbuch Vantage Point, and Kapillat Cave. When asked to describe the unique qualities that make these sites suitable for geotourism development, local community participants referred to both natural (intrinsic) and man-made (extrinsic) features. Common descriptors used for the identified landforms included terms such as *rocky hill*, *kissing stones*, *mystic powers*, *sacred place*, *place of wonder*, *source of wind*, and *vantage point*. For example, during an FGD, the study captured local community perspectives on the geotourism value of specific sites. A participant from Irong Community Conservancy highlighted the uniqueness of Kormoson Hill, locally referred to as “Kissing Stones.” She explained:

Kormoson Hill, which is also called ‘Kissing Stones,’ is located within the Irong Community Conservancy in the Lake Bogoria landscape and has touristic value. It is a rocky hill with two geologically distinct stones called ‘Kissing Stones.’ The two stones are closely perched at the edge of the hill, and because of their unique ‘kissing’ posture, they are culturally interpreted as male and female stones (34-year-old female respondent, personal communication, March 19, 2022).

Information in Table 4.5 indicates that Kormoson Hill is located in Irong community conservancy to the north west of Lake Bogoria National Reserve and about 15 Km from Marigat town. This study documented local community insights on what constitutes unique features of Kormoson Hill, which included; (i) unique vantage point, and geology: - rocky hill and (ii) embedded extrinsic indigenous cultural values including; ‘kissing stones’, gender typology- male and female stones, mythical powers - a sacred place for resolving family, inter- and inter-communal conflict, as well as marital problems. It is also known as an archaeological and historical fortress, peace haven, and a lovers’ paradise. These unique attributed values constitute indigenous cultural heritage; menti-facts, socio-facts, and artefacts embedded into Kormoson Hill. Participants described the potential geosite using geological, geomorphological, archaeological, and cultural heritage values, highlighting Kormoson Hill as a distinctive geodiversity site with potential for geoconservation and geotourism in the study area. To elucidate geotourism potential of Kormoson Hill, one respondent representing community service providers described potential geotourism activities, stating: “The local community can engage in geotourism activities through art painting, modelling, performing

arts, oral narratives, and geo-talks or guiding at the geosite” (40-year-old male respondent, personal communication, March 19, 2022).

The explanation indicates that the local community plays a significant role in promoting geotourism in unprotected areas. Therefore, community members can contribute by identifying potential geosites and actively participating in profiling them as tourist attractions. Furthermore, by suggesting geotourism activities such as art painting, oral narratives, geo-talks, and guiding, the participant perceives a form of geotourism based on cultural and geo-heritage attributes, some of which are prevalent in the identified geosites. There appeared to be consensus that Kormoson Hill had potential to bring forth a place of interest to different types of tourists including geotourists, geoheritage tourists, cultural tourists, and adventure tourist. Plate 4.3 shows the two distinct stones whose ascribed extrinsic value is ‘kissing stones’. The associated cultural and historic values of Kormoson Hill that would be of interest to tourists include; learning, relaxing, enjoying, experiencing of sense of wonder, and amusement activities. This perspective of the local community aligns with Newsome and Dowling (2006) who argued that geotourism is based on geoheritage such as fossils and intangible cultural elements such as oral narratives (Farsani et al., 2011; Newsome & Dowling, 2006).



Plate 4.3: The ‘Kissing stones’ at Kormoson Fortress Hill Geosite, Irong Conservancy

On further in-depth interview about the reasons for engendered sense of wonder of Kormoson Hill as *male* and *female*, one of the respondents from Irong Community conservancy described the symbolic and visual interpretation of the “Kissing Stones” at Kormoson Hill, that:

At the ground view, the stone to the right hand of the viewer is male while the one to the left is female. When one is approaching or sighting them from the ground level, the two huge stones atop the hill appear as though they are kissing each other. However, by the time one climbs to the top of the rocky hill, the stones are in actual fact separated; giving the impression that rocks stopped kissing and are mutually enjoying company. (34-year-old female respondent, personal communication, March 19, 2022).

The uniqueness of Kormoson Hill is deeply embedded in the oral traditions and cultural cosmology of the indigenous Endorois community. According to FGD participants, the cultural interpretation of the two perched stones: personified as "male" and "female", is derived from traditional gendered spatial arrangements. As one respondent explained, in Endorois culture, it is customary for a woman to stand to the left of a man during public or ceremonial gatherings. This cultural principle has been embedded onto the landscape, shaping how the community interprets the "Kissing Stones" from different vantage points. Furthermore, participants described Kormoson Hill not only as a geological feature but also as a sacred and mystic site, believed to possess spiritual power. According to members of the local community, the site plays a role in resolving marital problems, settling communal disputes, and reconciling estranged couples. These beliefs elevate the hill beyond a scenic landmark to a living cultural landscape, central to community identity and unity. This perception aligns with the idea that geosites can serve as cultural assets, where tangible geological features are enriched by intangible cultural heritage (Farsani et al., 2011; Dowling & Newsome, 2018). As Hose (2012) emphasizes, cultural narratives and spiritual associations often add meaning to geodiversity, enhancing the interpretive potential of sites for geo-based cultural tourism.

Further discussion revealed that the hill has potential to grow geo-based cultural tourism, as stated by a 34-year-old female respondent:

Historically, Kormoson Hill was a sacred venue for meetings among the indigenous Endorios community whenever they had issues to discuss, plan a solemn event or resolve a conflict between husband and wife. Kormoson was also a sacred place of peace between the Tugen and Ilchamus communities who often met at the hill whenever they wanted to make peace and reconcile. In the community the hill acquired a sacred site status: *Kapkoros*. (34-year-old female respondent, personal communication, March 19, 2022).

Further discussion revealed that the geotouristic value of Kormoson Hill as a sacred place was underutilized. To amplify the cultural importance of the geosite as a sacred venue (*Kapkoros*) for peace, one of the participants emphasized the potential of Kormoson Hill as a peace-building site, stating ‘‘Instead of holding peace meetings at Kabarnet town, Kormoson Hill geosite should be given a chance as a venue for peace meetings among the warring communities in Baringo County’’ (40-year-old male respondent, personal communication, March 19, 2022).

These statements illustrate the community’s desire to position and use traditional spaces as tools for modern reconciliation. The use of Kormoson Hill as a peace venue reflects its cultural significance and the need to position the site as a symbol of unity that is embedded in its name. From a geotourism perspective, this reinforces the site's value as a destination where intangible cultural heritage: such as oral histories, peace rituals, and conflict resolution traditions, is inseparably tied to the physical geosite. As noted by Dowling and Newsome (2018), geotourism succeeds when it integrates geological significance with cultural and community relevance, thereby offering authentic, educational, and meaningful visitor experiences. Similarly, Farsani et al. (2011) argue that the strength of cultural geotourism lies in its ability to promote local identity, cultural continuity, and community empowerment. The importance of positioning Kormoson Hill as a cultural geosite for peace meetings could attract domestic and international tourists interested in peacebuilding and conflict resolution heritage, indigenous beliefs, and cultural tourism. This further supports its potential as a geo-based cultural tourism site, where storytelling, peace ceremonies, and community-led interpretation can enhance both heritage preservation and local economic development.

Furthermore, as for the pre-historic significance of Kormoson Hill, the respondents linked with a pre-historic Maasai speaking group called Toicho. The local community perceives the geosite as rich in geoheritage, recognizing it as a former fortress for the hunter-gatherer Maa speakers known as Toicho or Kipchoi. Accordingly, described the geosite that:

Kormoson Hill has tourism potential because of its historical connections to a group of Maasai called Toicho or Kipchoi, which lived at Kormoson in pre-colonial times before migrating to Laikipia County. The existence of rock dwelling artifacts is believed to

belong to them. (34-years-old female respondent, personal communication, March 19, 2022).

The findings suggest that Kormoson Hill is rich in authentic geoheritage, presenting a significant opportunity for the promotion of geoheritage tourism. As illustrated in Plate 4.4, the site contains artefactual ruins of ancient rock dwellings, which are believed to have belonged to the Toicho people. These physical remnants add cultural and historical value to the hill, enhancing its geotourism appeal.



Plate 4.4: The Rock Dwelling Artefact Ruins at Kormoson Hill, Irong Conservancy

During an FGD on the geotourism potential of the area, a 34-year-old female respondent described Kormoson Hill as “a lovers’ paradise,” particularly popular among visitors during Valentine’s Day (February 14th) (34-year-old female respondent, personal communication, March 19, 2022). This qualitative data indicates that the site holds emotional and recreational significance for locals and tourists. Emotional associations such as this can be strategically utilized in destination branding and seasonal tourism planning by the local community. These findings agreed with the work of Hose (2012), who emphasized that successful geoheritage tourism often integrates geological, cultural, and aesthetic values to offer a holistic visitor experience to tourists. Similarly, Dowling and Newsome (2006) argued that community narratives and local perceptions are critical in shaping sustainable geotourism initiatives. However, unlike these broader frameworks that primarily emphasize geological interpretation

and conservation, the case of Kormoson Hill reveals a unique magical and leisure-driven dimension that remains relatively underdeveloped in existing geoheritage literature.

In addition to Kormoson Hill, members of the local community identified Kapyomat Fumaroles (Table 4.5) in Chuine community conservancy to the north of Lake Bogoria and about 35 Km from Marigat town. This study identified both inherent and added values of the geodiversity site which were considered to constitute unique attributes that substantially contribute to growing of the geotourism potential in the study area. The landform was identified as a unique geological formation: *a source of natural gas*, that is locally described as “wind”. To bring to the fore the geotourism potential at Kapyomat Fumaroles, one of the respondents stated that:

Kapyomat, which is a “source of wind” (I am not sure of the scientific name for “source of wind” *sic*), in Chuine Community Conservancy is a place of untapped tourism potential, as are the other fumaroles within the Lake Bogoria landscape, such as Arus. (33-year-old male youth leader, personal communication, March 19, 2022)

The inventory of Kapyomat Fumarole was associated with it being a ‘source of wind’. The fumarole has potential to offer geotourism products. However, the respondents describe it as neglected, using the term, *untapped*, *unknown*, and *underutilized*. To tap into the geotourism potential of the fumarole, members of the local community expressed a consensus that a geotourism educational nature trail and hiking path could be established to link all unique geological formations, including Rhino Rock, Hippo Rock, and Kuruche Gorge within Chuine Community Conservancy. To encourage visitation by tourists the Conservancy proposed the entry of an educational nature trail that starts at Sandai market centre to the north of Lake Bogoria and exit at Kuruche Gorge on river Waseges that drains into Lake Bogoria. The local tour guide confirmed the *untapped* geotourism potential of Kapyomat Fumarole, stating that:

The nature trail has a number of potential tourism activities suitable for adventure tourism, including hiking, rock climbing, sight-seeing, bridge swings, zip lining, and a suspended footbridge across Kuruche Gorge. The nature trail is also safe and accessible to tourists on foot. (Tour Guide, personal communication, October 20, 2022)

Further, FGD also identified and documented Kuruche Gorge (Table 4.5) as a site of geotourism interest. The landform is located to the north of Lake Bogoria, and 30 Km from Marigat town. It was described as “A place of wonder- a very nice place, whose tourism

potential is not utilized” (Male, 33-years Youth leader). Plates 4.5 (a) and (b) shows Kapyomat Fumarole and Kuruche Gorge respectively within Chuine community conservancy.



Plate 4.5: Fumarole and Gorge Respectively, Chuine Conservancy

Furthermore, members of the local community identified and inventoried the Nyalilbuch View Point (Table 4.5), located at the southern end of the Siracho Escarpment along the eastern margin of Lake Bogoria, as a site of geotouristic value and potential for sustainable tourism development. One of the participants described geotourism potential of Nyalilbuch Vantage Point as follows;

Nyalilbuch Vantage Point, also called *Kapicha* (translated as “place of photography”), is a viewpoint on the southern end of the Siracho Escarpment along the southern edge of Lake Bogoria that can be used as a relaxation point and viewpoint for Lake Bogoria and its surrounding landscape. It is also good for filming, photographing, and relieving stress. (Male, 33-years Youth leader, personal communication, March 19, 2022).

The community participants collectively affirmed the geotourism potential of Nyalilbuch, Vantage Point highlighting activities such as photography, filming, leisure, and wellness (i.e., stress relief). These values reflect an emerging understanding of geotourism not only as a geological appreciation activity but as one that encompasses cultural narratives, adventure tourism, and mental well-being (Newsome, 2020).

However, despite its intrinsic potential, community respondents lamented that geotourism at Nyalilbuch Vantage Point is currently underdeveloped due to several infrastructural and governance challenges. The leading barriers identified include poor road access, lack of basic

utilities (such as water and electricity), inadequate promotion, and weak tourism management strategies. One respondent noted that the County Government of Baringo had neglected the site, which has led to its decline and diminished public visibility as a tourist destination. As articulated by the same youth leader:

Nyalilbuch Vantage Point (Kapicha) had lost its tourism clout. In the past, the First President of Kenya, Mzee Jomo Kenyatta, often visited Nyalilbuch... His visits then popularized the vantage point. But after his death in 1978, the site has since become obscure and dormant. (Male, 33-years Youth leader, personal communication, March 19, 2022).

This historical reflection draws attention to the role of political significance and government support in shaping the identity and visibility of geotourism sites. The lack of continued investment and community engagement has rendered Nyalilbuch Vantage Point a “forgotten geosite,” despite its potential to attract niche tourism markets. Moreover, participants expressed a desire for more inclusive and participatory governance in geotourism development. One participant expressed optimism about Baringo County government initiatives to revitalize the site but cautioned that these plans risk marginalizing local voices: “The County government of Baringo had plans to revive Kapicha vantage point as a tourist attraction” (Tour Guide, Personal Communication, March 19, 2022). This sentiment reveals a tension between top-down planning and the participatory ideals of sustainable geotourism. According to UNESCO (2016), meaningful community participation is a cornerstone of geotourism, particularly in unprotected landscapes or aspiring geopark territories. Excluding local stakeholders not only undermines this principle but also risks failure in the long-term sustainability of the site (Zouros & Martini, 2021).

Furthermore, literature emphasizes that successful geotourism must incorporate both tangible geological features and intangible cultural narratives (Dowling, 2018; Reynard & Brilha, 2018). The account of Nyalilbuch Vantage Point, from presidential visits then, to its current obscurity, presents a rich yet underutilized geo-heritage site that could be restored within the framework of community conservancies, under the umbrella of BCCA. This study further identified and documented the Kapillat geodiversity site, located to the east of Lake Bogoria and approximately 40 kilometers from Marigat town, as a geosite with significant potential for promoting geotourism. A respondent from Kiborgoch Community Conservancy, described the

uniqueness of Kapillat geodiversity site by stating that “Kapillat Cave also known as *Kotab-Ile* (translated as “home of the god of lightning and thunder – *Illat*) was a unique and revered cave within lake Bogoria landscape” (36-year-old male respondent, personal communication, March 19, 2022).

The respondent emphasized that the site is highly revered by the local community due to its mystical and spiritual significance, symbolizing the dwelling of an invisible god of thunder or justice. This local interpretation reflects the intangible cultural heritage embedded within the landscape and contributes to community-based protection of the geodiversity site and cultural tourism. As Reynard and Giusti (2018) argue, integrating spiritual and symbolic meanings into geosite interpretation can enrich geotourism experiences and foster stronger conservation values. Such narratives, which link geodiversity with local belief systems and cultural memory, position sites like Kapillat Cave not only as geological formations but also as culturally embedded landscapes (Brilha, 2018; Farsani et al., 2019).

In addition to the five geodiversity sites within lake Bogoria landscape, the study also documented the Trans-Rift geotrail, described by participants as a "marked geotrail that is valuable and suitable for adventure tourism" (Chief Warden, personal communication, March 19, 2022). The trail connects multiple geological and cultural landmarks across Baringo County, stretching from Ngelecha Hill on the Laikipia Escarpment in the east, across the Great Rift Valley, to Eldoret in the west. Participants noted that the trail links several important sites, including hills, escarpments, Lake Bogoria, and historic routes such as those of Bishop Hannington and Joseph Thomson, as well as former ivory trade routes. Moreover, the geotrail provides market to cultural artefacts, community traditions, and scenic view points, making it a valuable resource for educational and adventure tourism.

Despite its historical, cultural, and geological significance, participants consistently described the trail as underutilized and inadequately maintained. A 34-year-old female respondent from the local community service sector noted:

Laikipia–Eldoret nature trail... is largely underutilized, though it is a marked trail. By using this trail one can access multiple vantage points such as Ngelecha Hill, Siracho Escarpment, Keon Hill, and Soke Hill; where one can see the entire section of the

Gregory Rift Valley within Baringo County except Lake Bogoria, which is hidden (36-year-old male respondent, personal communication, March 19, 2022).

This insight reflects a common issue in geotourism development: the disconnect between mapped or inventoried sites and their actual integration into functional tourism circuits. As Dowling and Newsome (2018) emphasize, infrastructure, interpretation, and accessibility are critical components of successful geotrail development. Without proper signage, promotion, and access roads, even well-identified geosites remain inaccessible and unknown to potential visitors. Participants also discussed the need to develop auxiliary tourism activities to add value to the identified geosites and trail. These include geoconservation runs, mountain sports, educational signage, and better documentation. A 36-year-old male respondent summarized this view, stating:

Promoting sport tourism such as mountain run or geoconservation run, mapping of geodiversity sites, putting signage, proper documentation of each geodiversity site and improving access through clearly marked trails and access roads is one way of developing geotourism in the study area. (36-year-old male respondent, personal communication, March 19, 2022).

This aligns with international geotourism principles that advocate for multi-functionality, where tourism, conservation, education, and recreation are integrated to promote local development (UNESCO, 2021; Zouros & Martini, 2021). Geotrails are particularly effective for this purpose, offering structured, interpretive routes that increase tourist dwell time, distribute visitor flow, and deepen engagement (Reynard et al., 2020).

Importantly, local stakeholders emphasized that the viability of geotourism depends on both extrinsic (infrastructure, accessibility) and spiritual and cultural values. One participant referred to geotourism as:

A neglected form of tourism but it has great potential for economic growth, nature conservation, cultural conservation, and inclusivity in its benefits. Geotourism has gained traction in Europe but is still underdeveloped in Kenya. However, there is growing interest among scholars, county government, and tourists, especially international tourists (Chief Warden, personal communication, September 20, 2019).

This perspective is consistent with global trends, where geotourism has been increasingly recognized for its role in sustainable development, particularly in geopark and non-protected

areas (Martini et al., 2021; Ngwira, 2018). However, the challenge remains in translating community knowledge and mapped potential into actionable development strategies. According to Hose (2021), this requires deliberate investment in infrastructure, stakeholder collaboration, and education, particularly when sites are located outside protected conservation areas.

Moreover, understanding how local communities perceive geosite attributes is essential in identifying which sites hold actual potential for geotourism development. In this regard, the study indicates that the local community respondents considered the attributes for each of the geosites as unique and exceptional. These valuable attributes of landforms corroborated the results of a study carried out by Kubalikova (2013) and Gray (2004) indicating that geodiversity as a whole cannot be used for geotourism, but only geosites which are perceived as having valuable attributes. Furthermore, the types of potential geodiversity sites corroborated results of a study by Newsome and Dowling (2006) indicating that exceptional geosites are geological and geomorphological formations of landscape, namely landforms, fossil beds, rocks, and minerals that constitute potential attractions for tourism development. Further, the potential geosites also included cultural heritage and indigenous knowledge embedded into geological and geomorphological formation as extrinsic values. The results on characterizing of potential geosites indicates that local community is capable of identifying potential geosites and indigenous knowledge of local community members is critical in identifying potential geosites for promoting geotourism in the unprotected areas.

Furthermore, the results indicate that members of the local community used indigenous knowledge to assess potential geosites in the unprotected areas. The exceptional geoheritage values included; artefacts, belief systems, myths, mystic, anthropologic, and socio-facts that have potential for steady supply of geotourism products. Findings on use of indigenous knowledge corroborated results of study by Gray (2004) indicating that resource value of geodiversity to tourism may arise from their intrinsic and extrinsic values such as cultural, aesthetic, economic, and educational. Additionally, results indicate that local community members are capable of inventorying potential sites that can promote geotourism. This finding corroborated results of a study by Strba et al. (2018) indicating that qualitative assessment methods result in some human-readable text describing the value of a geosite. This suggests

that use of indigenous knowledge underpin the need to train and provide cultural interpreters and geoguides to provide experience-based interpretative services to tourists at geosite destinations.

Some of the potential geotourism activities linked to the geological and geomorphological formations include; rock-climbing, sports tourism, mountain run, mountain hiking, learning, filming, panoramic view, relaxation, relieving stress, marking Valentine Day, and celebrating peace among others. These potential geotourism activities suggest that the local people are capable of identifying geosites, which can be a source of steady supply of geotourism products—a form of sustainable tourism that benefits both the local people and environment.

Nearly, all the documented geodiversity sites lacked the necessary infrastructure to support steady supply of geotourism products. As such, geotourism is underdeveloped for the local community to realize the benefits in the study area. The terms used by respondents to indicate underdeveloped potential of geosites included untapped, undervalued, underutilized, dormant, obsolete, obscure or unknown (Table 4.6). Other reasons included absence of; trained geoguides, marked trails, road signage, access roads, documentation of potential geosites, information on tourists' maps, adequate funding from the County government of Baringo, and organized events to popularize destinations in the study area. This indicates that the provision of infrastructure is important in promoting geotourism in the study area. This finding corroborated the results of Neches (2013) stating that as an economic activity, geotourism involves provision of infrastructure facilities and services. Further, the cultural heritage of indigenous Endorois and Toicho people is embossed on some of the geosites in the study area. This suggests that cultural interpretation of geosites is very important in documenting and offer of cultural heritage and geoheritage tourism. The results of UNESCO (2016) report corroborated the role of cultural heritage in promoting geotourism and emphasized that interpretation is not merely the transmission of geoheritage information, but needs to be in the language easily understood by all persons, rather than in the technical language.

4.3.4 Local Community Promotion of Geotourism Products

Building upon the discussion in the previous section (4.3.3), this study considered community perspectives in promotion/offer of geotourism in the study area. This was informed by the need to understand the knowledge of local communities concerning geotourism activities in the

study area. Therefore, data obtained during an FGD was analyzed using Kirkpatrick's perception model by performing thematic analysis (Theme 3, Table 4.3). The data were coded, transcribed verbatim, anonymized and discussed as presented in this section. During the FGD, the local community identified three key aspects related to their offer of geotourism, namely (a) the prevailing geotourism products/activities, (b) participation of local community in geotourism, and (c) the challenges experienced in promoting geotourism in the unprotected areas. These themes reflect the community's awareness of both the potential and limitations of geotourism in their locality.

The results of the analysis also revealed that all the documented geodiversity sites are suitable for geotourism. In this regard, this study sought information about on-going geotourism activities in the study area. Further insights from the FGD revealed a shared understanding among participants regarding the nature and scope of prevailing geotourism activities. For example, consensus emerged on two main areas: first, geotourism was largely limited to iconic and visually captivating geodiversity sites; and second, only a narrow range of geotourism activities was being practiced in the study area. These included photography, geo-lectures, and educational experiences such as learning about the Coriolis force at the Earth's Equator in Mogotio. Plates 4.6 (a) and (b) illustrate such learning sessions, which are among the few structured geotourism activities conducted in Mogotio, Baringo County. These activities indicate that while geotourism potential exists, its development remains constrained in scope and is centred around a few key attractions.



Plate 4.6: Learning Sessions about the Effect of Coriolis force

Many tourists visit the Earth’s Equator at Mogotio to experience the sense of wonder of Coriolis force through geo-lecture and demonstrations. In addition to Equator-focused experiences, the community participants highlighted Kormoson Hill as a multi-faceted geotourism site that is associated with geo-educational programs, interpretive tours, and cultural engagement through the “kissing stones” attraction. Plates 4.7 (a) and (b) shows visitors at Kormoson view point. The geo-based activities resonate with literature emphasizing the integration of geological features with cultural heritage to enrich visitor learning and sense of place (Dowling & Newsome, 2010; Hose, 2012). Kormoson Hill thus represents a well-rounded geotourism resource that combines scientific insight with local storytelling (Dowling & Newsome, 2010).



Plate 4.7: Visitors at Kormoson Hill View Point

Additionally, geotourism activities include; sunset viewing, and photography. Plate 4.8 shows panoramic view of the lowlands below Kormoson Hill geosite. This finding on panoramic view of landscape aligns with Kubalíková, (2013) and Gray, (2004), who opined that panoramic viewing across geologically significant landscapes allows tourists to visually connect with geomorphological processes at a landscape scale. These viewpoints serve as interpretive platforms enhancing visitor understanding of geodiversity. Regular visitation of Earth’s Equator and Kormoson geodiversity sites was affirmed through field observations; Plates 4.6 (a) and (b) and 4.7 (a) and (b) respectively.



Plate 4.8: Panoramic View of the Landscape to the East of Kormoson Hill Geosite

According to *Operational Guidelines and Criteria* of UNESCO Global Geopark (2016, 2019), local communities and indigenous people are required to participate in establishing geoparks and offer of geotourism. As a result, this study sought to determine how members of the local community participate in offer of geotourism in the study area (Theme 3, Table 4.3). The findings from the FGD indicates that local communities and indigenous people-Endorois, were involved in offer of geotourism through; (a) establishing community conservancies, (b) documenting geosites and (c) Global Geopark in the unprotected areas, including Irong Community conservancy, Kormoson Hill geosite and the Baringo Great Rift Valley Global Aspiring Geopark respectively. The indigenous people and local communities also participated in establishing the BCCA, which brings together all the local community conservancies in the study area. This study revealed that geoconservation and geotourism was gradually taking root in the study area. However, members of the local community were only partially familiar with the concepts of geosite, geopark and conservancies. This was affirmed by the Chief Executive Officer (CEO) of the BCCA who stated that:

Some members are unable to distinguish between conservancies, geosites and geodiversity sites. There are conservancies without geosites and there are conservancies with several geosites, for example Irong conservancy. Some places like “SS” are not necessarily geosites, these are simply vantage points (BCCA CEO, personal communication, September 19, 2023).

This confusion mirrors the findings of Newsome and Dowling (2010) who argue that when community members do not understand terms like “geosite” or “geopark they cannot participate effectively in geo-conservation or geotourism planning. Clear definitions, interpretive materials, and inclusive training are thus essential for building community capacity and promoting geotourism. The FGD reveals that the BGRVAGGp comprises 12 community conservancies, namely; Lake Bogoria National Reserve, Kormoson Hill, Morop-Tarambas, Sinibo, Kaborion, Ruko, Kiplombe, Kipngochoch, Mangar, Kaptuya, Lelang, and “SS”, each with unique archaeological, cultural or geological heritage. The BGRVAGGp was established to promote sustainable tourism, diversify products, and empower local communities. Plate 4.8 and 4.10 shows information panel at Kormoson geosite and ‘SS’ Vantage point respectively.



Plate 4.9: Information Panel at Kormoson Hill in the Baringo Aspiring Geopark



Plate 4.10: The “SS” Vantage Point on Kabarnet-Iten road in the BGRVAGGp

However, community conservancies are experiencing systemic issues that hinder their effective operations. For example, boundary conflicts, at “SS” vantage point and insufficient entrepreneurship knowledge among local community members are some of the issues hampering geotourism operations in the study area. One of the key informants elucidated by lamenting that;

The information panel at the “SS” vantage point was uprooted by some members of the local community, who felt aggrieved that the process of establishing the site was not transparent or inclusive, particularly regarding revenue-sharing and geosite boundary issues (Geology scientist, personal communication, March 19, 2022).

This conflict highlights the critical role of community engagement in geotourism and geoconservation. It suggests that antecedents such as limited knowledge, exclusion from planning processes, and unclear benefit-sharing frameworks can significantly hinder local support and ownership of geo-based initiatives. According to Dowling and Newsome (2010), effective geotourism development requires not only the identification and promotion of geosites but also the active involvement of local communities, especially in decision-making, interpretation, and benefit distribution. Without these, efforts to promote geotourism may foster resentment and lead to resistance, as seen in the ‘SS’ vantage point incident.

On the sub-themes that this study examined through FGD was the challenges faced by the local community in promotion of geotourism (Theme Three, Table 4.3) in the study area. This study employed the Kirkpatrick’s perception model to isolate the challenges facing offer of geotourism products in the study area. The problems were characterized as, unknown geosites, fragility of geosites, seasonality of tourism, inadequate marketing, land tenure, lack of political goodwill, non-documented geosites, and inaccessibility of geodiversity sites, inadequate infrastructure, and absence of a policy framework. This study examined how these issues undermine local communities’ offer of geotourism products.

The fragility of geosites was associated with damages occasioned by geomorphic processes like soil erosion and unregulated human access. Members of the local community opined that unregulated visits to sensitive geodiversity sites such as Kormoson archaeological Fortress need a sustainable management framework to ensure longevity of use by tourists. Several members of the local community participants agreed, describing some of the conservation

measures as; (a) seasonal price variation, for example hiking the prices during the high season and reducing it during the low season; (b) advance booking to regulate the numbers accessing the site at ago; (c) controlling visitor numbers at the site by restricting the numbers accessing the archaeological fortress at ago; (d) restoration of destroyed sites; and (e) use of guides to control movement of tourists. These measures corroborate *Operational Guidelines of UNESCO* (2019) regulations No. 15, which states that fragile geosites should be put under elaborate measures to conserve them in-situ from natural forcings and anthropogenic damage.

The participation of members of the local community in seeking to conserve potential geosites demonstrate the importance of local community and use of indigenous knowledge in geoconservation. However, field visits observed that there were no elaborate management structures in place to mitigate damages of sensitive geosites, such as Kormoson Hill. This mirrors the results of a study by Kiernan (2013) indicating that appropriate management of geotourism destinations is lacking, especially in developing countries, where priority is given to economic development over geoconservation.

The seasonality of tourism between the high and low seasons is likely to cause overcrowding and underutilization of geosites respectively. Thereby, majority members of the local community agreed, describing the outcome as low revenue collection during the low season and negative effect on viability of potential geosites as tourism destination. This suggests that people whose livelihood directly or indirectly depends on geotourism are affected. Nevertheless, good tidings during the high tourism season but with a possibility of destruction to fragile geosites. This suggests that utilization of geodiversity sites for geotourism development is a delicate balancing act between development and conservation. This finding corroborates results of a study by Harmon and Viles (2013) arguing that there is need for compromises between geotourism and geoconservation in dealing with geosite sensitivity to human impact. This underscores the importance of geosite protective measures that promotes sustainable tourism, which accrue benefits to both geosite and the local community.

This study revealed that majority of inventorized geodiversity sites were little known to the tourists visiting the study area. Members of the local community agreed that absence of a marketing strategy that focuses on geotourism was to blame for obscurity associated with the

identified potential geosites. This finding agrees with the results of a study by Mukwada and Sekhele (2017) who asserted that insufficient marketing hampered community based geotourism in South Africa. This suggests that there is need to market geotourism in the study area. Additionally, potential geosites such as Kormoson, and Cheploch lack functional management structures such as gate, record keeping, visitor management, ticketing system, management plan, revenue collection, tour guiding, and geo-interpretation services.

Furthermore, there is absence of clear management and legal structures to guide local community engagement in geotourism, particularly in community conservancies. This gap violates Criterion (ii) of the *UNESCO Global Geoparks Guidelines* (UNESCO, 2019), which requires geosites to be managed by a legally recognized body. Meanwhile, inventoried potential geosites operate within community conservancies and fall under the supervision of the BCCA, which has limited capacity to address management conflicts. Without a legal framework, authority over resource allocation and geotourism development remains unclear. This was observed in community-based geotourism efforts, such as in South Africa, where lack of management capacity and insufficient marketing resulted in low visitor numbers and limited economic impact (Ólafsdóttir & Tverijonaite, 2018). This underscores the importance of legislation from the County Government of Baringo to strengthen the BCCA as a management body in unprotected areas. On the question of land tenure, all the participants identified three forms of prevailing land ownership in the community conservancies; private, public, and communal land. Table 4.6 summarizes potential geosites and land tenure in the area.

Table 4.6

A Summary of Potential Geosites and Land Tenure in the Study Area

S/No.	Geodiversity site	Local name	Location	Ownership status
1	Rock outcrop	Kormoson Hill “Kissing stones”	Irong	Community land
2	Vantage point	Nyalilbuch Vantage Point	Nyalilbuch	Public land
3	Fumarole	Kapyomat Fumarole	Chuine	Private land
4	Caves	Kapillat Cave	Chepirrepei	Community land
5	Gorge	Kurucho Gorge	Chuine	Community land

Additionally, *Statutes and Operational Guidelines of UNESCO* (2016, 2019) Criteria (i) states that all geosites should have clearly defined boundary limits. Nevertheless, most of the local community conservancies and potential geosites have no clearly defined boundaries. As such, the participants seemed to agree that absence of clear boundaries was causing conflict and slowing down geoconservation and geotourism. Members of the local community participants agreed, describing land rights and community boundaries as emotive and often causing conflict. This is consistent with the results of a study by Ólafsdóttir and Dowling (2017) who noted that unclear or contested land tenure arrangements can trigger boundary disputes and marginalization within communities. Further this study noted that sustainable geotourism relies on transparent land rights; otherwise, disputes may overwhelm planning processes.

The FGD revealed that political good will, especially of elected representative leadership, is important in development of geotourism, especially in allocating development resources to community projects. Several participants argued that development priorities of leaders often depend on their professional training and experience. As such, where leaders have no knowledge or interest in conservation and tourism projects, they tend to overlook important projects and fail to allocate development resources thereof. From in-depth interview, one of the key informants stated that:

The community should also sensitize leaders at all levels, from the local through to national level, because they influence development of tourism. Nationally, President Jomo Kenyatta was a regular visitor to Nyalilbuch Vantage Point, on the southern end of Lake Bogoria, in the mid-1970s. This gave prominence to the geodiversity site and LBNR as a tourism destination. During the regime of President Daniel Toroitich Arap Moi, the study area experienced development of infrastructure, including the Kapchereren-Loboi tarmac road and Lake Bogoria Spa Resort. Local leaders tend to allocate financial resources to community projects such as cattle dips, dispensaries, or administrative offices at the expense of community conservation projects (Senior Warden, personal communication, March 19, 2022).

This finding corroborates results of a study Beraaouz (2011) and Beraaouz et al. (2019) stating that development of geotourism requires good working relations between local elected leaders, scientists (including geographers and geologists), tourism stakeholders, and professional interpreters. Additionally, the finding on elected leaders concurs with the results of a study by

Dong et al. (2014) indicating that geoconservation and geotourism in Luochuan loess national geopark in China was underdeveloped due to elected leaders allocating insufficient funds for geoconservation activities. This suggests that there should be sensitization programme targeting both local leaders and community members on the importance of allocating financial resources towards geoconservation projects, especially through community conservancies.

The study revealed that Kapillat and Kapyomat geosites were inaccessible due to lack of motorable roads and unmarked nature trails. This implies that inaccessibility lowers the value of potential geosites, which in turn leads to neglect of geotourism. One other problem was absence of physically marked nature trails and lack of Global Positioning System (GPS) network to guide tourists about places of interest to visit in the study area. These challenges, ranging from unknown and undocumented geosites to insecure land tenure and poor infrastructure, collectively hinder local communities' ability to develop and benefit from geotourism in areas with high geodiversity potential. These limitations constrain community participation, reduce visitor appeal, and obscure sustainable development opportunities (Dowling & Newsome, 2010; Ólafsdóttir & Dowling, 2014; Ristiawan, 2022).

4.4 Tourists' Perceived Value of Landforms that Constitute Tourism Products

The second objective of this study was to examine tourists' perceived value of the landforms that serve as tourism attractions in the study area. To achieve this, quantitative data were gathered from 385 tourist respondents to assess their perceptions of the geysers and hot springs. Consequently, modified Strba and Rybar (2015) scale was used and also a parametric inferential statistical t-test analysis was performed. In this section, the study presents results on geotouristic value of geysers and hot springs (intrinsic and extrinsic value) in the study area. The presentation of results and discussion aimed at understanding geodiversity value score of geysers and hot springs in LBNR and to also establish whether there was a significant difference in the perceived levels of intrinsic values across categories of the tourists. This study analyzed data on Objective Two into (a) intrinsic value, (b) extrinsic value, and (c) level of overall value score of geysers and hot springs, and also operationalized it using the first null hypothesis. The results are presented using tables, percentages, frequencies, independent samples t-test, descriptive statistics, and plates. Tables are interpreted and discussed to provide explanations and conclusions.

After highlighting the socio-demographic profile of tourist respondents, this study analyzed the perceived value of landforms that constitute tourism products. The study conceptualized and measured tourists' perceived value of landforms using indicators of intrinsic and extrinsic value. Therefore, using modified Strba and Rybar (2015) scale, this study measured tourists' knowledge of the five indicators of intrinsic value of landforms using a five-point Likert scale to measure; *general classification, uniqueness, degree of preservation, observation condition, and availability of information*. Similarly, this study measured tourists' indicators of extrinsic value of landforms; *accessibility, security, scenic value, value of provided services, and touristic importance* using a five-point Likert scale. The Likert scale score value and label ranges from 1 to 5; where *ordinary* (O = 1), *unexpected* (U = 2), *authentic* (A = 3), *fascinating* (F = 4), and *iconic* (I = 5). The results are presented in Tables 4.5 and 4.7, which summarizes intrinsic and extrinsic values of landforms respectively. The overall perceived geodiversity value score of landforms was measured and expressed as a pair value (composite value) of intrinsic and extrinsic values. The conceptual equation is expressed as; $gvs = iv/ev$; where geodiversity value score (gvs) is a function of the intrinsic value (iv) of landforms paired against the extrinsic value (ev) of landforms (Table 4.9). The subsequent section presents the findings on tourists' perceptions of both the intrinsic and extrinsic values of the geysers and hot springs in the study area.

4.4.1 Perceived Intrinsic Value of Geysers and Hot Springs by Tourists

This study conceptualized intrinsic value of landforms as the inherent attributes of geysers and hot springs, which are of interest to tourists. The tourists measured their knowledge of intrinsic value of landforms; *general classification, uniqueness, degree of preservation, observation condition, and availability of information* using a five-point Likert scale. The tourists rated intrinsic value of landforms as *ordinary* (O=1), *unexpected* (U=2), *authentic* (A=3), *fascinating* (F=4), or *iconic* (I=5) in response to each item. Subsequently, evaluation ratings for each indicator were calculated, with the results shown in Table 4.7. To rank tourists' ratings of intrinsic indicators, the study employed a modified Strba and Rybar (2015) scale to aggregate individual scores for five intrinsic indicators into a mean intrinsic value score ranging from 5 (low) to 25 (high), as shown in Table 4.8. Descriptive statistics including percentages, means, standard deviations, and mean rankings were used to identify intrinsic indicators with the greatest and least influence on tourists' knowledge of the perceived value of landforms.

Table 4.7

Tourists Perceived Intrinsic Value Score of Geysers and Hot Springs

Indicators of intrinsic value of geysers and hot springs	Response (%)					Mean value score
	O	U	A	F	I	
General classification	1.8	2.1	1.8	23.9	70.4	4.59
Uniqueness/landform character	2.1	1.3	11.2	14.8	70.6	4.51
Availability of information	0.5	3.6	6.0	37.7	52.2	4.37
Degree of preservation	0.3	1.8	8.1	42.6	47.3	4.35
Observation condition	0.3	0.0	1.6	98.2	0.0	3.98

In Table 4.7 the letters O, U, A, F, and I, refers to tourists' ratings of intrinsic value of geysers and hot springs as; *ordinary* (O), *unexpected* (U), *authentic* (A), *fascinating* (F), and *iconic* (I).

The following information is evident from the Table 4.7, *general classification* is the most perceived intrinsic value score (4.59 out of 5 on modified Strba & Rybar scale) of geysers and hot springs, and 70.4% of the respondents considered it as iconic. This mirrors findings by Brilha (2018), where *scenery* and *uniqueness* significantly boost a geosite's tourism appeal. Additionally, Zhang et al. (2022) highlights how such forms of recognition reinforce tourists' destination image and intentions to revisit while *observation condition at LBNR* was the least perceived intrinsic value score (3.98 out of 5 on modified Strba & Rybar scale) on a five-point Likert scale and none of the tourists rated it as iconic. Uniqueness of landforms (70.6%), availability of information (52.2%), and degree of preservation (47.3%) were identified as the most iconic attributes, in that order.

Furthermore, majority of tourists (70.6%) perceived the geysers and hot springs as unique worldwide, and 70.4% of tourists perceived *general classification* of geysers and hot springs as iconic and suitable for recognition internationally. Additionally, 47.3% of the tourists perceived the *degree of preservation* as iconic (I), and the geosite not destructed. Thus, confirming that the more distinct and well-preserved a geosite, the stronger its symbolic and perceived value, as argued by Reynard and Brilha (2018). Overall, most tourists perceived the geysers and hot springs at LBNR as ranging from fascinating to iconic. Furthermore, majority

of the tourists (98.2%) perceived the *observation condition* of geosite as fascinating and good for recreation. Observation conditions had the lowest intrinsic score (3.98 out of 5 on modified Strba & Rybar scale), and no respondent rated them as iconic, even though 98.2% found them *fascinating* and suitable for recreation. This is indicative of a discrepancy such as tourists enjoying the site, but likely faced with practical challenges in viewing it clearly (e.g., due to submergence of springs, crowding by tourists, and littering, poor visibility). Table 4.7 presents the detailed percentage frequency distribution of tourist responses regarding the perceived intrinsic value of each indicator related to the geysers and hot springs.

The main finding on tourists' perceived intrinsic values of landforms at LBNR shows that *general classification* ranked the highest indicator of intrinsic value of geysers and hot springs and perceived as iconic and suitable for recognition globally as a tourism destination. This suggests that the tourists: - the people for whom tourism products are developed and offered, are capable of perceiving the geysers and hot springs as a geological heritage with international value. This finding demonstrates that geysers and hot springs are of international significance and thus, meet the guidelines of UNESCO Global Geopark (2019), section 3 (iii) criterion iB for establishing global geosites and geopark. This also suggests that the tourists have sufficient knowledge to measure geotourism potential of geodiversity sites. Additionally, the geysers and hot springs presents opportunity for promoting geotourism and diversifying tourism products in the study area. Domestic (78.2%) and international tourists (21.8%) assessed the international geoheritage value and whereas geysers and hot springs is potentially an international tourism destination, the destination has continued to lag behind others in promoting geotourism. This indicates potential for geotourism development in the area.

The overall level of intrinsic mean value score for geysers and hot springs was high, $21.79 \pm 2.208/25$ on modified Strba and Rybar (2015) scale. The higher the intrinsic mean value of landforms, the greater the potential of geotourism products. Therefore, the findings indicates that there is high geotourism potential in the study area. Additionally, this value of landform is an indicator of underutilized geotourism potential in the study area. The surveyed tourist respondents that visited the study area to satisfy their leisure and recreation needs points to this untapped geotourism potential. Furthermore, the Ministry of Tourism and Wildlife's emphasis on biodiversity conservation and wildlife tourism, while neglecting geodiversity and geotourism, reflects existing conservation and tourism policies that marginalize the latter

(GoK, 202a). The findings on the intrinsic valuation of geosites align with those of Vujicic et al. (2011), who argue that visitors can accurately assess scenic value only when they are physically present at their selected recreational site. This study indicates that tourists' perceived intrinsic value of landforms plays a crucial role in the promotion of geotourism, particularly in the study area. There is opportunity, therefore, to promote geotourism as a means of diversifying tourism products in the region.

However, the study found that the observation conditions and preservation status of geysers and hot springs were among the least valued aspects by visitors. This contrasts with the findings of Strba et al. (2023), who argued that, although the visual attractiveness of a site is subjective, it is often the most important factor influencing geosite visitation. The results in this study indicates a gap between geoconservation efforts and geotourism contrary to UNESCO (2019), which emphasizes that geotourism and geoconservation are closely linked. Additionally, the poor observation condition points to a general lack of regular cleaning and maintenance of geysers and hot springs, as well as inadequate measures to mitigate human-induced use and degradation of geysers and hot springs. Littering of geysers and hot springs contributed to tourists' perceived poor observation condition of geysers and hot springs. This finding corroborates the results of a study by Kiernan (2013), who argued that destination conservation is especially lacking in developing countries, where priority is given to economic development such as jobs, income, and revenue collection, over geoconservation.

Furthermore, the poor visibility of geysers and hot springs was linked to rising water levels. The Senior Warden of Lake Bogoria National Reserve stated that;

The rise in lake water levels in the past few years has adversely affected the geysers along the shores of the lake, as nearly all of them were submerged, thereby making it difficult for tourists to observe the intermittent gushing of water from the geysers. The springs that are left are on higher ground along the shore and have little water gushing. There is very little that can be done to restore the submerged geysers and so the disappointment by tourist will continue to persist (Senior Warden, personal communication, March 19, 2022).

The overall low scenic value of the destination is likely to hinder recreation activities, for example learning, relaxing, and enjoying geodiversity. Furthermore, through field observation,

the study revealed that the prominent geysers and hot springs were submerged because of rise on water levels in Lake Bogoria. Therefore, the rise on levels of water has affected vegetation surrounding Lake Bogoria and submerged KWS offices at Lobo gate. The rise on water levels was attributed to climate change and shifting tectonic plates in the Great Rift Valley. The Senior Warden LBNR observed that; “The rise on water levels in Lake Bogoria has been caused by climate change and human encroachment of Lake Bogoria landscape and its catchment” (Senior Warden, personal communication, March 19, 2022). Plate 4.11 shows the effects of rise on water levels on vegetation around Lobo gate in Lake Bogoria.



Plate 4.11: The Effects of Rise in Water Levels on Vegetation at Lobo Gate in LBNR

Furthermore, to enable ranking of tourists’ ratings of intrinsic indicators, this study aggregated the individual value scores for the five intrinsic indicators into a composite intrinsic value score (reliability coefficient, $\alpha = 0.600$), ranging from 5 (low intrinsic value) to 25 (high intrinsic value)¹ (Table 4.8). The aggregated intrinsic mean value score was 21.79 ± 2.208 out of possible mean value of 25 on the modified Strba and Rybar (2015) scale. The overall internal consistency, Cronbach’s alpha reliability coefficient was calculated, which was $\alpha = 0.600$, which is considered as acceptable for internal consistency of the scale used in rating intrinsic

¹ $5 \times 1 = 5$ (low)

$5 \times 3 = 15$ (Average)

$5 \times 5 = 25$ (High)

value of geysers and hot springs. The intrinsic value score was transformed into three ordinal levels, namely an intrinsic value score of 5-11 (low), 12-18 (average), and 19-25 (high). According to the modified Strba and Rybar (2015) scale used in this study, higher value scores indicate a greater intrinsic value of geodiversity (geysers and hot springs), while lower scores reflect a lesser intrinsic value. Table 4.8 summarizes the aggregate intrinsic value score levels for the geysers and hot springs.

Table 4.8

Aggregated Intrinsic Value Score Levels for Geysers and Hot Springs

Levels	Ordinal Level Scale	Frequency	%
Low	5-11	2	0.5
Average	12-18	33	8.6
High	19-25	350	90.9
Intrinsic mean value score	21.79±2.208		

Table 4.8 shows that the majority of tourist respondents (90.9%) rated the geysers and hot springs within the high-level intrinsic value category (score range 19–25), indicating a high perception of the site's geodiversity value. The aggregated mean intrinsic value score was 21.79 ± 2.208 out of a possible 25 on the modified Strba and Rybar (2015) scale, therefore, reflecting a generally high appreciation of the geosite.

The findings of aggregated intrinsic value of geysers and hot springs indicate that the intrinsic value is high, pointing to a great geotourism potential at the destination. Second, the tourists had high impression of destination, which is crucial in development of geotourism in the study area. This could be helpful in guiding tourism product developers in increasing tourism products portfolio at the destination. The high intrinsic value score of the geysers and hot springs reflects the influence of existing geotourism activities such as steam baths, saunas, and egg boiling, which enhance the visitor experience and engagement with the site. This supports the findings of Vujicic et al. (2011), who argue that scenic beauty is most accurately assessed by visitors when they are physically present at the destination. Furthermore, this suggests that prioritizing the protection of geodiversity sites is essential for promoting geotourism, attracting more tourists, and enhancing economic opportunities at the destination.

4.4.2 Perceived Extrinsic Value of Geysers and Hot Springs by Tourists

This study conceptualized extrinsic value of landforms as added human features or infrastructure that enhances the attractiveness of geodiversity sites at LBNR. This study sought to understand the knowledge of tourists regarding geotourism potential in the study area. The tourists measured their knowledge of the indicators of extrinsic value of landforms, namely *accessibility, security, scenic value, value of provided services, and touristic importance* using a five-point Likert scale. The tourists rated extrinsic value of landforms as; *ordinary* (O = 1), *unexpected* (U = 2), *authentic* (A = 3), *fascinating* (F = 4), or *iconic* (I = 5) in response to each item. Subsequently, using a modified Strba and Rybar (2015) scale, the study calculated evaluation ratings for each indicator, with the results summarized in Table 4.9

Table 4.9

Descriptive Statistics and Response Rate on Extrinsic Score Value of Geysers

Indicators of extrinsic value of geysers and hot springs	Response (%)					Mean value score
	O	U	A	F	I	
Security	8.6	0.0	16.4	0.0	75.1	4.58
Accessibility	1.6	1.3	0.3	33.5	63.4	4.56
Touristic importance	1.3	18.4	12.7	0.0	67.5	4.46
Scenic value	0.8	2.9	57.4	0.0	39.0	4.35
Value of provided services	22.6	46.8	1.8	27.0	1.8	2.39

In Table 4.9 the letters O, U, A, F and I, refers to tourists' ratings of extrinsic value of geysers and hot springs as; *ordinary* (O), *unexpected* (U), *authentic* (A), *fascinating* (F), and *iconic* (I).

Table 4.9 indicates that security received the highest perceived extrinsic value score (4.58 out of 5 on modified Strba & Rybar scale), with 75.1% of respondents considering the geysers and hot springs environment to be iconic. In contrast, the lowest rated aspect was the provision of services, with a mean score of (2.39 out of 5 on modified Strba & Rybar scale), and 46.8% of respondents describing the service provision as below expectations. The only service available on-site was tour guiding, which did not meet tourists' expectations. The remaining extrinsic values; accessibility, touristic importance and scenic value were interpreted as representing

comfortable access, ease of location on map, and a good panoramic view of the destination, respectively.

Furthermore, information in Table 4.9 indicates that 75.1% of the tourists perceived security as iconic and considered surroundings geysers and hot spring as safe for tourists. And 8.6% tourists perceived the destination as ordinary and lacking security elements for safety of tourists. Majority of the tourists (63.4%) perceived accessibility of geysers and hot springs as iconic and providing comfortably access to tourists. However, few tourists (1.6%) perceived accessibility of destination as ordinary and inaccessible to tourists for different reasons. This was linked to poor conditions of the earth road that had some sections partially or fully damaged rendering movement difficult. A local tour guide further illustrated this point by stating that; “Poor roads have contributed to the drop in number of tourists and indeed the County government of Baringo has occasionally maintained the roads to attract more tourists and earn sufficient revenue” (Tour Guide, personal communication, March 19, 2022). Additionally, majority of tourists (57.4%) perceived the scenic value of geysers and hot springs as authentic, with great view of the surrounding landscape and 46.8% of tourists perceived the value of provided services as unexpected and having tour guiding services only. A sizeable number of tourists (22.6%) perceived the destination as ordinary and lacking provided services.

The finding on tourists’ perceived extrinsic value of landforms indicates that security ranked the highest indicator of extrinsic value of geysers and hot springs and majority of tourists considered the surroundings to be safe. This is linked to tourists prioritizing their safety whenever they are deciding where to visit. This finding concurs with the results of a study by Strba (2018), who argue that safety and comfortable access during the visit have a bearing on the choice of destinations by tourists. This suggests that tourists highly value safety when considering where to visit. As such, destination managers have to observe high levels of safety standards. Second, the overall level of extrinsic mean value score for geysers and hot springs was high, 20.34 ± 2.238 on a modified Strba and Rybar (2015) scale, indicating that the destination provides opportunity for developing geotourism in the study area. Third, the value of provided services was the lowest-ranked indicator of the extrinsic value of geysers and hot springs. This was attributed to absence of facilities such as study room or library, research laboratories, accommodation and catering services, souvenirs, and book shops, and non-

professional tour guides: factors that according to UNESCO (2006) guidelines on geosites of universal importance, are essential for enhancing visitor experience and educational value. This implies that lack of adequate infrastructure and educational components necessary for the development of geotourism in the study area.

In contrast, the findings of this study regarding destination amenities, such as limited



Plate 4.12: Neglected Pit Latrine at LBNR Meant for Tourists Visiting the Study Area

availability of toilets differ from those reported by USAID (2013), which emphasize that the availability of such facilities helps Kenyan destinations project an image of safety and hygiene in the international tourism market. However, findings corroborate the results of a study by Jangra et al. (2021), who assert that availability of public toilets is a big problem at tourist destinations, especially in India. In this study LBNR lacked modern ablution facilities but the existing pit latrine was somewhat neglected; no running water, no sanitary facilities, no attendant and sandwiched in a thicket. Plate 4.12 shows a pit latrine meant for tourists visiting the study area.

This study considered the overall extrinsic value of landforms as helpful in gauging geotourism potential of the geysers and hot springs. Thus, ordinal ranking was used in measuring the overall value of destination. To enable ranking of tourists' ratings of extrinsic indicators, this study aggregated the individual value score for the five indicators into a composite extrinsic value score (reliability coefficient, $\alpha = 0.576$), ranging from 5 (low extrinsic value) to 25 (high

extrinsic value²) (Table 4.10). The overall internal consistency, Cronbach’s alpha reliability coefficient was calculated, which was $\alpha = 0.5760$, which is considered as acceptable for internal consistency of the scale used in rating extrinsic value of geysers and hot springs. The value score was transformed into three ordinal categories including; a value score of 5-11 (low extrinsic value), 12-18 (average extrinsic value), and 19-25 (high extrinsic value). The aggregated extrinsic score value was 20.34 ± 2.238 and because the higher the value score, the higher the level of extrinsic value of geysers and hot springs, the destination had high extrinsic value. Table 4.10 shows aggregate extrinsic value score levels of geysers and hot springs.

Table 4.10

Overall Level of Extrinsic Value of Geysers and Hot Springs

Levels	Ordinal Level Scale	Frequency	%
Low	5-11	1	.3
Average	12-18	63	16.4
High	19-25	321	83.4
aggregated extrinsic score value	20.34 ± 2.238		

Information in Table 4.10 indicates that majority of the tourist respondents (83.4%) perceived the geysers and hot springs as having high-level extrinsic value score (19- 25 ordinal category) and considered the geosite to possess high extrinsic value of geodiversity. The aggregated extrinsic mean value score was 20.34 (± 2.238) out of a possible maximum of 25 on the modified Strba and Rybar (2015) scale.

The findings on aggregate extrinsic value of geysers and hot springs indicate that the extrinsic value was high. This indicates that geysers and hot springs have geotouristic value for promoting geotourism. The high extrinsic value suggests that the knowledge of tourists is critical in promoting geotourism products. The high-level rating of extrinsic value score

² $5 \times 1 = 5$ (low)

$5 \times 3 = 15$ (Average)

$5 \times 5 = 25$ (High)

indicates the presence of geotourism potential in the study area. This finding also suggests that the tourists value safety and accessibility at the geysers and hot springs in the study area.

This study considered the overall value score of geodiversity as important in determining the touristic value of geodiversity sites in the study area. The overall perceived geodiversity value score of landforms (geysers and hot springs) was measured and expressed as a pair value of numbers derived from aggregate intrinsic and extrinsic score values. Thereby the overall conceptual equation is expressed as; $gvs = aiv/aev$. Where the overall *geodiversity value score* (gvs) is a conceptual function of aggregate intrinsic value score (aiv) paired against aggregate extrinsic value score (aev).

The maximum overall pair value score is 25/25, which is interpreted as iconic and high geotouristic value, and basis for geotourism and the minimum is 5/5, which is interpreted as ordinary and low geotouristic value for intrinsic and extrinsic value respectively. The higher the overall pair value of numbers, the higher the geotouristic value and the lower the overall pair value of numbers the lower the geotouristic value of geodiversity. Hence a pair value of numbers closer to twenty-five (25) indicates high geotouristic value and vice versa. The pair value of numbers that is high and closely paired indicates a geodiversity site that has exceptional geotouristic value and vice versa. A pair value score of 25/5 has a high intrinsic value but low extrinsic value. Inversely, a pair value score of 5/25 has low intrinsic value but high extrinsic value. In both cases, it implies that a geodiversity has low geotouristic value. This implies that geotouristic value of a geodiversity site is a function of both intrinsic and extrinsic values. Table 4.11 summarizes the overall geodiversity value score as perceived by tourist respondents at LBNR.

Table 4.11

Tourists Overall Perceived Geodiversity Value Score at LBNR

Overall level of intrinsic value				Overall level of extrinsic value			Overall geodiversity value score			
	Ordinal	Frequency	%	Ordinal	Frequency	%	Ordinal	frequency	%	
	Level Scale			Level Scale			Level Scale			
Levels	Low	5-11	2	0.5	5-11	1	0.3	5-11	1	0.3
	Average	12-18	33	8.6	12-18	63	16.4	12-18	22	5.7
	High	19-25	350	90.9	19-25	321	83.4	19-25	362	94.00
Aggregate mean score value		21.79 \approx 22			20.34 \approx 20			22/20: Composite value		

Information in Table 4.11 indicates that the level of overall paired geodiversity value score (gvs) is high (22/20 out of 25/25) but extrinsic value (20) is lower than intrinsic (22). This indicates the need to improve extrinsic value of the destination by providing more infrastructure to support development of geotourism in the study area. Further, the geodiversity value score/composite value is closely paired and high for both intrinsic and extrinsic. This indicates that the geosite has great potential for promoting geotourism and diversifying tourism products. Moreover, the geysers and hot springs have exceptional geotouristic value that presents opportunity for embracing geotourism as a means of diversifying tourism products in the study area. Thus, according to SDT (2005) the intrinsic motivation of tourists in visiting Lake Bogoria National Reserve is autonomous of wildlife influence. This indicates that, despite LBNR being mainly a wildlife conservation area, the presence of geysers and hot springs strongly influences tourism in the study area. This finding stands in contrast to the National Tourism Strategy (GoK, 2022a) that neglected geotourism as a niche product. On the overall, majority of tourists (94%) considered the value of hot springs and geysers as iconic and high geotouristic value that is suitable for recognition globally as a geotourism destination. The high extrinsic value implies the destination has suitable infrastructure; security, road, and information to support demand for geotourism in the study area. The local community, KWS, and the County government of Baringo ought to recognize the high geotouristic value of geysers and hot springs as a means of diversifying tourism products in the study area.

The key finding indicates that geysers and hot springs has unique geological and geomorphological value, which ranks high on geodiversity value score. Further, the geosite has geotourism potential and exceptional geotouristic value, which can be harnessed to diversify tourism products and promote economic development in the study area. This finding agrees with the results of a study by Visnic et al. (2015), which observed that unique geosites could contribute to geotourism and geoconservation development. Additionally, the findings suggest that geysers and hot springs already attract the tourists into the study area. According to field survey, there are on-going geo-based tourism activities in the study area, namely sightseeing, steam bath, photographing, boiling of eggs, learning about the formation of geysers and geochemical and physical process, and experiencing of sense of wonder. This indicates that there is hidden geotourism, which present opportunity for diversifying tourism products in the study area. Unlike past studies in Europe, which involved expert-based practitioners and

research scientists, this study used experienced-based approach-involving tourists exposed to geysers and hot springs. This study demonstrates that tourist respondents, can objectively assess the value of landforms, establish the value of geotourism potential and explain why tourists attach value to geodiversity and by how much (high geotouristic value (22/20 out of 25/25). To that extent, this study modified and came up with a geodiversity value score ($gvs = aiv/aev$) and modified Strba and Rybar (2015) scale that can be used by tourists to assess the value of geodiversity sites in similar studies. The geysers and hot springs can be tapped to generate geotourism products for domestic and international tourism market. This will contribute to diversifying tourism products and creation of economic opportunities that contribute to realization of Kenya Vision 2030 agenda and SDG 8 target 8.9, which seek to “promote sustainable tourism that creates jobs based on local-cultural integrity and product diversity”. Similarly, development of geotourism will address the problems of high levels of unemployment and poverty in the study area.

4.4.3 Difference in Perceived Value Across Category of Tourists

Results from subsections 4.4.1 and 4.4.2 summarize the level of perceived intrinsic and extrinsic values of identified landforms (geysers and hot springs) in the study area. From these findings, the study further sought to establish whether there was a significant difference in the perceived levels of intrinsic values across categories of the tourists. The study, therefore, operationalized Objective Two using the first null hypothesis, which stated that: “There was no statistically significant difference in the perceived intrinsic and extrinsic values of landforms across categories of tourists”. The study used the Independent Samples t-test to determine whether there was a significant difference in the mean scores of the perceived intrinsic and extrinsic values between the two categories of tourists (domestic/local and foreign/international tourists).

As a parametric test, the common underlying assumptions of the Independent Samples t-test included scale of measurement, independence of observations, normal distribution of the dependent variable, homogeneity (homoscedasticity) of variances, and no significant outliers in the data set. In this study, the dependent (test) variable was a continuous (interval) variable measured in the actual scores (intrinsic and extrinsic value scores), while the independent (grouping) variable was a nominal variable (categories of the tourists: local and international). The study drew observations from respondents in the categories of tourists. The study tested

for normality of the dependent variable (intrinsic and extrinsic value scores) using the Q-Q Plot, which revealed a normal distribution of the mean scores for both groups (the categories of the tourists). The Levene's Test for Equality of Variances given by $F = 17.496, p = 0.106$ for intrinsic value score and $F = 1.037, p = 0.302$ for extrinsic value score indicate homoscedasticity of variance. Since p values are all greater than 0.05 significance level, group variances were treated as equal. Therefore, the study established non-violation of any of the assumptions, which made the Independent Samples t-test suitable to determine significant difference in the intrinsic and extrinsic value scores between the two categories of tourists at 0.05 significance level. Table 4.12 summarizes the output of the Independent Samples t-test.

Table 4.12

Summary of the Output of the Independent Sample t-test

Geodiversity value	Category of tourists	N	Mean	SD	T	df	Sig.2-tailed
Intrinsic value index score	Local/domestic	301	21.77	2.267	-.404	383	.687
	Foreign/international	84	21.88	1.996			
Extrinsic value index score	Local/domestic	301	20.46	2.241	2.056	383	.040
	Foreign/international	84	19.89	2.184			

Table 4.12 indicates that the international tourists recorded a higher intrinsic value mean score of 21.88 ± 1.996 compared to domestic tourists who had a mean score of 21.77 ± 2.267 . The difference in mean scores indicates that international tourists assigned a slightly higher intrinsic value to geysers and hot springs compared to domestic tourists, who rated the landforms somewhat lower. This variation can be explained by several factors. Some international tourists come from regions where geoconservation and geotourism are well-established and recognized as key components of the tourism sector. As a result, they are more likely to value geodiversity and appreciate the unique landscapes at Lake Bogoria National Reserve (LBNR). This is supported by studies (Ngwira, 2018; KNATCOM, 2023; UNESCO, 2024), which highlight that regions such as Europe and Asia have embraced geoconservation through the creation of

UNESCO Global Geoparks and the promotion of geotourism, whereas much of Africa has yet to fully adopt this emerging tourism model.

Conversely, domestic tourists appeared less impressed by the intrinsic value of geodiversity, likely due to their greater familiarity with such features and a stronger orientation towards wildlife conservation and wildlife-based tourism. Existing literature (KNATCOM, 2023; GoK, 2022a; Scoon, 2020) indicates that in Kenya, geoconservation and geotourism remain underdeveloped, with tourism policies continuing to prioritize wildlife conservation and related products. Secondly, domestic tourists are likely more familiar with the local geodiversity and may not experience the same sense of wonder as international tourists, who often perceive the destination as exotic. This perspective is supported by Jangra et al. (2021), who argue that tourist experiences play a critical role in shaping a strong and memorable destination image. Third, the difference in the perception of intrinsic value between international and domestic tourists may be attributed to more advanced geotourism research in regions such as Europe and Asia, compared to Africa: particularly Kenya, where such research remains underdeveloped. Avelar et al. (2015) and Beraaouz et al. (2019) emphasize that geodiversity research is essential for raising awareness among local communities, who play a key role as both developers and consumers of geotourism products.

However, $p(0.687) > 0.05$ significance level indicates that the difference in mean scores is not statistically significant. This means there was no statistically significant difference in the perceived intrinsic values of landforms across categories of tourists. The study attributed this lack of difference to the following possible explanations, that both domestic and international tourists may share a common appreciation for the intrinsic qualities of the landforms at LBNR, such gushing of steam jets from the geysers and aesthetic view of the lake, regardless of their origin. This aligns with findings by Brilha (2016), who noted that intrinsic values such as scenic beauty and uniqueness of geosites are often universally recognized, irrespective of cultural or regional background. Furthermore, the unchecked human-induced use and degradation of geysers and hot springs or poor observation conditions at the destination may result in similar levels of appreciation and dissatisfaction among all tourists. This view is supported by Garofano and Govoni (2012), who argue that difficulty to communicate geological information to tourists is one of the challenges equally facing tourism in geoparks and other tourism

destinations. This suggests tourists are affected across different tourist groups irrespective of place of origin: international or domestic.

Table 4.12 also indicates that the domestic tourists recorded a higher extrinsic value mean score of 20.46 ± 2.241 compared to foreign tourists who had a mean score of 19.89 ± 2.184 . The difference in the mean score also suggests that domestic tourists might have lower expectations and familiarity with geosite accessibility, scenic value, value of provided services such as tour guiding, and toilet amenities status compared to international tourists. As a result, they may rate extrinsic factors such as destination accessibility, infrastructure, and tour services more favourably, even if these do not meet international standards. This point of view is supported by Saqib (2019) who stated that satisfaction refers to the degree to which a tourist has perceived value of destination exceeds expectations for those attributes. Therefore, attractiveness of a destination reflects the feelings, opinions of, and image of its visitors about the destinations' perceived ability to satisfy the recreation needs of tourists. The more a destination satisfies tourists' interests, the more tourists perceive it as attractive, and they are more likely to choose it (Farmaki, 2012; Kubalikova, 2013; Lew & McKercher, 2006).

The study supported the observed differences using t-values, specifically $t(383) = 2.056$, $p(0.040) < 0.05$ significance level for extrinsic value. Since $p(0.040) < 0.05$ significance level, the first null hypothesis is indicating that there was a statistically significant difference in perceived extrinsic values of landforms across tourist categories. In contrast, no significant difference was found for intrinsic values ($p = 0.687 > 0.05$). The study attributed the difference to the tourism policy in Kenya that has largely prioritized wildlife conservation over geodiversity, resulting in limited policy-driven development of geotourism products (GoK, 2022a; KNATCOM, 2023). As a result, both domestic and international tourists may have limited experience of geotourism, leading to uniform perceptions of intrinsic value. Second, inadequate infrastructure, such as signage, interpretation centers, and essential visitor amenities, may have reduced the quality of the tourist experience, especially for international tourists who often expect higher service standards. This aligns with USAID (2013) and Neches (2013), who emphasized the importance of infrastructure and interpretation services promoting geotourism through shaping of tourists' perceptions of destination image.

Furthermore, this study triangulated the results of the Independent Samples t-test (a parametric test) using the Pearson's Chi-Square (χ^2) test (non-parametric) as a test of independence (association) by transforming the indices (continuous variables) into categorical variables in terms of levels for the independent and dependent variables, which were cross tabulated. The aim was to increase the validity and generalization of the results. The study transformed the composite index scores of perceived values (intrinsic and extrinsic) as continuous variables into ordinal levels as categorical variables. The ordinal levels for perceived value included low, average, and high. The study cross-tabulated the levels of intrinsic and extrinsic values across the categories of tourists. The study used the χ^2 test to compare the frequency of cases as summarized in Table 4.13

Table 4.13

Perceived Value across Categories of Tourists

		Category of tourists		Total
		Local/domestic	Foreign/international	
Level of intrinsic value	Low	2 (0.7%)	0 (0.0%)	2 (0.5%)
	Moderate	26 (8.6%)	7 (8.3%)	33 (8.6%)
	High	273 (90.7%)	77 (91.7%)	350 (90.9%)
Total		301	84	385
		$\chi^2=0.572$	df=2	p = 0.751
Level of extrinsic value	Low	1 (0.3%)	0 (0.0%)	1 (0.3%)
	Moderate	43 (14.3%)	20 (23.8%)	63 (16.4%)
	High	257 (85.4%)	64 (76.2%)	321 (83.4%)
Total		301	84	385
		$\chi^2=4.5.85$	df=2	p = 0.0101

Table 4.13 indicates that there was no significant association between the levels of intrinsic value and the category of tourists. There was a similar pattern in the distribution of the respondents in the levels of intrinsic value across the categories of tourists. Majority (90.7% and 91.7%) of the local and foreign tourists, respectively, recorded high level of intrinsic value. The study supported these distributions by the χ^2 test value i.e. $\chi^2_{0.25,2} = 0.571$. Since $p (0.751 > 0.05)$, there was no statistically significant difference in the perceived

intrinsic values of landforms across categories of tourists. However, the table also indicates that there was a significant association between the levels of extrinsic value and the category of tourists. A higher proportion of local tourists (85.4%) recorded high level of extrinsic value compared to 76.2% of the foreign tourists. The study supported these distributions by the χ^2 test value i.e. $\chi^2_{0.25,2} = 4.5.85$. Since $p(0.0101 < 0.05)$, there was a statistically significant difference in the perceived intrinsic values of landforms across categories of tourists.

4.4.4 Geotourism and Travel Experience by Tourists in the Study Area

In addition to assessing the perceived value of landforms, this study also examined geotourism activities and tourists' travel experiences. This study conceptualized geotourism as a form of a travel experience, which is based on learning, relaxing, enjoying, and appreciating geodiversity attractions within the study area. Travel experiences involve things that tourists see and do, to refresh their body and mind to satisfy their interest. Through open-ended questions, the respondents provided the following perceived geotourism activities; sightseeing, swimming, filming, photographing, trekking, landscape viewing, and hiking. This study measured geotourism activities using to; enjoy, relax, observe, film, and learn as indicators of travel experience. Table 4.14 shows summary of tourists' geotourism travel experiences in the study area.

Table 4.14

Summarizes Tourists' Geotourism Travel Experiences in the Study Area

Tourism activities	Frequency	%
Enjoying	240	62.3
Relaxing	79	20.5
Observing/sight seeing	42	10.9
Filming	18	4.7
Learning	6	1.6

Information in Table 4.14 indicates that the highest percentage of the tourists (62.3%) described their travel experience as enjoyable, then relaxing (20.5%), observing/sight-seeing (10.9%), filming (4.7%), and learning (1.6%) in that order.

Some of the enjoyable geotourism activities that tourists engaged in included; boiling of eggs at the bubbling geysers (Plate 4.13), and sauna and steam bath. These activities indicate that there is some form of geotourism going on in the study area. This finding is consistent with the study by Farsani et al. (2010), which indicates that the commercialization of geotourism is still in the early stages of its development. Some other tourists (10.9%) engaged in recreation activities such as; nature-walk along the lake shore to experience the lake breeze and others observed the periodic gushing of geysers and flow of hot springs while some (4.7%) participated in filming and photographing of geysers, hot springs, landscape, lake, and flamingos.



Plate 4.13: Geyser and Metallic Mesh on the Right Foreground for Boiling Eggs

The study reveals that tourists at LBNR engaged in a variety of recreation activities, namely enjoying, relaxing, filming, learning, and observing scenic beauty based on geodiversity; - hot springs, geysers, lake, and escarpment. Nevertheless, this study also revealed that a number of tourists were dissatisfied with the recreation activities on offer at LBNR. Then the tourist respondents gave their views through open-ended questions on how to improve recreation activities in the study area. Table 4.15 summarizes the suggestions for improvement of geotourism activities in the study area.

Table 4.15

Suggestions for Improvement of Geotourism Activities at LBNR

Nature of improvements	Frequency	Response (%)
Value addition of products	60	63.8
Adding value to provided services	19	20.2
Site conservation/Geoconservation	15	16.0

Table 4.15 shows that among suggestions for improving geotourism at LBNR, value addition to existing activities ranked highest (63.8%), followed by enhancement of provided services (20.2%) and site conservation (16%). This indicates that the tourism products on offer were of lower quality than expected. The purpose of value addition was to widen experiences of tourists at the destination through exploring of more geysers in the lake, boat riding, use of cable cars on the nearby escarpment, nature walk /trails, hiking, establishing animal orphanage, and natural thermal bath (sauna). On in-depth analysis a local tour guide it emerged that: “Some of the activities like boat riding were not practical due to; high salinity of Lake Bogoria, which corrodes and destroys the sailing vessels and also presence of geysers in the lake, which endanger lives of tourists” (Tour Guide, personal communication, September 28, 2019). Furthermore, this study identified value addition of provided services to include; establishing recreation and information centre, on-site catering facility, briefing of tourists at Lobo gate, lecture room, bandas, modern toilets, and water points in the park.

These suggestions align with the findings by Gnanapala (2015), stating that tourists were willing to pay for additional costs on products and services as it enriches their experiences and creates a lasting impression of destination. This study observed that briefing of tourists at the park gate at Lobo, ought to be a standard practice for all tourists after payment and ticketing. This study identified conservation improvements to include mitigating flooding of geysers and harsh weather, climatic conditions, and effect of climate change in the study area. The findings indicate that the tourists are pre-eminently interested in geotourism activities and in-depth discussion with the CEC Member for Tourism there was concurrence that Value addition is critical in the sustainable development of tourism. For example, at Cheploch Gorge diving site, there is need to establish infrastructure that can add value to the diving site and benefit the divers” (CEC Member, personal communication, September 19, 2023).

Furthermore, through open-ended questions, the tourists indicated unique geodiversity sites in Kenya with geotourism potential. These include; Menengai crater, Nzambani hills, Hell's gate, Kit Mikai, Mt Longonot, Haller Park, Lake Bogoria, Marafa Devil's Kitchen, and Thim Lich Ohinga. This study corroborates other studies that maintain that Kenya has some of the iconic geological formations that present opportunities for geotourism (KNATCOM, 2023; Scoon, 2020). This suggests there is opportunity to address detractive wildlife tourism image and diversifying tourism products, especially in areas least endowed with wildlife tourism (KNATCOM, 2023). This finding suggests that Kenya has geotourism potential, which can be tapped through assessment and granting of geosite and global geoparks status.

Upon evaluating tourists' perceived value of geysers and hot springs using a modified version of the Strba and Rybar (2015) method alongside field observations, the results indicated that tourists attributed a high geotouristic value to these features. This indicates universal its importance and suitability for growing geotourism in the study area. Thus, the unique landforms provide opportunity to grow geotourism as a means of diversifying tourism products in the study area. Conceptually and theoretically, geotourism promotion ought to involve tourists as critical actors: - the people for whom geotourism products are offered.

4.5 The County Government and Stakeholders in Promoting Geotourism

The third objective of this study assessed the role and function of Baringo County government and other stakeholders in promoting geotourism with a view to understanding: *How does the interest and influence of the County Government of Baringo and stakeholders contribute to promotion of geotourism in the study area?* The study conceptualized stakeholder as local communities, group(s), government, institutions, and organizations that can affect or be affected by geotourism and thus, have an interest in it. This study evaluated interest and influence for each of the stakeholders. Stakeholders' analysis and interpretative-phenomenological approach were used to analyze qualitative data on the role and function of each stakeholder. The aspects of stakeholder involvement in geotourism are discussed in the following subsections.

4.5.1 Identity and Power of Stakeholders that Promote Geotourism

Based on the third objective of this study, it was imperative to identify the stakeholders involved in promotion of geotourism in the study area. Through advisory opinion and brainstorming with key informants the following stakeholders were identified; County government of Baringo; local community conservancies, Baringo County Conservancies Associations, Kenya Wildlife Service, Ministry of Tourism and Wildlife, and KNATCOM for UNESCO and UNESCO. This study, further considered the power of stakeholders as critical in understanding why and how they supported or opposed promotion of geotourism in the study area.

Stakeholders' engagement was based on linkages or networks in promotion of geotourism while influence was determined using stakeholders' direct or indirect effect on promotion of geotourism. Through stakeholders' analysis and interpretative-phenomenological analysis of data, this study elicited various aspects on stakeholder's identify, namely stakeholder power, stakeholder engagement, and influence on geotourism. Table 4.16 shows stakeholders' identity, power, engagement, and influence in promotion of geotourism in the study area.

Information in Table 4.16 indicates that there are several stakeholders involved in geotourism, namely KNATCOM for UNESCO/ UNESCO, Ministry of Tourism and Wildlife, County government of Baringo, BCCA, Local community conservancies, and KWS. They are directly or indirectly involved in promotion of geotourism in the study area. Furthermore, the study reveals a diverse set of actors involved in the promotion of geotourism in Baringo County. These stakeholders vary in their origin, institutional affiliation, and level of engagement within the governance structure. The stakeholders drawn at the local level within Baringo County include Baringo County Conservancies Association (BCCA) and Local Community Conservancies such as Irong. Their critical role revolves around resource conservation and management, mobilization, and offer of geotourism products.

The government stakeholders include County Government of Baringo, Kenya Wildlife Services and Ministry of Tourism and Wildlife, who are responsible for tourism, conservation, and planning. These stakeholders provide policy direction, funding, regulatory frameworks, and

infrastructure support. They engage at the county and national governance levels, facilitating the alignment of geotourism development with national conservation and tourism strategies.

Table 4.16

Stakeholders' Engagement, and Influence in Promotion of Geotourism

Stakeholders	Stakeholder's role	Stakeholder's Engagement	Stakeholder's Influence
KNATCOM/	Policy/funding	Informative	Indirect
UNESCO	infrastructure/capacity building	Collaborative	
Ministry of	Policy /implementation	Information	Indirect
Tourism and	Planning/capacity building	sharing	
Wildlife		Consultation	
The County	Legislation/planning	Collaborative	Indirect
government of	Implementation/managing	and consultative	
Baringo	capacity-building		
BCCA	Advocacy/capacity	Lobbying	Indirect
	building/evaluation	Advocacy	
Local	Managing/empowering /	Consultation	Direct
community	conserve/offer geotourism	Lobbying	
conservancies	products		
KWS	protect/ conserve/manage	Consultative	Direct.
	technical support.	Collaborates	

Information in Table 4.16 indicates that international stakeholders include organization such as KNATCOM and UNESCO Global Geoparks were operating at the global and national levels. International stakeholders support the geotourism agenda by offering technical guidance, branding, capacity-building, and global recognition of geoparks. Their influence is prominent in strategic planning and international collaboration, linking local sites to global networks.

This study therefore reveals that promotion of geotourism in the study area is a multi-level governance structure, where stakeholders operate across local, county, national, and international levels. The different stakeholders had varying levels of power and influence,

depending on their access to resources, technical expertise, and legal authority and for this reason collaboration is critical as no stakeholder can promote geotourism alone. This is consistent with past studies on geotourism in Turkey by Yolal (2012) and Thomas (2012) which concluded that several bodies and institutes collaborated to promote geotourism. Furthermore, the findings of this study align with the results of a study conducted in Indonesia by Pujiyono et al. (2019), which found that numerous stakeholders, engaged in both vertical and horizontal relationships, were involved in the promotion of geotourism.

In addition to the number of stakeholders and levels of governance structure, the information in Table 4.16 shows that there are various forms of stakeholder engagement in the promotion of geotourism, namely collaboration, lobbying, information sharing, and consultation. This underscores the relevance of each stakeholder in enhancing the success of geotourism in the study area. This finding is consistent with past studies carried out in Iceland by Ólafsdóttir and Dowling (2014) on stakeholders engagement in geotourism planning is fundamental to sustainability of geotourism promotion. Furthermore, the results of this study indicate that geotourism affects stakeholders either directly or indirectly, and that some stakeholders play a direct or intermediary role in the promotion of geotourism in the study area. This indicates a network of roles and influences where both direct and indirect stakeholders are important for embracing geotourism.

This study provided valuable insights into the number of stakeholders, levels of governance and jurisdiction, and forms of stakeholder engagement in the promotion of geotourism within the study area. Such information can inform the development of effective action plans and policies to strengthen stakeholder support for geotourism promotion. These findings are consistent with Kammi (1999), who emphasizes that stakeholder analysis helps build support for policy reform and guides participatory, consensus-building processes in project development.

4.5.2 Interests of Stakeholders that Promote Geotourism in the Study Area

Following the assessment of stakeholders, their respective roles, and levels of influence in Section 4.5.1, this study further examined their interests to better understand what informs their involvement in promoting geotourism. This study conceptualized stakeholders' interests as the potential benefits they seek to gain or the risks they may face from the promotion of

geotourism. The stakeholder analysis identified each stakeholder's interest: what they intend/stand to gain from geotourism, as well as areas of convergent interests (shared with other stakeholders) and divergent interests (conflicting with other stakeholders) related to the promotion of geotourism in the study area. Table 4.17 presents stakeholders' interests both convergent and divergent aspects.

Table 4.17

Summary of Stakeholders' Interests linked with Promotion of Geotourism

Stakeholder	Stakeholders' Interests	Interest	
		Convergence	Divergence
Baringo County government	diversify tourism/ generate revenue/ create employment/		
Local community conservancies	increase income/ improve livelihoods/ create employment/ promote conservation	conservation, grow geotourism, generate income, and livelihoods, capacity building	awareness, policy formulation, expectations on revenue sharing, varied priorities, varied influence due to power and authority; weak and strong and stakeholders
BCCA	promote conservation/ enhance livelihoods grow tourism, community advocacy/		
KWS	enhance conservation/ revenue generation/ improve tourism		
MoT&W	Conservation/ revenue/ diversify tourism/ Policy implementation.		
KNATCOM, UNESCO	field evaluation/revalidation/ sustainable tourism/ improve livelihoods/ education/research		

Information in Table 4.17 indicates that most geotourism stakeholders have overlapping (convergent) interests in geotourism, especially in areas such as conservation, economic development, and tourism growth. However, divergent interests emerge around revenue sharing, influence in decision-making, and strategic priorities, which can affect the coordination and sustainability of geotourism promotion efforts in the study area. Results further indicate that most stakeholders, including the Kenya Wildlife Service (KWS), Community conservancies, the BCCA, MoT&W, and KNATCOM/UNESCO, place a strong emphasis on conservation, which emerges as a key point of convergence among them.

Similarly, Local community conservancies, BCCA, and Baringo County Government demonstrate shared interest in improving livelihoods through job creation and poverty reduction, further reinforcing common interest in promoting geotourism.

However, while the Baringo County Government, KWS, and MoT&W all prioritize revenue generation as a goal, conflict may arise due to revenue sharing, reflecting underlying divergent interests that could negatively impact collaboration if not well addressed. Baringo County Government, MoT&W, and BCCA share a goal of diversifying tourism, yet may differ on how to do it or what to focus on. On their part MoT&W, County Government of Baringo, and KNATCOM/UNESCO are more involved in policy formulation and implementation, whereas BCCA and Local community conservancies seek greater involvement and recognition in promotion of geotourism.

Results in Table 4.17 indicate that there is convergence around conservation and sustainable development among stakeholders, thus providing a strong foundation for working together in promoting geotourism in the study area. This shared interest creates high potential for collaboration, particularly in areas such as conservation, geotourism, and establishing Community conservancies and capacity building. This finding is consistent with past studies (Dowling, 2013; Newsome et al., 2012), who argue that convergence of interest is linked with legitimacy of each stakeholder; ranging from the Local communities - the people for whom geotourism is designed to benefit the most to UNESCO - the proponent of UNESCO Global Geoparks and geotourism (UNESCO, 2002). However, the presence of divergent interests, specifically around policy inclusion, revenue sharing, and decision-making authority, highlights the importance of developing an inclusive stakeholder engagement framework. Such frameworks are essential to ensure that all stakeholders, especially those with little influence such as Community conservancies and BCCA, can participate effectively and equitably benefit from geotourism. The results on divergence of interest therefore indicate the need to have an engagement framework among conflicting stakeholders. This corroborates findings by Ólafsdóttir and Dowling (2014) who observed that in spite of divergent interests, the stakeholders have to engage continuously and regularly to ensure successful promotion of geotourism.

The community-based stakeholders such as BCCA and Local community conservancies possess interests around livelihoods, employment, and conservation. However, these interests constitute divergent interests when dealing with other stakeholders leading to disputes over control, benefit distribution, or conservation priorities. Moreover, if divergent interests, such as disputes over control, benefit distribution, or conservation priorities, if not properly acknowledged and addressed, they can be the root cause of conflict. Unmanaged conflicts could undermine stakeholder cooperation and slow down development of geotourism in the study area. To address these challenges and achieve consensus among stakeholders with diverse mandates, from national policy bodies to local communities, a multi-level coordination mechanism will be crucial. Such an approach can foster integrated, inclusive, and sustainable geotourism planning and implementation across all levels of governance.

For example, through in-depth interview this study identified revenue, benefits sharing, claim to land rights, and legislation as some of the divergent interests in the study area. The excerpt from the CEO BCCA expressing frustrations with the County government concerning legal and policy framework on promotion of geotourism, stating that, corroborates this:

The absence of a legal and policy framework has made it difficult for members of community conservancies to collect revenue, even though such funding is necessary to keep the conservancies operational and sustainable. It has also hindered the formal conversion of community land into conservancy areas, thereby slowing the growth of both geotourism and conservancy development in Baringo County (BCCA CEO, personal communication, September 19, 2023).

This study shows that the discontent on the part of Community conservancies and BCCA is attributed to absence of legal and policy framework in promotion of geotourism in the study area. This implies that Baringo County government and Ministry of Tourism and Wildlife ought to expedite formulation of a geotourism plan and policy framework to help local communities embrace geotourism, through participation and benefits sharing in the study area. This finding corroborates the results of a study carried out in Indonesia by Pujiyono et al. (2019) indicating that through a combination of influence and interest the relationship between stakeholders is very complex; often leading to wrangles between dominant and passive stakeholders, which disrupts stakeholders' progression in promotion of geotourism.

In addition, the absence of a plan and policy framework, other impediments to promotion of geotourism include role confusion and overlap in stakeholder's mandate, negligence or lack of capacity among different types of stakeholders, and promotion of geotourism through sectorial approach without adequate collaboration, information sharing, lobbying, and consultation with other stakeholders. The case of Baringo County government and BCCA or local community is one such example. The finding on different stakeholders' divergent interests and discontent indicates a need to develop an agreeable engagement strategy on how to resolve differences of interest in promotion of geotourism in the study area.

Besides legal framework and stakeholders' role confusion and overlap in mandate, different levels of awareness among stakeholders was also identified as a source of concern in promotion of geotourism. For example, this study established that Local community conservancies expected the County government of Baringo to finance directly operations of Local community conservancies yet the County government of Baringo is concerned with provision of infrastructure only. Thus, this finding on community expectation indicates lack of awareness and knowledge on the role and function of Baringo County government in promotion of geotourism in the study area. Nevertheless, the same finding on local community expectations concurs with a study by Mukwada and Sekhele (2017), which opined that community challenges could be addressed by providing more financial support for geotourism projects.

Furthermore, this study demonstrates that inadequate knowledge is one of the weaknesses affecting management and operations of community conservancies in the study area. This finding concurs with the results of a study carried out in South Africa by Mukwada and Sekhele (2017) which shows that geotourism development in rural areas was faced with lack of management and business skills, insufficient marketing, and low visitor numbers, resulting in a low level of income for local communities. The same problem of capacity was also voiced by local communities during the FGD, particularly by Senior Warden (Snr. Warden, personal communication, March 19, 2022). This indicates a need for the County government of Baringo, KWS, MoT&W and UNESCO to capacity-build members of local community conservancies in the study area.

In addition, this study also found that local community expectations on accrued natural resource shareable revenue was a source of disagreement with other stakeholders. The local community felt a bit short-changed of their perceived share of tourism benefits. The CEO BCCA explains the dissatisfaction with the *Benefit Sharing Act, 2020*, following the excerpt stating that:

According to the *Resources (Benefit Sharing) Act, 2020*, revenue accrued from natural resources is to be shared between the national and county governments in a 60% to 40% ratio, respectively. From the county's 40% share, at least 16% must be allocated to local community projects, while the remaining 24% is to benefit the county at large. This arrangement is likely to discourage communities, as it offers insufficient incentive to continue participating in community conservation and geotourism initiatives (BCCA CEO, personal communication, September 19, 2023).

From the foregoing excerpt, the local communities and BCCA are dissatisfied with the structure of revenue sharing as provided in the *Benefits Sharing Act, 2020* (GoK, 2020b). The finding on benefits sharing appears contrary to Newsome and Dowling (2010) which states that providing benefits including; job opportunities, income and livelihoods, to the local people is one of the main principles of geotourism. UNESCO Report (2017) also emphasizes the local communities as the main beneficiaries of geotourism. Thus, the success of promoting geotourism to some extent depends on knowledge of the local people as to whether or not the benefits principle has been adhered. In this study, the National government is perceived by the local community to be undermining the benefits principle of geotourism that considers local community as the key beneficiaries of geotourism. Furthermore, the findings show that there is uncertainty about the actual contributions of geotourism to the wellbeing of the local communities in the study area. In addition, the local community's dissatisfaction suggests that the revenue sharing model perpetuates inequality and marginalization of the local communities. This is contrary to the articles on devolution and the Constitution of Kenya 2010, article 174 (f), and Article 176(2), which requires devolved governments to promote economic development to the extent that it is beneficial to the local people (GoK, 2010b).

4.5.3 Stakeholders' Level of Interest and Influence in Promoting Geotourism

Besides stakeholders identify, power, and interest in geotourism, this study considered the level of interest and influence of stakeholders as important not only in promoting geotourism but also in affecting stakeholders' relationships and benefits of geotourism. This study

operationalized level of interest as the extent to which a particular stakeholder has paid attention to promotion of geotourism for perceived benefits (livelihood, employment, income, conservation, control over resources, control over information, and pre-existing rights) in promotion of geotourism in the study area. The level of interest was measured on a five-point Likert scale ranging from 1- 5; where 1= little interest, 2 = some interest, 3 = moderate interest, 4 = high interest, and 5= critical stakeholder. Similarly, level of influence was operationalized as; the ability of a stakeholder to affect, either negatively or positively, a particular number of stakeholders to a lesser or greater extent in (policy, decision-making and implementation) promotion of geotourism in the study area. The level of influence of a particular stakeholder was measured on a five-point Likert scale ranging from 1-5, where; 5 = affect all stakeholders, 4 = affect 3 or all stakeholders, 3 = affect 2 or 3 stakeholders, 2 = affect 1 or 2 stakeholders, and 1 = affect 1 stakeholder only. Table 4.18 shows a summary of stakeholders’ interests and influence relationship in promotion of geotourism.

Table 4.18

A Summary of Stakeholders’ Interests and Influence Relationship Matrix

Stakeholder	Interests of Stakeholder	Influence of Stakeholder
	Interest Level	Influence Level
Baringo County government	4	3
Community Conservancy	5	2
BCCA	2	1
KWS	4	3
MoT&W	3	4
KNATCOM/ UNESCO	3	5

The analysis in Table 4.18 shows that while Community conservancies have a strong interest (5 = critical stakeholder) in promoting geotourism, driven by their reliance on tourism-related benefits, they possess limited influence (2 = affect 1 or 2 stakeholders), underscoring the need for greater empowerment and inclusion in governance processes. In contrast to other stakeholders, KNATCOM exhibits high influence (5 = affect all stakeholders) but only moderate interest (3) in geotourism, indicating a primarily strategic or regulatory role focused

on oversight, policy alignment, and adherence to global standards, rather than direct involvement in local tourism activities. Conversely, both the Ministry of Tourism and Wildlife (MoT&W) and the Kenya Wildlife Service (KWS) are identified as highly influential stakeholders with moderate to high interest. Their involvement is central to policy development, conservation enforcement, and the implementation of tourism programs, making them key players in shaping the institutional and regulatory framework for geotourism. The BCCA, by contrast, is characterized by low interest and low influence, indicating a peripheral role in promoting geotourism. This suggests the potential need for capacity-building interventions or more clearly defined roles to better integrate BCCA into stakeholder networks. Finally, the Baringo County Government holds high interest in geotourism, particularly for its potential to drive local economic development and poverty reduction through livelihood opportunities.

Furthermore, to illustrate the extent of each stakeholder's influence and interest in promotion of geotourism, this study utilized the results presented in Table 4.18 to map the Interest-Influence Matrix, highlighting the relationship between stakeholders' levels of interest and influence. The categorization resulted in the Influence-Interest Matrix of relationship types, power, and engagement between different stakeholders (Fig. 4.1). On the Cartesian plane the X-axis represents stakeholder interest and the Y-axis represents stakeholder influence. This then generated an Influence-Interest matrix score for each stakeholder group. The scores were then used to position stakeholders within a two-dimensional Influence-Interest Matrix (Fig. 4.1). Each stakeholder was plotted into one of four quadrants of the matrix, which categorize stakeholders as follows: High Influence-High interest, High Influence-Low interest, Low Influence-High interest and Low Influence-Low interest.

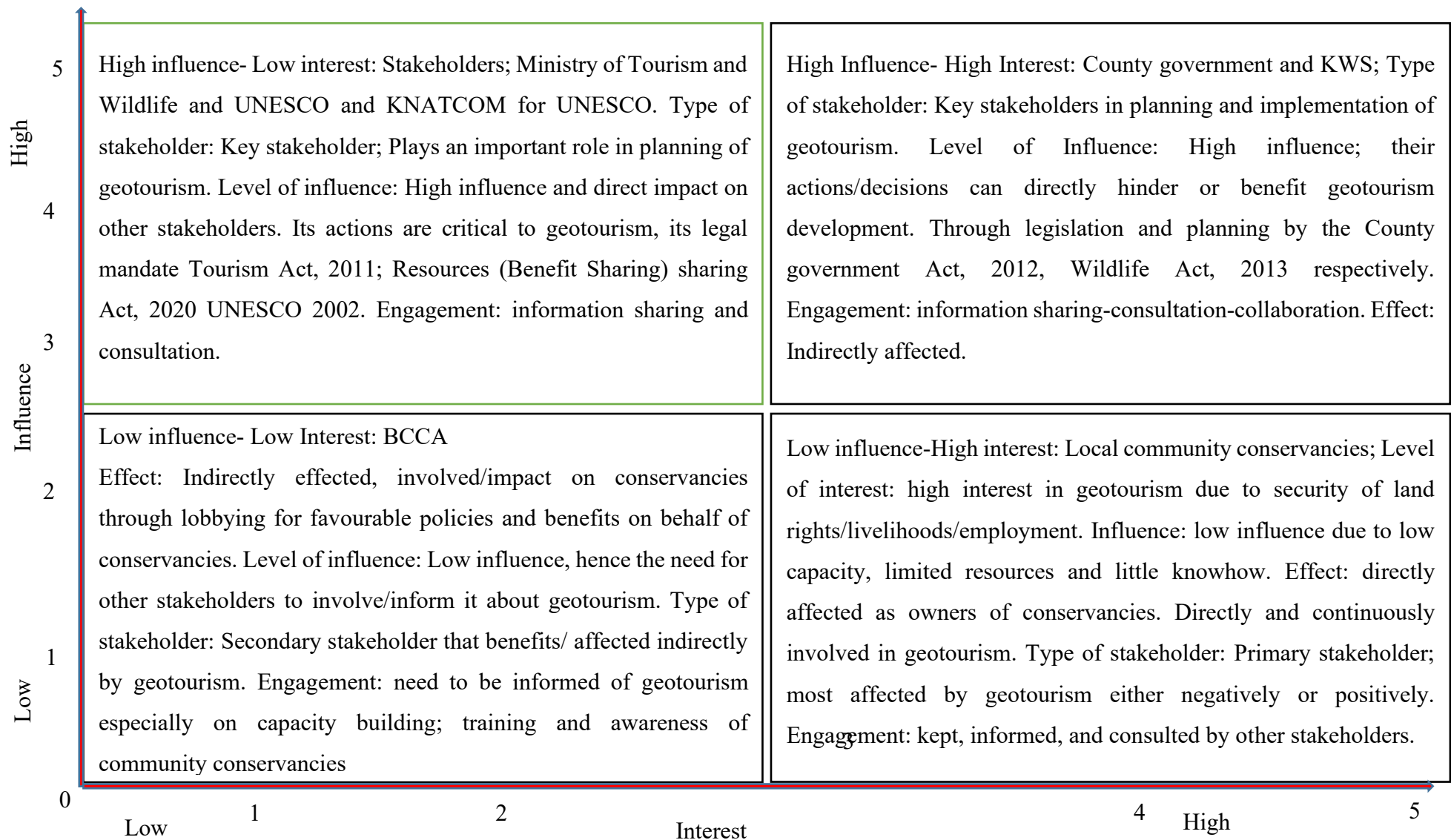


Figure 4.1: Stakeholders' Level of Interest and Influence in Promoting Geotourism

Information in Figure 4.1 indicates that promotion of geotourism involves different stakeholders with different levels of interests and influence. This study identified four types of stakeholder groups in the study area, namely (a) low interest-low influence stakeholder group, such as BCCA, which has to be informed due to ability to mobilize local community, knowledge, and skills that support Community conservancies, (b) high interest- low influence stakeholder group such as Local community conservancies, which have to be kept informed and consulted periodically as designated beneficiaries of geotourism, (c) high interest - high influence stakeholder group such as KWS and Baringo County government, whom other stakeholders need to work closely with and given priority in consultation for approval of geotourism activities due to expertise and authority in implementation of geotourism, and (d) low interest - high influence stakeholder group such as the Ministry of Tourism and Wildlife and KNATCOM for UNESCO, which need to be engaged by other stakeholders with timely, useful information to keep them informed and increase their interest in promotion of geotourism, to benefit from their vast influence. These stakeholder groups are having legitimate role, resources and impact in promotion of geotourism in the study area. This implies that success in promoting geotourism depends on reciprocal relationship among stakeholders.

Based on influence factor in Figure 4.1, this study identified MoT&W and KNATCOM for UNESCO as key stakeholders that can enforce their interest, decisions, plans, and actions in promotion of geotourism in the study area. This is on the basis of legitimacy, available resources, knowledge/skills/expertise, and networks in promotion of geotourism in the study area. These stakeholders wield a lot of influence that affect other stakeholders such as Local Community conservancies, KWS, and BCCA either positively or negatively. Furthermore, this study identified Local community conservancies as the primary stakeholders in promotion of geotourism in the study area. This aligns with UNESCO (2017) which argue that primary stakeholders are affected directly by geotourism and are designated as geotourism beneficiaries who stand to gain from geotourism. In contrast secondary stakeholders, consisting of BCCA, KWS, MoT&W, and UNESCO are indirectly affected by geotourism. For example, the BCCA advocates for local community interest by securing land rights, promoting sustainable livelihoods, providing a platform for collaboration, advocating for favourable policies, build local capacity. However, to leverage the interests of the local community through facilitation and collaboration, the BCCA was established by the county government and the Kenya Wildlife Service (KWS).

The results on interest-influence relationship (Figure 4.1) and ability to enforce interests, decisions, plans, and actions in promotion of geotourism shows that there is a tendency for each stakeholder focus on own interest in promotion of geotourism (Table 4.16). For example, local communities setting up community conservancies, BCCA lobbying for favourable policies and capacity building of members of local community conservancy. On its part the County government of Baringo and National government undertake legislation on appropriate policies such as geotourism plan and Natural Resources Act, 2020 to promote geotourism respectively while UNESCO is providing technical support for creating UNESCO Global Geopark. Therefore, the existence of sectorial approach indicates a need among stakeholders to work together through multi-layered governance structure in promotion of geotourism, in spite of sectorial interests.

Though Stakeholder analysis it multi-layered governance structure is not without challenges. For example, stakeholders have competing interests and overlapping roles and yet there is no clarity in terms of whose interest takes precedence or on direction of consultation among stakeholders. The resultant misunderstandings among stakeholders have contributed to slowing down in promotion of geotourism and establishment of the BGRVAGGp in the study area. Conflicts and confusion over land ownership between community conservancies and the proposed BGRVAGGp have created tensions among key stakeholders, including the local communities, the county government, and the national government. This has led to threats from local communities to withhold land rights from both the conservancies and the aspiring geopark. These findings highlight a fundamental challenge: unclear land tenure and overlapping stakeholder interests undermine trust and cooperation, which are essential for geotourism development. This aligns with the observation by Duarte and Nyanja (2017), who emphasized the difficulty of managing competing stakeholder interests in shared resource settings. The interest-influence aspects for each of the stakeholders in promoting geotourism is discussed in the following subsections.

4.5.4 Promotion of Geotourism by the County Government of Baringo

After determining the identity, power, and types of stakeholders as well as interest-influence relationship of stakeholders, this study assessed the role and function of Baringo County government in promotion of geotourism in the study area. The role and function of Baringo County government was conceptualized as; mandate, interest, plans, and geotourism products.

Based on the variables of objective three, stakeholders' analysis was used to evaluate the role and function of Baringo County government in promotion of geotourism in the study area.

Information in Figure 4.1 indicates that the County government of Baringo has high influence (4 = affect 3 or all stakeholders) and moderate to high interest (3 = moderate interest) in promotion of geotourism in the study area. The high influence suggests that the County government has the ability to affect three or all stakeholders such as community conservancies, BCCA, local communities and KNATCOM for UNESCO in promotion of geotourism in the study area. The high influence is linked to its mandate to legislate, plan and collaborate, which is derived from the Constitution of Kenya, 2010, Wildlife Act, 2013, the County government Act, 2012, CIDP and CSDP. For this reason, the County government of Baringo plays a key role by networking with other stakeholders involved in promotion of geotourism. The results indicate that Baringo County government plays an intermediary role between national government, KNATCOM for UNESCO and local communities in promotion of geotourism.

In addition, it has high interest in promotion of geotourism due to need to diversify tourism products, generate more revenue, create employment opportunities and reduce poverty levels, conserve landscape, and improve livelihoods of local communities in the study area. Stakeholder's analysis shows that Baringo County government is a key stakeholder, this is linked with its mandate or legitimacy, resources, expertise, and networks to legislate, make policies, plans, and initiate geotourism activities in the study area. Thus, the actions / inactions of Baringo County government can benefit / hinder promotion of geotourism in the study area.

During interviews and stakeholders' analysis, it was clear that in exercising its mandate to promote geotourism products, Baringo County government has had successes and challenges. For example, Baringo County had no geotourism policy framework or plan to help in promotion of geotourism in the study area. The following excerpt explains, that:

The County Government has yet to develop a formal legal and policy framework for geotourism. However, a draft geotourism policy has been submitted to the County Assembly for legislation and subsequent implementation. The draft policy: developed by the County Assembly Committee on Tourism in collaboration with the Department of Tourism, is expected to address the development, research, and marketing of geotourism products (Director of Tourism, personal communication, December 11, 2019).

The excerpt indicates that the County Assembly Committee for tourism and Department of Tourism were responsible for developing a geotourism plan. Furthermore, the following excerpt from the Director of Tourism explains, that; “the geotourism plan has not been enacted yet due to inadequate finances” (Director of Tourism, personal communication, September 19, 2023).

The absence of a geotourism policy framework in Baringo County, despite its status as a high-interest, high-influence stakeholder, has important implications. It indicates a lack of strategic direction and institutional commitment and persistent neglect of geotourism, which may hinder coordinated development efforts. This also indicates the laxity of the County government of Baringo to embrace geotourism an emerging global niche area for diversifying tourism products. This gap can reduce stakeholder confidence, limit access to funding and partnerships, and create regulatory uncertainty, ultimately weakening the county’s leadership role in promoting geotourism. The absence of a policy framework was attributed to limited finances, inadequate legislative capacity, and entrenched wildlife-based tourism policy that perceive “the Big Five” wildlife tourism as the backbone of tourism in the study area.

The delay in the enactment of the County geotourism policy framework or plan is a hindrance to the local community’s and BCCA’s engagement in promotion of geotourism in the study area. Further, the CEO for BCCA explains, that;

Community conservancies are unable to collect revenue due to an ineffective legal framework governing community land transition, access to land rights, and benefit-sharing mechanisms. The delay in implementing land rights reforms has been attributed to a lack of funding. However, the implications of this delay are significant, as it has created a rift between local communities, the Baringo County Community Conservancies Association (BCCA), and the County Government. As a result, local communities are increasingly reluctant to cede land rights to the proposed Geopark for the development of geotourism (BCCA CEO, personal communication, September 19, 2023).

The delay in enacting the geotourism policy and resolving land rights issues undermines the county government’s role in providing clear direction. This creates uncertainty for other stakeholders who depend on the County government for leadership, limits effective collaboration, and discourages investment and community participation in geotourism

development. For example, as primary beneficiaries of geotourism, the local communities are unable to generate income, create employment opportunities and improve livelihoods. Also, its absence is causing conflict among stakeholders and putting the establishment of the proposed Geopark: - the BGRVAGGp and promotion of geotourism at a risk of failure. Further, it is clear from the interviews and Stakeholders' analysis that Baringo County government has not satisfactorily performed its legislative, planning, and policy framework to aid in promotion of geotourism. For example, the unlike a geotourism policy, the CIDP and CSDP do not provide a comprehensive framework for stakeholders' engagement in promotion of geotourism. This is contrary to the findings by Dowling (2009) that government planners can contribute to sustainable tourism by encouraging establishment of global geoparks based on geological formations within their jurisdiction.

Further, information from key informants and stakeholders' analysis revealed that the County government of Baringo engaged with other stakeholders, namely local communities, KWS, community conservancies, MoT&W, and UNESCO through information sharing, consultation and collaboration with a view to promoting geotourism. The following excerpt indicates the intermediary role of the County government of Baringo in working with other stakeholders to promote geotourism. It states, that:

By working with the National government through Kenya National Commission (KNATCOM) for UNESCO, geotourism is one of the niche tourism products that the County government is focusing on through development of the Geopark, with local communities as main actors through establishing of twelve (12) community conservancies. The County government has positioned geotourism as one of the products that needs to be developed to diversify tourism products. The other products include; wildlife tourism, ecotourism, cultural tourism, sports tourism, and conference tourism. (Director of Tourism, personal communication, December 11, 2019).

This highlights the County government's intermediary role in linking national bodies with local communities to promote geotourism. By positioning geotourism as a key development priority alongside other tourism products, the County demonstrates its capacity to influence stakeholder collaboration, align local efforts with national goals, and guide resource allocation and policy focus. The County government of Baringo played a central role in coordinating stakeholders, including local communities, KNATCOM for UNESCO, UNESCO, and the Ministry of Tourism and Wildlife (MoT&W), to promote geotourism in the study area. It engaged local

communities in establishing 12 community conservancies as a strategy to diversify tourism products and support geotourism growth. In collaboration with KNATCOM and MoT&W, the County government of Baringo sought technical expertise to assess geosites of universal value, contributing to the formation of the Baringo Great Rift Valley Aspiring Global Geopark (BGRVAGGp). This aligns with UNESCO (2006), Henriques and Brilha (2017), and Gray (2004), who emphasize UNESCO’s role in supporting governments and stakeholders in valorizing geodiversity and fostering sustainable tourism through geopark development. The Baringo County Spatial Development Plan (GoK, 2017b) supports this initiative, as illustrated in Figure 4.2, which shows the distribution of community conservancies across the county.

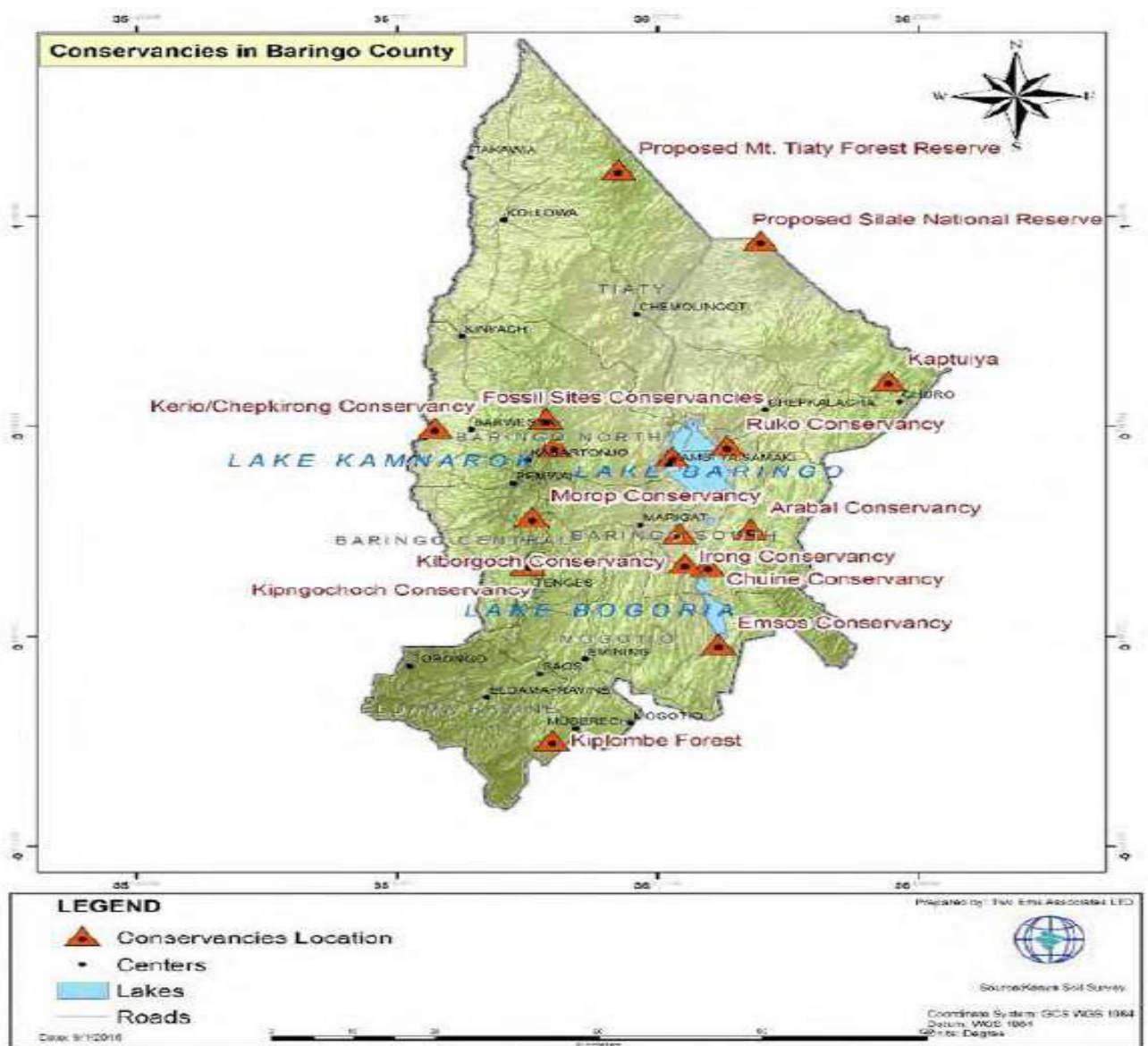


Figure 4.2: Distribution of Community Conservancies in Baringo County

Source: Adapted and modified from *County Spatial Development Plan* (GoK, 2017b)

Besides KNATCOM for UNESCO and Baringo County government, BCCA advocated for establishing of Geopark and empowering of local communities through capacity building and policy lobbying to ensure successful management of conservancies. Plate 4.14 illustrates the key logo of stakeholders that were engaged in establishing of BGRVAGGp.



Plate 4.14: Bill Board Indicating Key Stakeholders in Establishing of BGRVAGGp

Plate 4.14 indicates that the County government of Baringo engaged and collaborated with other stakeholders in promotion of geotourism. This underscores the importance of other stakeholders in contributing to promotion of geotourism in the study area.

Further, the County government of Baringo encouraged local communities to develop operational structures including; secretariat, membership recruitment and registration, generating revenue, managing finances, promote geotourism in the study area. However, stakeholders' analysis revealed that some of the local communities have not complied. For example, Cheploch gorge and Irong community conservancy have no mechanisms in place to enforce collection of conservation fees. This, was corroborated by Chief Executive Officer BCCA who observed that; "Many of the conservancies are yet to collect conservation fees as mandated under the BCCA strategic plan 2020-2024" (BCCA CEO, personal communication, September 19, 2023).

Stakeholders' analysis and key informants interviews also revealed that the County government of Baringo provided infrastructure in form of; access roads, tourism information office,

amenity services, and capacity building to community conservancies in order to promote geotourism in the study area. The CIDP Report (2018) indicated that the County government of Baringo constructed an information centre at the Equator in Mogotio (Plate 4.15), to provide information to tourists visiting the study area. During key informants interviews it emerged that “the tourism Information Centre at Mogotio would also act as a research centre for scholars, scientists, educators, and tourists” (Chief Warden, personal communication, September 10, 2019).



Plate 4.15: The County Tourism Information Centre at Mogotio in Baringo

The establishment of the tourism information centre at the Equator in Mogotio illustrates the County government's proactive role in promoting geotourism by enhancing visitor experience, supporting research, and providing educational resources. This facility reflects a commitment to geotourism development through infrastructure that fosters knowledge exchange and sustainable tourism. During key informant interviews, it emerged that “The tourism information centre at Mogotio would also act as a research centre for scholars, scientists, educators, and tourists” (Chief Warden, personal communication, September 10, 2019)

The volunteer geo-guides are untrained and unskilled to offer quality information to tourists about the physical, chemical, geological, archaeological or historical character of geosites. The following excerpt from one of the local tour guides indicates the problem of untrained geo-guides in the study area: “visitors to designated geosites such as Kormoson archaeological fortress, Lake Bogoria, and Lomechan geosites, continue receive inadequate geo-tour guide services from unskilled community volunteer guides” (Tour guide, personal communication,

September 28, 2019). This implies that tourists lack adequate scientific explanations on the formative process of geologic and geomorphic features. The lack of qualified geo-guides is one of the weaknesses undermining promotion of geotourism in the study area.

In addition, secondary data about geotourism clearly showed that information on print and electronic media was of low quality, incomplete or completely missing on certain geosite products, especially on the details for each of the geosites and potential geosites (BCCA, 2020; CIDP, 2018; KNATCOM, 2023). However, the County government of Baringo and other key stakeholders have erected on-site billboards on certain geosites such as Kormoson (Plate 4.16).



Plate 4.16: Location Signage of Kormoson Hill Viewpoint at Irong Conservancy

Stakeholders' analysis revealed that although the study area has geotourism potential but a number of factors have undermined local capacity to promote geotourism and contribute to diversifying of tourism products in the study area. Some of the challenges include; lack of competent County government staff on geotourism to appreciate the potential of geotourism as a means of diversifying tourism products in the study area. The following excerpt from stakeholders' analysis indicates lack of grasp on geotourism potential in the study area; "Without the Big Five wild animals, a destination such as Cheploch gorge has little potential for sustainable tourism or to receive many tourists" (CEC member, personal communication, September 19, 2023). This suggests that "the Big Five" detracts stakeholders in promotion of geotourism in the study area. It also indicates a need to unlock geotourism potential and

contribute to diversifying tourism products by capacity building stakeholders in the study area, especially, the County government tourism personnel.

This study sought to determine availability of provided services that support promotion of geotourism in the study area. For this reason, this study adopted UNESCO Geopark international standards (UNESCO, 2019) of determining assessing provided services at a geosite destination. Thereby list of provided services was a study room for researchers, accommodation, catering services, souvenirs, and sanitation facilities. Through field observations and interviews, this study established that the demand for information at geosites, including geysers and hot springs was of low quality including at Lobo gate. This study indicates a need for briefing of tourists at all points of entry including at Lobo gate in Lake Bogoria National Reserve.

Furthermore, there was no study room with library and laboratories for research purposes at the Equator at Mogotio, Kormoson Hill, and geysers and hot springs in the study area. This suggests that the County government of Baringo did not allocate resources to establish facilities, which provide value addition to geotourism sites in the study area. Furthermore, accommodation and catering services were not available at or near geosite destinations. Most of the accommodation and catering facilities were located more than 30 km from the geosites. Inadequate finances among local community members to establish and render required services was partly responsible for absence of accommodation and catering facilities in the study area. However, field survey and observations revealed that the County government of Baringo attempted to provide tented camps and sanitation facilities at Kormoson Hill geosite in Irong community conservancy (Plates 4.17 a, & b respectively) to address the problem of accommodation. Tented camps are considered appropriate to provide green and eco-friendly accommodation that enhances sustainability of geosites and reducing environmental impacts associated with built-up environment (Ginting et al., 2020). Ignorance and inadequate finances on the part of the County government and local communities led to general lack of sanitation facilities in the study area. Some geosites such as the Earth's Equator at Mogotio and Cheploch gorge have no sanitation facilities despite the frequent number of tourists. This implies that tourists are likely to resort to improper hygiene, which may become a source of health hazards to both tourists and locals. This suggests that the County government ought to consider allocating more resources to provide for sanitation facilities in geosite destinations such as Lomechan cave, Cheploch gorge, and Irong hill in the study area.



Plate 4.17: Tented Accommodation at Irong Conservancy

Further field survey revealed that there were no stalls selling souvenirs, books, and advertising objects at geosites except at the Equator at Mogotio, where some curio shops sell souvenirs to tourists. This limits the learning experience of tourists at the geosites, which may inhibit the creation of a lasting impression about geosite destinations. This suggests that the County government should consider constructing stalls to assist local communities to enhance value of provided services at tourist destinations. However, ignorance on the part of service providers including the County government had contributed to the absence of curio stalls at geosite destinations.

In spite of impediments to promotion of geotourism in the study area, this study revealed that some of the destinations such as such; Lomechan cave in Tiaty, the Equator at Mogotio, Kapedo hot springs, and Lake Bogoria experienced a few geotourism activities. The Equator at Mogotio attracts tourists and experiences geotourism activities (Plate 4.18 a, & b).



Plate 4.18: The Earth's Equator and World Globe Model at Mogotio

4.5.5 Promotion of Geotourism by the Local Communities

In addition to examining the role of Baringo County government in promotion of geotourism, this study assessed the role and function of local communities. Information in Figure 4.1 indicates that local communities have low influence (2= affect 1 or 2 stakeholders) interest and high interest (5= critical stakeholder) in promotion of geotourism in the study area. The high interest in geotourism was associated with to security of land rights/livelihoods/employment. Their low influence indicates a low ability to affect other stakeholders to either stop or promote geotourism. Apart from limited power drawn from Community Land Act, 2016, Wildlife Act, 2013, and Societies Act, 2017 that gives them land rights claim, nature conservation and right to establish community conservancies respectively, the local communities have no specific mandate that beholds them to promote geotourism. For limited influence the Local communities are at the bottom of the governance structure and therefore their interests are subject to the influence of other stakeholders. For this reason, local communities consult regularly whenever they are promoting geotourism. During stakeholders' analysis, it emerged that besides weak legitimacy, Local communities' low influence to engage successfully in geotourism was linked to its limited resources and finances, knowledge, skills and capacity, and networks. This suggests that the local community lack's ability to promote geotourism and manage geosites by themselves.

Nonetheless, to overcome this limitation, the local communities lobby and consult regularly with influential stakeholders such as the County government of Baringo, KWS, MoT&W, and UNESCO. Stakeholders' analysis, field observations and in-depth discussions with key informants indicate that local communities have received financial and technical support from the County government of Baringo towards initiating community conservancies, developing conservancy management plan and regulatory framework for community land – upon which conservancies are established. The excerpt from County Executive Committee Member (CECM) for Tourism and Wildlife, stated that;

Conservancies are critical in achieving conservation goals through vision 2030 and Sustainable Development Goals and the conservancies are item specific and are supposed to contribute to the livelihoods of local people through income generating activities. Conservancies are meant to increase tourism coverage in terms of both space and product and benefit communities by generating income that can be used to renovate cattle dips, and provide acaricides. Land issues on conservancies such as land titles for conservancies is critical in the success of conservancies. Public participation is critical

in achieving conservation. (CEC member, personal communication, December 17, 2019).

The statement highlights the integral role of community interest and influence in the effectiveness and sustainability of conservancies, particularly within the framework of Kenya's Vision 2030 and the Sustainable Development Goals (SDGs). Conservancies are portrayed not merely as tools for environmental conservation, but as multifaceted institutions designed to contribute directly to local livelihoods through income-generating activities such as geotourism. By facilitating community development, such as the renovation of cattle dips and the provision of acaricides, conservancies become vehicles for socio-economic empowerment in addition to ecological preservation.

A central theme in the statement is the importance of public participation. The success of conservancies is closely tied to the active engagement of local communities in decision-making processes, planning, and resource management. Public participation ensures that conservation efforts are aligned with local needs, values, and aspirations, thereby fostering a sense of ownership and long-term commitment. Furthermore, the issue of land tenure is highlighted as a critical factor. Secure land titles for conservancies not only provide legitimacy but also enhance community agency and control over natural resources. Without clearly defined land rights, the potential for communities to fully benefit from conservancies may be undermined. The statement reflects a community-based approach to conservation, where local stakeholders are positioned not as passive beneficiaries but as active participants and co-managers. Such an approach aligns with contemporary academic discourse on participatory conservation, which emphasizes the interdependence of ecological sustainability and socio-economic development.

Nevertheless, the CEO for BCCA observed that; “land transition laws are yet to be actualized among most of the community conservancies in the study area and this is an impediment to promotion of geotourism in the community conservancies” (BCCA CEO, personal communication, September 19, 2023). This demonstrates the predicament that local communities continue to experience due to their low influence in promotion of geotourism in the study area. Further, stakeholders' analysis revealed that local communities established community conservancies and registered under BCCA to help them secure their interests through advocacy, capacity building, representation, and lobbying. The community conservancies were operating at different levels of productivity or success in promotion of geotourism. For example, Kipngochoch community conservancy was already benefiting from

collection of conservation fees yet Irong community conservancy was receiving no financial benefits in spite of its potential. However, the Chief Officer Tourism observed that “some conservancies were dormant due to low capacity, lack of knowledge, limited finances, and mismanagement” (Chief Officer Tourism, personal communication, September 19, 2023).

The dormancy of local community conservancies was associated with a number of challenges including; internal conflicts, little or no income, theft of geosite materials such as fossils, lethargy in legislation of land rights and benefits, lack of geotourism policy, and unrealistic community expectations. This indicates a need for influential stakeholders such as Baringo County government, UNESCO and MoT&W to mitigate the challenges to ensure the success of not only the local community conservancies but also geotourism as a means of diversifying tourism products. Failure to address these problems is likely to slow down, disrupt or stop promotion of geotourism in the study area.

Information in Figure 4.1 indicates that local communities have high interest in promotion of geotourism, which implies that they have a lot to lose or gain from promotion of geotourism in the study area. Local community interests are linked with land rights such as grazing, access fees, and cultural rights, business enterprises, need for employment opportunities, income and improved livelihoods in the study area. In order to realize their interests as direct beneficiaries of geotourism; the local communities with the support of Baringo County government, BCCA, and UNESCO managed to established community conservancies including Mangar, Sinipo, Irong, and Kipngochoch that are of universal importance.

In addition, stakeholders’ analysis indicates that local communities expected the County government of Baringo to market geotourism, capacity-build communities, develop infrastructure, and formulate policy. The success of geotourism may be realized through strengthening of BCCA and the BGRVAGGp, land use planning, gazetting of Geopark Committee, and mobilizing financial resources for community conservancies. In spite of these expectations, the County government of Baringo provides infrastructure only to the local communities but not direct financial support. This finding is contrary to a past study in South Africa by Mukwada and Sekhele (2017) which asserts that government should address financial need of local communities by providing financial support. The County government acknowledged that; “Members of the local community conservancies lacked the knowledge on geosites and management of conservancies” (Chief Officer Tourism, personal communication,

September 19, 2023). This implies that there is a need gap for the County government and other stakeholders to capacity build local communities. The Constitution of Kenya, 2010 mandates the County government to engage directly with local communities through public participation in order to address geotourism concerns such as the County Natural Resources sharing Act 2020, which is of interest to them. For lack of a legal framework, local communities continue to lose access fees and shareable revenue generated from the local resources. At 16%, the shareable revenue benefiting local communities is inadequate. To this extent, BCCA can advocate for inclusion of funds for conservation in county government budgets. Such funds can support capacity-building initiatives within local community conservancies by sponsoring the training of conservancy scouts training.

Stakeholder analysis revealed that nearly all community conservancies are faced with multiple challenges such as; weak technical capacity, lack of offices, weak or lack of secretariat, and lack of adequate funds, absence of financial management policy, lack of a legal policy framework for fossil protection and management, lack of clear membership, absence of conservancy constitution, absence of a clear marketing strategy, members' misinformation and lack of civic education. The findings concur with a study by Mukwada and Sekhele (2017) whose study on community-based geotourism in South Africa found that geotourism in rural areas experience a myriad of challenges including lack of management skills, insufficient marketing, low visitor number, and low levels of income. This could be attributed to inadequate policy framework on conservancies and limited financial resources for conservancies to operate optimally.

4.5.6 Promotion of Geotourism by BCCA in the Study Area

Information in Figure 4.1 indicates that BCCA is a secondary stakeholder with low interest (2 = some interest) and low influence (1 = affect1 stakeholder only) in promotion of geotourism in the study area. Low influence suggests that BCCA has little ability to control the actions of other stakeholders engaged in promotion of geotourism. Therefore, the other stakeholders only need to involve/inform about geotourism. As an indirect beneficiary, its role is largely advocacy and capacity building, which is linked with BCCA Strategic Plan 2020-2024 and its subsidiary mandate that is derived from the Societies Act, 2017 and Wildlife Act, 2013. Similarly, BCCA has low interest in promotion of geotourism, which include; conservation, and enhancing community livelihoods in the study area. Nevertheless, BCCA's advocacy role is critical in helping community communities to take part in geotourism. For example, BCCA

supports local community conservancies to; improve conservation, secure land rights, promote sustainable livelihoods, obtain favourable policies, and capacity-building members. Stakeholders' analysis corroborated the advocacy and lobbying the County and national government by BCCA on favourable policies for communities' engaged in conservation in the study area. The excerpt from the CEO for BCCA explains the advocacy role of BCCA, that;

The BCCA is an umbrella body that speaks for all the community conservancies on conservation benefits, capacity building, and resource mobilization. Although the County is yet to put in place, a legislative framework on collection of conservation fee, the strategic objectives of BCCA (2020-2024), mandates its members to collect conservation fees. However, some community conservancies are either unaware or lacks capacity to enforce it e.g., at Irong geosite and conservancy (BCCA CEO, personal communication, September 19, 2023).

The statement highlights the strategic role of the Baringo County Conservancies Association in promoting geotourism through its coordination and support of community conservancies. As an umbrella body, the BCCA serves as a central platform for advocacy, capacity building, and resource mobilization, particularly in ensuring that communities benefit from conservation initiatives. One of its key mandates, as outlined in its 2020–2024 strategic plan, is to empower conservancies to collect conservation fees, an essential step in funding local conservation and geotourism activities (BCCA, 2022). However, the statement also reveals a critical implementation gap that despite the strategic directive, some conservancies, such as the Irong geosite and conservancy, lack awareness or the institutional capacity to enforce fee collection, a challenge that directly limits the development of geotourism in the region. This situation underscores the BCCA's dual role of not only advocating for policy and financial mechanisms that support conservation, but also addressing practical constraints faced by grassroots conservancies. The lack of Baringo County-level legislative framework further complicates efforts to enforce collection of conservation fee, thus, leaving conservancies dependent on BCCA's guidance and capacity-building initiatives.

However, absence of a legislative framework calls for BCCA to step up its advocacy role to focus on critical issues such as policy framework and revenue collection in the conservancies. Moreover, the multi-layered governance structure and overlapping mandate undermines the advocacy role of BCCA in the study area. For example, issues of legislation on land conversion, security of land rights, and representation in Baringo County Global Geopark Committee. Revenue sharing between national and the County governments is a source of potential conflict

and concern to BCCA and local community conservancies in the study area. For example, mistrust and role confusion between community conservancies and County government has hindered monetization of conservancies, geosites, and granting of land rights to the Global Geopark in the study area.

From key informant's interviews, this study reveals that some local community conservancies are unlikely to embrace operations of the Global Geopark due to lack of knowledge on the process of geosite inventory in the study area. The following excerpt explains the predicament that is faced by members of the local community conservancies, that; "Members of local community conservancies are questioning the criteria for qualifying of geosites to constitute the BGRVAGGp or Global Geopark and whether their conservancies will benefit" (BCCA CEO, personal communication, September 19, 2023). This suggests that members of local community conservancies were not fully sensitized on assessment of geosites and how the Aspiring Global Geopark was established. Thus, lack of knowledge among members of the community conservancies is a gap and confirmation of BCCA's low influence on stakeholders' involvement in promotion of geotourism. The CEO for BCCA observed that;

For lack of knowledge; some local communities view conservancies as geosites but some conservancies do not meet the threshold for geosite status due to several reasons including; lacking geo-interpretation. Some conservancies have several geosites or one, which meet the geopark criteria e.g., Mangar, Sinipo, Kipngochoch, Morop-Tarambas, and Kormoson" (BCCA CEO, personal communication, September 19, 2023).

This knowledge gap suggests a need for targeted efforts in capacity building, the creation of advocacy platforms, and the implementation of participatory governance mechanisms to empower local actors and ensure their voices are heard. As an intermediary stakeholder, it is the view of BCCA that once the County Global Geopark Committee is established, it will reconstitute and re-inventorize conservancies and geosites to align with the Global Geopark requirements as per UNESCO (2019). The County Global Geopark Committee will also present opportunity for BCCA to empower community conservancies through legislation and policy framework and spearhead promotion of geotourism in the study area. This study concludes that BCCA engages in various roles in its quest to support local community conservancies in promoting geotourism but most of its roles are not clearly defined due to a lack of geotourism policy framework in the study area. Nonetheless, advocacy role emerged from the findings as its key role and strength in promotion of geotourism.

4.5.7 Promotion of Geotourism by the KWS in the Study Area

Information in Figure 4.1 indicates that KWS has high influence (4 = can affect 4 or 5 stakeholders) and high interest (3 = moderate interest) in promotion of geotourism. Furthermore, KWS is a secondary stakeholder, which is indirectly affected by benefits or losses of geotourism promotion in the study area. The results also indicate that KWS is a key stakeholder whose actions can affect other stakeholders that are involved in promotion of geotourism in the study area. Its ability to influence promotion of geotourism is linked with its legal role to protect, conserve and manage wildlife and natural resources in protected and outside protected areas (GoK, 2013b; GoK, 2011). This implies that the high influence of KWS was rooted in its vast technical knowledge, technical capacity, and responsibility to conserve nature including formation of community conservancies and BCCA. The stakeholder analysis also indicates that KWS engages with other stakeholders including MoT&W, KNATCOM, and Baringo County government, local communities and BCCA through information sharing, consultation and collaboration in promotion of geotourism.

However, stakeholders' analysis reveals that KWS operates on a weak policy framework, which does not clearly embrace geotourism in the study area. For example, the Wildlife Act (GoK, 2020b; GoK, 2013b; GoK, 2011). To this extent, Part I section 3 (1) of KWS Act, 2013 excludes the terms “geopark”, “geotourism” “geosite” or “global geopark” from its preliminary interpretation and the same applies in the Tourism Act, 2011. The weakness in the legal framework of KWS was attributed to the entrenched knowledge about the wildlife tourism and conservation. This indicates a weakness in tourism and conservation policy framework in promotion of geotourism and thus, there is need to enact laws and policies that capture aspects of growing geotourism and geoparks in the study area.

4.5.8 Promotion of Geotourism by MoT&W in the Study Area

This study assessed the role and function of MoT&W in promotion of geotourism in the study area. Information in Figure 4.1 indicates that promotion of geotourism indirectly affected MoT&W that is a secondary but a key stakeholder. The high influence (5 = affect all stakeholders) in promotion of geotourism and could be attributed to the *New Tourism Strategy 2021-2025* (GoK, 2022a) that gives direction to growing of tourism. The MoT&W also provides regulatory framework (GoK, 2020b; 2013; 2011) on growing of geotourism. Furthermore, MoT&W provides platform for consultation and information sharing between international actors: - KNATCOM for UNESCO and County government to engage with a

view to promoting geotourism in the study area. For example, UNESCO and Ministry of Tourism and Wildlife supported the County government of Baringo to inventorize and valorize universal geosites that constituted the BGRVAGGp. Direct impact of the Ministry of Tourism and Wildlife could be attributed to its policy role. For example, according to Natural Resources Act, 2020 (GoK, 2020b), sharing of accrued revenue between National and county governments shall be in the ratio of 60% to 40% respectively.

The Act on Natural Resources sharing (2020) envisages a scenario where the benefits accruing from the exploitation of the natural resources in a community will in turn contribute to nature protection and benefits to the local people through improved livelihoods and development of community. However, it is also possible that when benefits do not meet expectations of the local people, it is likely to discourage them from engaging in conservation and geotourism. The stakeholders' analysis revealed that the local community is hesitant to cede land rights to the conservation bodies such as the BGRVAGGp because of perceived lack of benefits.

The MoT&W through KNATCOM for UNESCO, with the help of expert practitioners and research scientists from UNESCO Global Geoparks, jointly with the County government of Baringo assessed unique geosites in the study area. As a result, twelve (12) of the geosites met the UNESCO (2002) Operational Guidelines and criteria for geosites and Aspiring Global Geoparks. The geosites include; Kormoson Hills in Irong Conservancy, Sinipo, and Mangar. Some nature trails identified during the FGD include; the Trans-Rift nature trail, which starts from Laikipia to Iten in Elgeyo-Marakwet. On the importance of nature trails in promoting geotourism, the Chief Warden Baringo County observed that; "There are tourists from Europe who will be trekking along Bishop Hannington nature trail from Ngelecha in Laikipia through Lake Bogoria, Mugurin, to Iten from 19th to September, 2019" (Chief Warden, personal communication, September 10, 2019).

The presence of European tourists trekking the Bishop Hannington Nature Trail in 2019 highlights the growing impact of geopark development on international and adventure tourism in the study area. The proposed geopark encompassing Lake Bogoria and its surrounding areas has enhanced the visibility of local attractions, positioning them as desirable destinations for international tourists seeking unique, nature-based experiences. Through the creation of geotrail like the Bishop Hannington route, the geopark offers structured adventure tourism products that combine scenic landscapes, cultural heritage, and outdoor physical activity.

These trails appeal to the interests of modern adventure tourists particularly from Europe, who value immersive, educational, and active travel. The affiliation with the UNESCO Global Geoparks Network also adds credibility, enhancing international recognition and marketability, which contributes to increased tourist arrivals and local economic benefits. Studies by Farsani et al. (2011) and Dowling & Newsome (2010) support this, noting that geoparks encourage sustainable tourism by linking geological features with recreational and educational tourism. In the Baringo County context, the geopark initiative fosters collaboration among local communities, conservation bodies, and tourism stakeholders, enabling capacity building and equitable benefit sharing. Overall, geopark development has not only boosted international tourism but also diversified the region's adventure tourism offerings in a sustainable and culturally sensitive manner.

MoT&W has low interest in promotion of geotourism, which is attributed to entrenched policy, research, and marketing that embrace biodiversity and “the Big Five” tourism to the neglect of niche areas such as geotourism. This implies that MoT&W has not perceived and embraced geotourism as a means of diversifying tourism products in the study area. The absence of geotourism policy framework is attributed to the slowdown and delay in establishing the BGRVAGGp in the study area. This clearly indicates a weakness in the National tourism policy framework, which has negatively affected promotion of geotourism in the study area. Thus, there is need to enact a policy framework to embrace and guide the promotion of geotourism as a means of diversifying the tourism products in the study area.

4.5.9 Promotion of Geotourism by UNESCO in the Study Area

This study conceptualized role and function of UNESCO in promoting geotourism as; mandate, interest, and actions towards promotion of geotourism in the study area. Information in Figure 4.1 indicates that UNESCO has high influence (5 = affect all stakeholders) in promotion of geotourism in the study area. This is linked with its policy framework that directly affects other stakeholders, namely MoT&W, Baringo County government, BCCA, KWS, community conservancies and local communities in promoting geotourism within the study area. Stakeholders' analysis reveals that UNESCO in conjunction with UNESCO Global Geopark and KNATCOM for UNESCO received and processed expression of interest, and application dossier from Baringo County government on aspiration for Global Geopark status. Thereafter, the International Union of Geological Sciences (IUGs) (iii) reviewed the application and

subsequently approved it. Consequently, in exercise of its mandate UNESCO Global Geopark sent a mission team of field evaluators to consult with other stakeholders, namely Baringo County Global Geopark Committee, the MoT&W, Baringo County government, BCCA, KWS, local community conservancies and local communities with a view to assessing unique geological, geomorphological and geoheritage landscapes in the study area.

Afterwards, the field evaluation Report was presented to the stakeholders for validation. The mission evaluators made public their findings and practical recommendations to be actioned by the Aspiring BGRVGGp before the report is submitted to UNESCO Global Geopark Council for a vote. Stakeholder analysis indicated that because of unresolved geosite boundary issues, land rights, management of the Aspiring BGRVGGp, disinformation, and lack of capacity to follow through the recommendations, the process of establishing the global geopark has slowed down and lagged behind approval schedule and designation of membership status.

Stakeholder's analysis indicated that UNESCO high influence, which is linked with its mandate or legitimacy to; receive new application dossiers from interested countries, carry out field evaluation, validation or revalidation of field reports, vote and approve or reject the reports, and grant Global Geopark membership status. UNESCO derives its mandate from the Operational Guidelines for UNESCO Global Geoparks (2002). For this reason, UNESCO plays a direct and critical role in establishing of Geopark and promotion of geotourism in the study area. In addition, UNESCO has low interest in promotion of geotourism, for the reason that its involvement is time-specific; receiving application through to designation of membership status. Also, it is not involved on a day to day running of the Geopark and has no direct benefits due to diversifying tourism through geotourism. Stakeholder's analysis shows that UNESCO is a key stakeholder due to its mandate or legitimacy, financial resources, expertise and networks to evaluate, validate, approve and designate aspiring geoparks to Global Geopark status.

However, in spite of UNESCO establishing that the study area has potential for Global Geopark and growing of geotourism, Ministry of Tourism and Wildlife and Baringo County government have no clear policy framework on Global Geoparks and geotourism. This implies that MoT&W and Baringo County government has a challenge in appreciating and embracing geotourism as a means of diversifying the tourism products in the study area. This indicates a missing link in policy in establishing of Global Geopark and promotion of geotourism in the

study area. This implies that there is an urgent need for government both at national and county levels to develop a policy framework to guide establishment of Geoparks and geotourism in the study area.

This study shows that there are different types of stakeholders; primary stakeholders: - local community conservancies, and secondary stakeholders: - BCCA, UNESCO, MoT&W, Baringo County government, and KWS. The key stakeholders are; UNESCO, MoT&W, Baringo County government, and KWS that wield a lot of influence in promotion of geotourism in the study area. This study indicates that stakeholders employed three approaches in quest of promoting geotourism: establishing community conservancies with universal geosites; founding of BCCA to bring together all the community conservancies; and establishing of the Baringo Great Rift Valley Aspiring Global Geopark. The findings indicate that one stakeholder cannot alone establish Global Geopark and promote geotourism. On the contrary, it depends on the synergy of all the stakeholders in the study area. However, Baringo County government has no geotourism policy framework to guide engagement among different stakeholders that has slowed down establishing of Global Geopark and promotion of geotourism in the study area. This indicates that national and county governments do not quite appreciate the importance of geotourism as a niche area of tourism to diversifying the tourism products in the study area.

4.6 Factors Influencing Geotourism in the Study Area

The fourth objective in this study examined the influence of destination attributes on tourists' visits to LBNR. Additionally, the study tested the second null hypothesis that: There is no statistically significant difference in the perceived destination image and motivation of the respondents about geotourism across categories of tourists. This study conceptualized tourists' knowledge of destination as the entire process of tourism experience right from planning where to go all through to the next visit. To this extent, destination attributes that influence geotourism was operationalized using five indicators destination image, motivation, destination experience, satisfaction, and frequency of visits. Each of the indicators was measured on a five-point Likert scale value score ranging from 1(low) to 5 (high) but with particular value labels for each of the indicators. The results on how tourists perceive the destination was deemed helpful in determining geotourism potential in the study area. This section of the chapter presents results and discussion on destination image, motivation, destination experience, satisfaction, and frequency of visits. The presentation used tables, percentages, frequencies,

and photographs (plates). Independent Samples t-test was used to analyze the data to determine whether there was statistically significant difference in the perceived destination image and motivation of the respondents about geotourism across categories of tourists. Results were interpreted to provide the explanations and give meaning to information. The destination attributes that influence tourists' visits to LBNR are examined in the following subsections.

4.6.1 Tourist Information Sourcing and Sources used during the Travel

This study considered tourism as a process that require elaborate preparations about destination choice, travel, experience, and return journey. As such, sourcing for and sources of information becomes an important planning factor in so far as; where to visit, what kind of place is it, how much will it cost, and the kind of tourism activities to expect at the destination. In this study, sourcing for information refers to as accessing up to date answers on questions about LBNR with a view to optimizing on the benefits of the visit. As such, this study sought to identify the different sources of information that tourists used to access information before visiting the study area. Table 4.19 summarizes sourcing for and sources of information used by tourists before visiting the study area.

Table 4.19

Sourcing and Sources of Information by Tourists before Travel

Tourism information		Frequency	%
Sourcing for information	Yes	368	95.6
	No	17	4.4
Source of information	Internet /electronic media	244	66.3
	Friends	225	61.1
	Google maps	117	31.8
	Travel agents	113	30.7
	Brochures	95	25.8
	Personal experiences	94	25.5
	Newspapers	57	15.5
	Magazines	40	10.9

Information shown in Table 4.19 indicates that 95.6%of the tourist respondents sourced for information about the study area before the visit but 4.4% did not. This demonstrates that tourists made travel preparations about LBNR before the visit. This indicates that tourists

visiting LBNR were particular about; where to visit, what kind of place, and what kind of experiences they sought to satisfy their recreation needs. This implies that accurate information about the destination is imperative for tourists before visiting the destination and as such, information should be provided online by destination managers. This finding concurs with the results of a study carried in Slovakia by Strba (2018) on criteria affecting the visit of geosites by Slovak geotourists. The results indicated that 91% of the respondents sourced for information about geosites in Slovakia before the visit.

Furthermore, sourcing for information implies that some tourists were travelling into the study area for the first time. The access to information by surveyed respondents is linked to; past travel experience, competitive destination marketing, and interest of tourists. In addition, a few tourists travelled without sourcing for information about the destination, suggesting possibility of being repeat visits or simply adventurous tourists. This concurs with the results of a study by Williams (1998) and Allan (2011) on tourism typologies which indicated that allocentric type of tourists did not source for information because they were naturally adventurous. The results therefore imply that a few adventure tourists visited LBNR.

In addition, travelling without sourcing for information is linked to a number of reasons, such as; group travellers, in which the group leader does all the travel arrangements, especially for young adults and college students on educational trips and tourists that did not have preferred tourism destinations, who just travelled along (Table 4.2). This also suggests that some tourists were repeat visitors whose past knowledge and experience served them during subsequent visits to the study area. In the case of repeat visits, the findings of this study concur with results of Allan (2011) which indicate that psychocentric travellers gravitate towards familiar destinations and therefore, do not source for information. Based on this finding, there were two types of tourists; allocentric and psychocentric that visited the study area.

The surveyed respondents used multiple sources of information, namely internet, friends, travel agents, and newspapers among others to source for information. The tourists used the internet mostly (66.3%) to source for information about LBNR. The second most frequent source of information was friends (66.1%), followed by google map (31.8%), travel agents (30.7%), brochures (25.8%), and personal experience (25.5%) in descending order. These findings correspond to the results of a study by Allan et al. (2015) and Strba (2018) indicating that tourists used multiple sources to obtain information about destination before visiting and the

most frequent source of information by geotourists is internet. Allan et al. (2015) found that internet is the most frequent source of information about the Crystal Cave, Western Australia before visiting. Similarly, the findings of this study concur with results of a study by Strba (2018) indicating that family and friends was a frequent source of information.

Tourists used multiple sources of information but electronic sources were the most frequent than print media; magazines (10.9%), and newspapers (15.5%). This is attributed to use of information communication technology in the tourism industry, including marketing (GoK, 2022a). This finding also suggests that the tourists are techno-savvy. This finding concurs with the GoK report (2020) indicating that tourists utilized online booking sites when deciding where to visit. The sourcing of information also corresponds to Allan et al. (2015) indicating that internet is the most preferred source of information for geotourists. This implies that majority of tourists visiting LBNR were geotourists.

4.6.2 Perception of Destination Image by Tourists at LBNR

After determining the sourcing for and sources of information by tourists, this study examined the destination attributes that influence tourists' visits to LBNR. One such factor is destination image. However, given the abstract and complex nature of destination image, this study conceptualized it as impression etched in the mind of tourist that is overtly expressed through the choice and consumption of destination products. Furthermore, this study operationalized destination image as tourism products, namely birds (flamingos), geodiversity (geysers and hot springs), cultural heritage, wild animals, and sandy beaches at the destination. Based on the fourth objective of this study and its research question, tourists rated the relative importance of indicators of destination image as; *iconic* ($I = 5$), *fascinating* ($F = 4$), *authentic* ($A = 3$), *unexpected* ($U = 2$), or *ordinary* ($O = 1$) on a five-point Likert scale. The tourists' responses were used to measure how destination image influenced tourists' visits to LBNR. The ability of the destination to satisfy tourists' desires, namely recreation, learning, relaxing, enjoying, and experiencing of sense of wonder was also examined. The quality of destination image that is desirable to tourists was measured using attractions (things to see/do) and preference in the study area. Table 4.20 summarizes Knowledge indicators of destination image among tourists in the study area.

Table 4.20

Knowledge Indicators of Destination Image among Tourists

Indicators of Destination image	Response (%)				
	O	U	A	F	I
Flamingos/ Birds	3.4	2.9	2.9	12.5	78.4
Geodiversity	4.4	2.9	8.1	18.4	66.2
Cultural attractions	7.5	22.3	29.9	24.2	16.1
Wildlife ‘the Big Five’	75.1	9.6	3.1	6.2	6.0
Sandy beaches	81.0	6/0	4.2	5.2	3.8

In Table 4.20 the letters O, U, A, F, and I, refers to ratings of destination image by tourists as; ordinary (O), *unexpected* (U), *authentic* (A), *fascinating* (F), and *iconic* (I).

Information in Table 4.20 shows that birds and flamingos had the highest (78.4%) rating as iconic while sandy beaches was the least (3.8%). In descending order of iconic destination rating, the rest of the indicators were as follows; geodiversity (66.2%), cultural attractions (316.1%), and wildlife “the Big Five” (6.0%). The overall destination image was perceived as iconic on the strength of flamingos’ presence and its impression of tourists. A majority of tourists (81%) rated the destination as ordinary as a sandy beach destination. Another sizeable majority (75.1%) considered the impression of “the Big Five” wild animals as ordinary. The detailed results on the influence of destination image on tourists are presented in Table 4.20, which summarizes the percentage frequency distribution response by tourists.

From information in Table 4.20, tourists perceived flamingos and birds as iconic and the most frequent in captivating tourists that visit Lake Bogoria. This points to the dominant type of tourism - avitourism, at the destination. Several scholars have variously discussed destination image. For example, Ries and Trout (1986) argues that marketing is more a battle of perceptions than of products and that winning tourists mind is more important than the destination and concluded that it is better to be first in the mind of tourist (perceived image of destination) than to be first in the market place (projected image of destination). Accordingly, this study indicates that avitourism captured the imagination of tourists more than other tourism products on offer in the study area. It implies that perception of flamingos ranks first in the mind of tourists, and the foremost product that impressed tourist most about the study area.

Similarly, Yolal (2012) asserts that pictorial creations used in videos and television advertisements heavily influenced destination image. Further, the study states that media is necessary for creating and maintaining destination image, which concurs with this study, in which nearly all the tourists (95.6%) sourced for information about LBNR through internet and electronic media (66.3%) before visiting. This finding, further concurs with the results of a study by Rajesh (2013) asserting that induced image (projected image), which is created through information received from external sources, namely destination advertising and promotion, influences tourists in building destination image. Thus, destination-marketing agency at LBNR ought to reinforce the projected image by infusing the perceived image of the destination. Similarly, this study concurs with Jamal and Goode (2003) which asserts that the perception in the mind of tourists (perceived image) is more important than the product itself (projected image). Therefore, the perceived destination image of flamingos at LBNR overrides projected wildlife tourism “the Big Five” in the study area.

Furthermore, in-depth discussion with a local tour guide during the field survey at Lake Bogoria, corroborated destination image;

Many tourists are attracted by the huge presence of lesser flamingos that feed on blue-green algae called *Spirulina platensis* on the shores of the Lake. Also, the river inlets on the shores of the Lake provide fresh water points which is a favourable environment for the assemblages of flamingos (Tour Guide, personal communication, September 27, 2019).

Also, field observations revealed that there was a large presence of flamingos along the shores of Lake Bogoria (Plate 4.19).

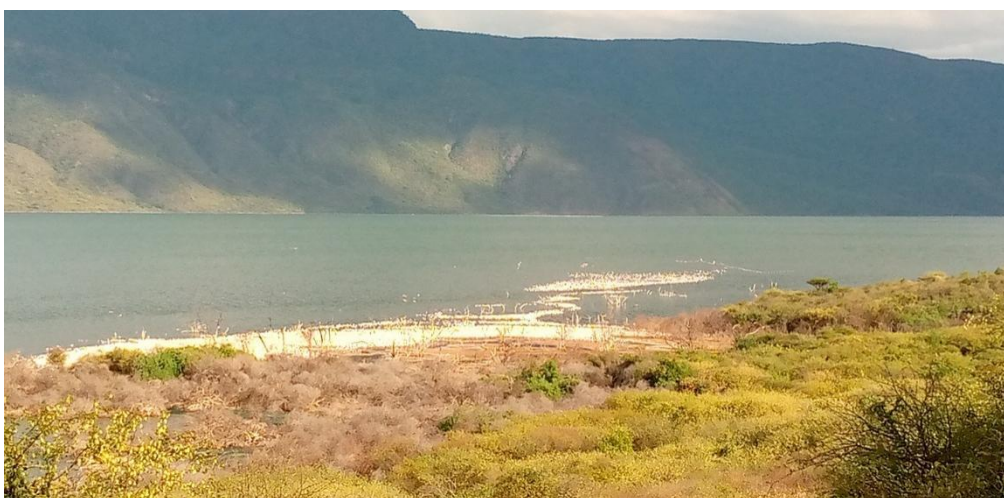


Plate 4.19: The White Colour Indicates the Flamingos along the Shores of Lake Bogoria

Avitourism therefore, is the most frequent attractive tourism product at LBNR. This suggests that for a large number of tourists (78.4%), the iconic presence flamingos and other birds influenced their decision to visits the study area. This finding aligns with the results of a study by Rajesh (2013) which indicate that individuals themselves, through experiences with destinations, form organic destination images. The avitourism destination image concurs with key informant interview and secondary data, which indicates that LBNR is an Important Birdlife Areas (IBA) and Key Biodiversity Area (KBA) (CIDP, 2018). This is also corroborated by LBNR Management Plan (2019) and CIDP (2018) indicating that over 373 species of birds have been recorded in the study area, including over 50 migratory species, making the study area a critical IBA in Kenya. The finding of this study on destination image suggests that the study area has potential to diversify tourism through offer of avitourism products. This suggests that continuous destination marketing is critical in creating and keeping the prevailing perceived image in the minds of tourists through persuasive online information and memorable destinations experience at LBNR.

The tourists' impression indicates that wildlife and beach tourism products were the lowest important indicators of destination image. This supports the possibility that wildlife and beach products elicited the least influence on tourists' visits to LBNR. Consequently, this demonstrate that although LBNR is a wildlife protected area, its positioning in the mind of tourists as a wildlife destination, is either indistinct or unimpressive. From discussions with key informants the marginal influence of "the Big Five" wild animals was corroborated in the following explanation;

The Greater Kudu is the main wildlife attraction in this study area and none of the Big Five animals is available within the view of visitors. The other animals include Thomson gazelle, dik dik, hyena, and leopard. The buffalo is also there but rarely seen (Tour Guide, personal communication, September 27, 2019).

Field observations corroborated key informant's explanation that the Greater Kudu was the main wildlife attraction in the study area (Plate 4.20).



Plate 4.20: The Greater Kudu along the Road to the Geysers and Hot Springs

The results in this study ranked geodiversity as fascinating in the mind of tourists visiting LBNR (Table 4.20). This result may reflect underlying potential to grow geotourism products and diversifying the tourism products in the study area. The prevailing geodiversity image was linked to geotourism activities such as natural thermal steam (sauna), boiling of eggs, and geotours lectures. Consequently, these geo-based activities have positively shaped the opinions, experiences, and attitudes of tourists visiting the study area. Therefore, destination managers should market geotourism as a distinct product at LBNR, especially through mass media and social media which are tourists' preferred information channels about the study area.

This study sought to obtain the overall destination image of LBNR among the visiting tourists. As a result, ordinal ranking was used to measure the overall destination image and individual mean value score for each of the five knowledge indicators of destination image were aggregated into an *image value score* reliability coefficient, ($\alpha = 0.756$) ranging from 5 (low) to 25 (high) destination image value ³. The aggregated mean value score for the destination

³ $5 \times 1 = 5$ (low)

$5 \times 3 = 15$ (moderate)

$5 \times 5 = 25$ (High)

was 15.20 ± 0.978 on a maximum scale of 25. The higher the value score, the higher the level of destination image value and vice versa. This study transformed mean value score into three ordinal categories; a value score of 5-11 (low), 12-18 (moderate), and 19-25 (high). Table 4.21 summarizes overall level of tourists' destination image value of LBNR.

Table 4.21

Overall Level of Destination Image of LBNR

Level of Destination preference			
Levels	Ordinal Level Scale	Frequency	%
Low	5-11	28	7.3
Moderate	12- 18	317	82.3
High	19-25	40	10.4

Information in Table 4.21 indicates that 82.3% of the respondents perceived the overall tourism destination image as moderate but 7.3% perceived it as low and 10.4% of tourists perceived it as high. Overall, the prevailing aggregated mean value image of LBNR is moderately competitive. This supports the possibility that the destination could be repositioned and made highly competitive through responsive destination imaging and the diversification of tourism products to broaden tourists' experiences. After determining destination image of LBNR, this study also considered the type of tourists as an indicator of the ability of a destination to match its products (projected image) with the interest of tourists (perceived image) and therefore, create a competitive tourism destination image. The type of tourists is an important link between supply and demand of tourism products at the destination. As such, this study sought to find out the type of tourists at LBNR (Table 4.22).

Table 4.22

Type of Tourists at LBNR Based on Interest of Tourists

Type of tourists	Frequency	%
Geotourism	289	75.1
Flamingos/birds	81	21.0
Ecotourism/ Wildlife	7	1.8
Education	3	0.8
Home/ Village tourism	2	0.5
Sports tourism	2	0.5
Sandy beach tourism	1	0.3

Information in Table 4.22 indicates that 75.1% considered themselves as geotourists but 1.8% expressed their visit as motivated by wildlife and 21% of tourists considered themselves avitourists; motivated by flamingos and other birds in the study area. There was little interest among tourists in the following other types of tourism; ecotourism/wildlife (1.8%), educational tourism (0.8%), home stay tourism (0.5%), sports tourism (0.5%), and beach tourism (0.3%). The results clearly indicate that majority (75.1%), of the tourists were more inclined towards geotourism. The results suggest there is opportunity to grow geotourism as a means of diversifying the tourism products in the study area. This finding is consistent with previous research on destination image studies (Farmaki, 2012; Kubalikova, 2013; Lew & McKercher, 2006) which argue that the more a destination is able to meet the interests of tourists, the more it is perceived to be attractive and the more it is likely tourists will visit. Further, the range of activities for tourists at a destination is an important factor of destination appeal and image (Buhalis, 2000). Therefore, from the findings of this study on type of tourists there is opportunity to diversify tourism products and contribute to enriched tourism experience in the study area.

Besides determining the type of tourists, this study sought to find out geodiversity interest among the tourists visiting the study area. This study conceptualized geodiversity interest as the ability of geodiversity products to satisfy the interest of tourists. Based on UNESCO (2019) guidelines, geotourism interest was measured using the cognitive value of educational value, natural sightseeing, scientific research, and exploration activities in the study area. Table 4.23 summarizes geodiversity interest among the tourists at LBNR.

Table 4.23

Geodiversity Interest among Tourists at LBNR

Indicators of destination interest	Frequency	%
Educational value	232	60.3
natural sightseeing/scenic value	126	32.7
Scientific research	20	5.2
Exploration	7	1.8

Information in Table 4.23 indicates that 60.3% of the tourists were interested in the educational value of geysers and hot springs but 1.8% was interested in exploration at LBNR. In addition, 32.7% of tourists considered scenic value of geysers as important in satisfying their interest for visiting the study area. This study identified a number of geotourism activities, namely geotours

guide talks, personal learning experience, observation, and discussions of geysers and hot springs with fellow visitors in the study area. Further, scenic value of geysers and hot springs impressed the tourists due to its uniqueness and integrity. The results suggest the types of tourism products that appeal to tourists and could be incorporated into the projected destination image to promote geotourism as a strategy for diversifying tourism in the study area.

4.6.3 Tourists' Motivation to Visit LBNR

After determining the destination image on tourists' visits to LBNR, this study also examined tourists' motivation to visit the study area. Tourist motivation was conceptualized from the Self Determination theory of Deci and Ryan (2006) as the inner driving force behind tourists' choice to visit the geysers and hot springs at LBNR. This study sought information on what motivated tourists in the choice of specific tourism activities in the study area. Motivation was measured using seven intrinsic indicators of motivation, namely the urge to; (a) gain knowledge/education/learn, (b) relax/rest/refresh, (c) enjoy one-self, (d) experience of sense of wonder, (e) escape from boredom, (f) make friends, and (g) for prestige. Each indicator of motivation was measured by tourists as; *very low*, (*VL = 1*), *low* (*L = 2*), *moderate* (*M = 3*), *high* (*H = 4*) or *highest* (*Hs = 5*) on a five-point Likert scale against the ability of LBNR to meet their expectations for visit to the study area. Table 4.24 summarizes the rating of tourists' motivation for visit to LBNR.

Table 4.24

Rating of Tourist Motivation for Visit to LBNR

Indicators of tourism motivation to travel to LBNR	(%) Response				
	VL	L	M	H	Hs
Knowledge/education/learn	1.3	2.3	9.6	16.4	70.4
Experience sense of wonder	8.1	6.5	12.7	25.2	47.5
Enjoy one self	6.2	10.6	21.3	21.1	40.8
Relax/rest/refresh	8.6	12.7	19.0	21.3	38.4
Make friends/meet people	46.2	5.2	8.6	12.5	27.5
Escape from work/boredom	48.6	13.2	6.0	7.8	24.4
For prestige	52.5	9.9	8.3	10.9	18.4

Information in Table 4.24 indicates that the urge to; gain knowledge (70.4%), experience of sense of wonder (47.5%), and enjoy oneself (40.8%), were highest reasons for visiting the destination. Consequently, these aspects of motivation had a domineering effect on tourists' choice of specific tourism activities at LBNR. The following other three aspects of motivation indicators; making friends (27.5%), escape from boredom (24.4%) and traveling for prestige (18.4%), were rated the lowest influential in the visitation of the study area. This suggests that prestige, escape from boredom, and making friends least affected the choice of tourism activities in the study area. The results indicate that majority of the tourists (70.4%) highly considered the urge to learn/gain knowledge in choosing tourism activities in the study area.

Furthermore, the findings of this study on aspects of tourist motivation are consistent with previous studies on tourist motivation. For example, the results on tourists' desire to gain knowledge concur with the results of a study by Mao et al. (2009) showing that the most important travel purpose for geotourists is to increase their knowledge about geosites and landforms. Also, the findings agree with results of a study by Allan et al. (2014) that relaxation, escape from the daily routine, and experiencing of sense of wonder are the major intrinsic motivations in geotourism. Moreover, the results of this study align with the findings of several studies, which argue that geotourism is a form of recreation based on geology through learning and enjoying (Newsome, 2006), experiencing of sense of wonder (Gray, 2004) and relaxation, enjoyment, education and experiencing of sense of wonder (Lima et al., 2010). In addition, Strba et al. (2018) argue that tourists' motivation affects the success of geotourism. Thus, travel motivation by tourists provides insight into destination preference and product competitiveness (Dowling, 2011).

The main finding indicates that the urge to learn, experience sense of wonder, and enjoy oneself were the major intrinsic aspects of motivation that influenced choice of tourism activities in the study area. This finding concurs with the results of a study by Allan et al. (2015) which revealed that the urge to gain knowledge and curiosity motivated tourists to visit Crystal Cave in Australia. Furthermore, the results of this research concur with previous studies on aspects of geotourism; Dowling (2011), Lima et al. (2010), Newsome and Dowling (2010) and UNESCO (2006) which argue that geotourism is educative. The study findings also agree with previous research by Farsani et al. (2010) which argue that geotourism helps travellers to increase their knowledge and preservation of geo-based resources. This study linked interest of tourists in learning to their desire to explore the study area.

The individual mean value score for each of the seven motivation indicators were aggregated into a motivation value score for the destination (reliability coefficient, $\alpha = 0.657$) ranging from a value of 7, indicating lowest motivation to 35, indicating highest motivation value⁴, which had a score value 23.46 ± 1.62 . The higher the value score, the higher the level of tourist's motivation for choice of tourism products in the study area and vice versa. The value score was transformed into three ordinal categories including; a value score of 7-16 (low motivation value), 17-25 (moderate motivation value), and 26-35 (high motivation value). Table 4.25 shows overall level of motivation value in the study area. The ordinal categories were interpreted as follows; low motivation value indicate that geotourism least influenced tourists, moderate motivation value indicate the existence of both wildlife tourism and geotourism, and high motivation value indicate that landforms; existence of geotourism highly influenced tourists.

Table 4.25

Overall Level of Motivation for Visiting LBNR by Tourists

Motivation Level	Ordinal Level Scale	Frequency	%
Low	7- 16	68	17.7
Moderate	17- 25	173	44.9
High	26 – 35	144	37.4

The results in Table 4.25 indicate that 44.9% of the tourist respondents considered the overall reasons for motivation to visit LBNR as moderate but 17.7% of tourists perceived it as low and 37.4% of tourists considered the motives for visiting the destination as high. This suggests that 44.9% of tourists prefer both wildlife and geotourism products but 17.7% of tourists have a preference for wildlife tourism products and about a third of tourists prefer geotourism products. Overall (score value 23.46 ± 1.62), the inner driving force behind tourists' choice to visit the geysers and hot springs indicate the presence of both wildlife and geotourism products in the study area.

⁴ $7 \times 1 = 7$ (low)

$7 \times 3 = 21$ (Moderate)

$7 \times 5 = 35$ (High)

The results on tourists' motivation to visit LBNR suggest that a wide range of tourism activities and auxiliary services that characterizes the geysers and hot springs; entertainment, sauna activities, and sightseeing, have been developed to meet the needs of tourists. The different types of tourism; namely, geotourism, avitourism, education tourism, and ecotourism, are the result of individual tourist interests in the study area. Each type of tourism is therefore unique, which indicates the need to disaggregate tourist interests to provide that products that align with their travel motives and preferences. The prominent motives that compelled surveyed respondents to visit geysers and hot springs at LBNR included that the urge to; learn, experience of sense of wonder, and relax, which are consistent with past studies, including Allan et al. (2011) who argue that these aspects are indicators of geotourism.

4.6.4 Differences in Destination Image and Motivation Across Tourist Types

Results from subsections 4.6.2 and 4.6.3 summarize the perceived destination image and motivation of the tourists influencing geotourism. From these findings, the study further sought to establish whether there was a significant difference in the perceived destination image and motivation of respondents across categories of the tourists. Thus, study operationalized objective four using the second null hypothesis, which stated that: "there was no statistically significant difference in the perceived destination image and motivation of the respondents about geotourism across categories of tourists". The study used the Independent Samples t-test to determine whether there was a significant difference in the mean scores of the destination image score and motivation score between the two categories of tourists (domestic/local and foreign/international tourists).

As a parametric test, the common underlying assumptions of the Independent Samples t-test included scale of measurement, independence of observations, normal distribution of the dependent variable, homogeneity (homoscedasticity) of variances, and no significant outliers in the data set. In this study, the dependent (test) variable was a continuous (interval) variable measured in the actual scores (destination image score and motivation score), while the independent (grouping) variable was a nominal variable (categories of the tourists – local and international). The study drew observations from respondents in the categories of tourists. The study tested for normality of the dependent variable (destination image score and motivation score) using the Q-Q Plot, which revealed a normal distribution of the mean scores for both groups (the categories of the tourists). The Levene's Test for Equality of Variances given by $F = 16.7234, p = 0.128$ for intrinsic value score and $F = 1.22, p = 0.202$ for extrinsic value score

indicate homoscedasticity of variance. Since p values are all greater than 0.05 significance level, group variances were treated as equal. Therefore, the study established non-violation of any of the assumptions, which made the Independent Samples t-test suitable to determine significant difference in the destination image and motivation mean scores between the two categories of tourists at 0.05 significance level. Table 4.26 summarizes the output of the Independent Samples t-test.

Table 4.26

Summary of the Output of the Independent Sample t-test

	Category of tourists	N	Mean	Std. Dev.	T	df	Sign. (2-tailed)
Destination image index score	Local/domestic	301	15.04	3.019	-2.078	383	.038
	Foreign/international	84	15.82	3.205			
Motivation index score	Local/domestic	301	22.97	6.918	-2.671	383	.008
	Foreign/international	84	25.25	6.919			

Table 4.26 indicates that the foreign tourists recorded a higher destination image and motivation mean scores (15.82 ± 3.205 , and 25.25 ± 6.919 , respectively) compared to domestic tourists who had mean score of 15.04 ± 3.019 , and 22.97 ± 6.918 , respectively. The difference in mean scores suggests that international tourists may perceive the destination as more novel, unique, exotic, and culturally distinct, which enhances both their image of the site and their motivation to visit. Additionally, international tourists often invest more time and resources into planning their travel, which can enhance their expectations and perceived value of the destination. Their higher motivation scores could also reflect a deeper desire for authentic and memorable experiences during their holiday/ visit. According to Crompton and Stewart (1996), adventure-seeking is a key motivator for international tourists, often leading them to assign higher value to destinations perceived as unique from their everyday environment. Similarly, Styliadis et al. (2017) found that international tourists often develop more favourable cognitive and affective destination images due to unfamiliarity and the appeal of new experiences. These factors likely contribute to the higher scores observed among international tourists in this study.

This was in contrast with domestic tourists who had slightly lower mean scores for destination image (15.04 ± 3.019) and motivation (22.97 ± 6.918), suggesting a more moderate perception and level of enthusiasm toward the destination. This contrast may be linked to the greater

familiarity domestic tourists have/ prior exposure to the destination, culture, and attractions, which can reduce the adventure, affecting their perceived uniqueness of the destination (Larsen et al., 2019). Additionally, domestic tourists may be more driven by convenience, affordability, or routine leisure travel rather than a strong desire for exploration and adventure (Kim, 2018). As a result, their motivation and destination image scores tend to reflect practical considerations rather than the excitement and exploration commonly associated with international travel.

The study supported these differences using the *t*-values, namely $t(383) = -2.078, p = (0.038) < 0.05$ significance level for destination image, and $t(383) = -2.671, p = (0.008) < 0.05$ significance level for motivation. Since *p* values < 0.05 significance level, the second null hypothesis is rejected suggesting that there was a statistically significant difference in the perceived destination image and motivation of the respondents about geotourism across categories of tourists. The study attributed these differences to variations in travel expectations, adventure-seeking behaviour, and cultural exposure between the two groups. Foreign tourists often perceive destinations as more novel and exotic, enhancing both their image of the site and motivational drive (Pearce & Lee, 2005). In contrast, domestic tourists may be more familiar with the destination, leading to lower perceived uniqueness and novelty and therefore, reduced motivational intensity (Larsen et al., 2019). These findings align with previous studies (Beerli & Martín, 2004) that highlight how prior experience, cultural distance, and travel purpose shape destination perceptions and tourist motivations.

The study supported these differences using the *t*-values, namely $t(383) = -2.078, p = 0.038$ for destination image and $t(383) = -2.671, p = 0.008$ for motivation. Since both *p*-values are below the 0.05 significance threshold, the second null hypothesis is rejected. This confirms that there is a statistically significant difference in the perceived destination image and motivation regarding geotourism between foreign and domestic tourists. The observed differences can be attributed to varying levels of familiarity and prior exposure to the study area's geodiversity. Domestic tourists may already possess a basic understanding and awareness of the local geological features, landforms, and biodiversity due to cultural proximity, education, or repeated visits. As such, their perceptions of novelty and uniqueness - key factors influencing destination image and motivation - may be less pronounced compared to international tourists. This aligns with Larsen et al. (2019), who found that domestic tourists often have lower adventure-seeking tendencies due to familiarity with local attractions. Similarly, Kim (2018)

argue that domestic travel is frequently driven by convenience and habitual patterns rather than a strong desire for exploration and acquire knowledge.

However, it is important to note that domestic tourists' familiarity may also reflect a deeper, more contextual appreciation of the destination's geodiversity. According to Hose (2012), geotourism is enhanced when tourists have prior understanding or educational engagement with the geological and natural attributes of a destination. In this context, domestic tourists may value the destination more for its educational and heritage significance than for its adventure, which might not be fully captured in standard motivation or image metrics.

Therefore, while international tourists may score higher on motivation and destination image due to perceived adventure and cultural distinctiveness (Beerli & Martín, 2004), domestic tourists could be more discerning and informed about the geotourism potential of the site. This suggests the need for differentiated geotourism strategies that cater to both experience-driven international tourists and knowledge-oriented domestic visitors.

4.6.5 Tourists' Destination Experience in the Study Area

In addition to determining the influence of destination image and tourists' motivation to visit LBNR, this study examined how destination experience affect tourists' visit to the study area. This study conceptualized destination experience as recreation activities through which visitors gather opinions, attitude, and knowledge. To measure destination experience, the respondents described recreation activities as; *ordinary* ($O = 1$), *unexpected* ($U = 2$), *authentic* ($A = 3$), *fascinating* ($F = 4$), or *iconic* ($I = 5$) on a five-point Likert scale. This study expressed the frequency ratings as a percentage of the total respondents. Table 4.27 summarizes destination experience gathered by tourists in the study area.

Table 4.27

Destination Experience Gathered by Tourists in the Study Area

Description of destination experience	Frequency	%
Fascinating	255	66.2
Iconic	90	23.4
Original	34	8.8
Unexpected	4	1.0
Ordinary	2	0.5
Total	385	100.0

Information in Table 4.27 indicates that 66.2% of surveyed tourists described their destination experience as fascinating but 0.5% tourists rated it as ordinary and the rest of the tourists rated their experiences as follows; iconic (23.4%), original (8.8%), and unexpected (1.0%). The major finding on this objective on destination experience indicates that majority of tourists highly appreciated recreation activities in the study area. This suggests that recreation activities satisfied the interest of tourists visiting the study area. However, few tourists were disappointed about recreation activities at the destination. The tourist respondents complained about the narrow range of tourism products and lack of complementary products at the geosite such as; hiking, boat rides, modern thermal steam bath, cultural heritage activities and absence of wildlife other than Greater Kudu. This finding concurs with the review of LBNR Management Plan (2019), which indicate that the range of visitor activities is narrow due to lack of diversification of tourism products and poor marketing of other niche tourism products within LBNR. Additionally, surveyed respondents blamed their dissatisfaction experience on submergence of geysers because of rise on water level in Lake Bogoria (Plate 4.21).



Plate 4.21: A Section of the Road Submerged Under Flood Water from Lake Bogoria

Other causes of displeasure included poor road conditions, littering at the site, and crowding around the hot springs and geysers, leading to unregulated pressure on the fragile geosites. In-depth discussions with a key informant corroborated the submergence of geysers and hot springs in the area, stating that.;

Most of the once iconic geysers have disappeared due to the rise in water level in Lake Bogoria, and sections of the access road are also submerged and inundated by the rising water. Some tourists also complain of a foul smell at the destination caused by decomposing algae and dead flamingos on the shores of Lake Bogoria (Key informant, personal communication, September 27, 2019).

4.6.6 Tourists' Perceived Overall Satisfaction with Destination Products

Further, this study conceptualized satisfaction as the fulfilment of interest of tourists at LBNR through engaging in enjoyable activities during leisure time. Several studies on tourist satisfaction have argued that the range of tourism activities influences satisfaction of tourists (Buhalis, 2000; Gnanapala, 2015; Jangra et al., 2021). This study aggregated destination attractions comprising of; flamingos, geodiversity, cultural attractions, wildlife and sandy beach into a composite measure of destination products (attitude, belief, opinion, impact, and preference) with a view to understand its influence on the overall tourist satisfaction. To measure the composite aggregated destination product the tourists described the overall satisfaction as; *not satisfied (1), least satisfied (2), satisfied (3), more satisfied (4) or highly satisfied (5)* using a five-point Likert scale. Table 4.28 provides a summary of the frequency and percentage ratings of the overall tourists' satisfaction with destination products.

Table 4.28

Overall Tourists Satisfaction with Destination Products

Levels of satisfaction	Frequency	%
Not satisfied	4	1.0
Least satisfied	6	1.6
Satisfied	36	9.4
More satisfied	150	39.0
Highly satisfied	189	49.0

Information in Table 4.28 indicates that 49.0% of the tourists were highly satisfied with the destination products but 1.0% were not satisfied and the rest of the tourists described their satisfaction as follows; least satisfied (1.6%), satisfied (9.4%), and more satisfied (39%). From the results on satisfaction with destination products in this study, it is evident that majority of the tourists were satisfied with wildlife products and geotourism activities at LBNR. This suggests that the destination experience met expectations and interest of tourists and thus, the destination is likely to create a post experience satisfaction about the scenic value; flamingos, geysers and hot springs, escarpment and clear skies as well as security in the study area.

The results of this study concur with Styliadis et al. (2022) that there is a link between destination products and satisfaction; destination products determine satisfaction and thereby positive image results in greater levels of satisfaction. This suggests that tourists' interests were inclined towards wildlife and geotourism products in the study area. According to Saqib (2019) destination image influences destination choice, satisfaction, and post-destination behaviour such as recommending destination to friends and relatives as well as return visits. Styliadis et al. concluded that on site satisfaction (affective image – in-situ experience) has significant influence on intention to visit and recommend the destination to others (conative- post experience satisfaction). Similarly, Kotler et al., (2010, as cited in Gnanapala, 2015, p. 14) stated that “a satisfied tourist will tell five others about their positive experiences, while a dissatisfied tourist will tell ten or more others about their negative experiences”. To this extent, most satisfied and satisfied tourists (88%) in this study are also likely to return and/or recommend the destination to someone else. This finding concurs with a study by Bhat and Moolchandani (2020) which revealed that tourist satisfaction exerts significant impact on destination loyalty. On the contrary, dissatisfied and least satisfied tourists (12%) are unlikely to return or recommend the destination to potential tourists.

The results from the fourth objective of this study, suggest that destination managers and marketers ought to consider tourist satisfaction at LBNR, for tourists can make or break a tourist destination by word of mouth. Some of the possible reasons for tourist dissatisfaction were linked to lack of; adequate and trained tour guide, signage for personal safety at the geysers, drinking water, shade/ rest room for tourist to shelter from excessively high temperatures, and wildlife on the drive way. Others included overcrowding, littering, sub-standard toilet facilities, limited tourism activities (boiling eggs, photography, sightseeing, gazing at spa) at the destination. The findings on causes of dissatisfaction concur with Alegre and Garau (2010, as cited in Gnanapala, 2015, p. 9) that overcrowding, pollution and lack of sanitary facilities negatively affect destination satisfaction among tourists. However, in this study, dissatisfaction linked to lack of adequate and trained tour guide contrasts with the results of a study by Strba (2018) indicating that tour guide services among tourists visiting geosites in Slovakia were considered unimportant; boring, and full of jargon.

Furthermore, during the survey tourist respondents expressed dissatisfaction with geysers and hot springs due to; ‘high’ park entry fees, lack of specialized tour guides in; hydrology,

geology, and geomorphology to communicate geological information to tourists. This finding concurs with the results of a study carried out at Caves and Mines in Italy by Garofano and Govoni (2012) which stated that difficulty to communicate geological information to tourists is one of the challenges facing tourism in geoparks and other tourism destinations. According to Jangra et al. (2021) tourists experience satisfaction or dissatisfaction about the destination based on their knowledge, which are not homogenous due to individual preferences and values. This study observes that the tourists who visited LBNR and were satisfied with the products at the destination were likely to return and recommend destination to others but those who were dissatisfied were unlikely to return nor recommend destination to others.

4.6.7 Frequency of Tourists' Visits

This study considered frequency of visit by tourists as one of the indicators of destination satisfaction. This study-operationalized frequency of visits as the number of times a tourist visits or recommends LBNR to potential visitors. This study measured the frequency of visits using the following indicators; number of visits, frequency of repeat-visits, and referral visits. The frequency of visits was subjected to measurement on a five-point Likert scale ranging from; 1(low) to 5 (high). All the tourist respondents (385) indicated the number of visits, return visits and referral visits to the study area. Further, a total of 229 repeat visitor respondents measured the frequency of repeat-visits using a five-point Likert scale ranging from 1 (low) to 5 (high). The tourists rated the frequency of repeat visits as; *never* (1), *rarely* (2), *often* (3), *more often* (4) or *most often* (5). Table 4.29 summarizes the indicators of frequency of visits by tourists.

Table 4.29

Indicators of Frequency of Visits by Tourists

Indicators of Frequency of visits	No. of tourists	Frequency	%	
Number of times visited	385	first-time visits	156	40.5
		repeat visits	229	59.5
Referral visits/recommending destination to others	385	Yes	357	92.7
		No	28	7.3
Frequency of repeat-visits	229	Never	3	1.3
		Rarely	54	23.6
		Often	73	31.9
		More often	79	34.5
		Most often	20	8.7

Information in Table 4.29 indicates that 59.5% of tourists were repeat visits and 40.5% were first-time visits at the destination. The main finding on the number of visits indicates that there were more repeat visits than first-time visits. The presence of repeat visits implies that during past visits the destination satisfied the interest and met expectations of the tourists. The finding also suggests that repeat tourists were likely to recommend the destination (LBNR) to friends and potential visitors (92.7%). This finding is corroborated by the results of this study on sourcing of information by tourists, which indicate that 61.1% of tourists obtained information about the destination from friends. This finding concurs with the results of a study by Stylidis et al. (2022) stating that intention to recommend destination to others and repeat-visits is influenced by affective image (satisfaction with destination) and conative image (post destination experience /consumption image). According to Stylidis et al. (2017) domestic or repeat visitors rely more on their affective image, but first-time tourists and international tourists may place more emphasis on their cognitive image. The high percentage (59.5%) of repeat visits in this study affirms the results of Stylidis et al. (2022) that domestic tourists rely on affective image to recommend the destination to others.

Overall, the findings on the fourth objective of this study indicate the link between destination image-satisfaction-frequency and behavioural intentions of tourists when choosing tourism destinations. This finding concurs with the results of Stylidis et al. (2022) indicating that both cognitive (destination image) and affective image (satisfaction based on experience) positively affect overall satisfaction and conative image (post destination behaviour) such as return visits and recommending destination to others. Also, according to Kim (2018, as cited in Stylidis et al., 2022, p. 483) the more favourable the destination image, the more satisfied the visitors, and the more likely they will return or recommend the destination to others.

Further, results showed that 34.5% of repeat visitors more often frequented the destination but 1.3% never return to LBNR. The results further showed that 75% of tourists would frequent the destination and/or recommend the destination to friends and relatives. Repeat visitors were likely to contribute to destination loyalty through frequent visits and by making referral visits. This finding agrees with Williams (1998) that referral of destination to potential visitors is one of the ways of re-living the pleasant destination experiences. Furthermore, this finding concurs with results of a study by Allan et al. (2015) whose findings on motivation of tourists at Crystal Cave in Australia indicated that a fulfilling geotourism experiences increases the level of the likelihood of re-visitation.

The results on frequency of visit indicate that 92.7% of the surveyed respondents would recommend LBNR to potential tourists. This indicates that tourism products at LBNR met the expectations and satisfied interests of the tourists. Additionally, the finding suggests that LBNR created a positive lasting impression that makes tourists return in future or recommend the destination to someone else. This suggests that after tourists return to their source areas, they re-live the destination experience through conversation and sharing of pleasant and bad experiences with friends, relatives, and significant others. This finding on frequency of visit concurs with the results of Styliadis et al. (2017, 2022) which affirm that the destination image is an experience continuum in the mind of tourists: before travel-cognitive (destination image); at destination: - affective image (satisfaction based on experience); and after experience: - conative image (post experience behaviour) including frequency of visits and recommending destination to others.

CHAPTER FIVE

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of key findings, conclusions, and recommendations. This study sought to contribute to the broad understanding of stakeholders' assessment of the potential of geotourism in Baringo County, Kenya. Specifically, this study sought to: -

- i. Evaluate local community's knowledge of geodiversity and geotourism potential in the unprotected areas in Baringo County.
- ii. Analyze tourists' perceived value of landforms that constitute geotourism products in Lake Bogoria National Reserve in Baringo County.
- iii. Assess the role and function of Baringo County government and other stakeholders in promotion of geotourism in Baringo County.
- iv. Examine the influence of destination attributes on tourists' visits to Lake Bogoria National Reserve in Baringo County.

To address the research questions, this study collected, analyzed, and interpreted primary data. Primary data collection methods included FGDs, questionnaire, and stakeholders analysis/meeting. The FGD sought information on local community's knowledge of geodiversity and geotourism potential while the questionnaire sought information on tourists' perceived value of geysers and hot springs, and influence of destination attributes on tourists' visits to LBNR. Additionally, stakeholders' analysis/meeting sought information from the County government of Baringo, local community conservancies, BCCA, KWS, MoT&W, and KNATCOM for UNESCO on their role and function in promoting geotourism in the study area. This study also collected secondary data from internet, published and unpublished reports. To address the research problem, hypotheses, and research questions, this study used a mixed-method approach to analyze data (e.g., thematic analysis, independent t-test and stakeholders' analysis). The researcher presented the findings using tables, percentages, figures, plates, and a parametric inferential statistical t-test. Further, this study presented results using interpretative phenomenology and descriptive statistics. Relevant empirical literature and theories supported the discussion of the results.

5.2 Summary of key Findings

The following subsections present the key findings for each of the objectives.

5.2.1 The Local Community Knowledge of Geotourism

This study was premised on the knowledge of the local community regarding awareness of the potential and actual geodiversity sites that offer geotourism opportunities in the unprotected areas. This study established that local community had varied levels of knowledge about geodiversity and geotourism, and considered unique geodiversity sites suitable for promoting geotourism. In this regard, the study identified three levels of knowledge: knowledgeable, insufficient knowledge, and lack of knowledge, all of which influenced the community's informed perception of geodiversity and geotourism in the study area. Findings further indicated that the greater the community's knowledge of destination the greater their appreciation of geodiversity and geotourism. The study validated the results through an assessment of differences in tourists' perceptions using t-tests, which yielded significant results for both destination image $t(383) = -2.078, p = .038$, and motivation, $t(383) = -2.671, p = .008$, both below the 0.05 significance threshold. These findings lead to the rejection of the second null hypothesis, which posited no significant difference in perceived destination image and motivation across tourist categories. This outcome is consistent with the local community's knowledge, supporting the conclusion that greater familiarity with a destination correlates with a more positive and informed perception of its geodiversity and geotourism potential.

The local community also identified and assessed six potential geosites namely, Kormoson Hill, Kapyomat Fumaroles, Kapicha Vantage Point, Kuruche Gorge, Nature Trail, and Kapillat Cave, which possess unique intrinsic and added values, but lack the necessary infrastructure to support geotourism. Despite the community's significant knowledge of geodiversity, geotourism, and potential sites, geotourism remains largely untapped due to several challenges: seasonality of tourism, inaccessibility, lack of political goodwill, unresolved land tenure issues, and absence of a legal and management framework in the study area.

5.2.2 Tourists' Perceived Value of Landforms in the Study Area

The perceived value of geysers and hot springs was based on a composite value derived from the aggregated intrinsic and extrinsic mean value scores of landforms. This study established that 90.9% of the tourist respondents perceived the intrinsic value score of geysers and hot springs to be high, with a mean score of 21.79 (± 2.208) out of 25, indicating high intrinsic value and suitability for geotourism. Further, 83.4% of the tourist respondents perceived the extrinsic value score of geysers and hot springs to be high, with a mean score of 20.34 (± 2.238) out of 25, indicating high extrinsic value and geotourism potential. Accordingly, the composite

paired value score of geysers and hot springs was high (22/20 out of 25/25), indicating that tourists highly appreciated their geotouristic value of geysers and hot springs and considered them geosites of universal importance, suitable for growing geotourism as means of diversifying the tourism product portfolio in the study area.

The study used the independent samples *t*-test to determine whether there was a significant difference in the mean scores of the perceived intrinsic and extrinsic values between the two categories of tourists (domestic/local and foreign/international tourists). The results supported these differences using the *t*-values, namely $t(383) = -2.078, p = .038$ for destination image, and $t(383) = -2.671, p = .008$ for motivation. Since both *p*-values are below the .05 significance threshold, the second null hypothesis is rejected. This finding confirms that there is a statistically significant difference in the perceived destination image and motivation regarding geotourism between foreign and domestic tourists. These observed differences may be attributed to varying levels of familiarity with, and prior exposure to, the study area's geodiversity.

5.2.3 County Government and Stakeholders' role in Promoting Geotourism

The study identified four categories of stakeholders in geotourism promotion based on their interest and influence: low interest–low influence, high interest–low influence, high influence–low interest, and high interest–high influence. Baringo County Government plays a central role in promoting geotourism through coordination, consultation, and infrastructure development. However, one of its main weaknesses is lack of a strong policy framework on Global Geopark and geotourism. This policy gap has slowed down the process of establishing a UNESCO Global Geopark and promoting geotourism in the study area. This indicates a persistent neglect of geotourism despite its recognition as an emerging niche tourism product that is increasingly embraced globally. The other stakeholders include KWS, BCCA, and MoT&W and UNESCO influence geotourism through technical expertise, funding, advocacy and capacity building. Local community conservancies are limited by knowledge and capacity that is crucial in establishing and running community conservancies. Stakeholders differ in their levels of power, with international partners and county authorities holding high influence, while local communities, though highly interested, have limited influence. Collaborative approaches such as consultation, lobbying, information sharing, and joint planning were commonly employed to advance geotourism goals. These multi-stakeholder engagements have fostered inclusive planning and awareness creation.

5.2.4 Factors Influencing Geotourism in LBNR

The key finding indicates that destination image/diversity of landscape; landforms, birds, and wildlife influenced visits by different types of tourists; avitourism, geotourism and cultural tourism, but avitourism emerged as the highly perceived destination image in the study area. In addition, the overall tourists' motivation to visit the geysers and hot springs was 23.46 (± 1.62) out of 35. This suggests that the presence of both wildlife and geodiversity had moderate influence on tourism motivation, highlighting their critical role influencing tourism products in the study area. From these findings, using independent samples *t*-test, the study further sought to establish whether there was a significant difference in the perceived destination image and motivation of respondents across categories of the tourists. The study found significant differences in how tourists perceive destination image and motivation in the context of geotourism. Statistical analysis using *t*-tests revealed that both destination image ($t(383) = -2.078, p = .038$) and motivation ($t(383) = -2.671, p = .008$) showed *p*-values below the .05 significance level. As a result, the second null hypothesis was rejected, indicating a statistically significant difference between tourist categories. These differences were attributed to varying travel expectations, levels of adventure-seeking behaviour, and levels of cultural exposure among the categories of tourists. In addition, tourists used online sources to obtain information before visiting the study area and 59.5% were repeat visitors and 92.7% were willing to recommend the destination to friends and relatives.

5.3 Conclusions on Each of the key Findings

Based on the indicated findings, this study made the following conclusions on each of the study objectives:

5.3.1 The Local Community Knowledge of Geotourism

Based on the findings on objective one, this study made the following conclusions;

The local community had varying levels of knowledge about geodiversity and geotourism, which significantly influenced their perceptions and appreciation of geotourism potential in the study area. The findings show that varying community knowledge levels significantly influenced perceptions of geotourism potential, as confirmed by *t*-test results with $p < 0.05$. In spite of identifying six geosites with unique intrinsic value, geotourism remains largely untapped in the study area. Major hindrances include seasonal tourism patterns, poor accessibility, lack of political support, unresolved land issues, and the absence of a formal legal and management framework.

5.3.2 Tourists' Perceived Value Tourism Products

Based on the findings on objective two of, this study made the following conclusions; The tourists highly valued geysers and hot springs, with over 90% rating their intrinsic value and over 83% rating their extrinsic value as high, indicating strong geotourism potential. The composite value scores further reinforced their recognition as geosites of universal significance, suitable for diversifying the local tourism product portfolio. The findings confirm a statistically significant difference in perceived extrinsic values of landforms across tourist categories $t(383) = 2.056, p = 0.040$, while intrinsic values showed no such variation ($p = 0.687$).

5.3.3 County Government and Stakeholders' role in Promoting Geotourism

Based on the findings on objective three, this study made the following conclusions; The stakeholders had varied interests and influence, and adopted different approaches to promote geotourism in the study area including establishing of local community conservancies with universal geosites; creating the BCCA to bring together all the community conservancies; and initiating the process of designating global geopark status to the Aspiring Baringo Great Rift Valley Global Geopark Global Geopark. Absence of a geotourism policy framework is an impediment to promoting geotourism in the study area. Therefore, there is gap for the County government of Baringo and MoT&W to develop a geotourism policy framework to guide establishment of Global Geoparks and promotion of geotourism in the study area.

5.3.4 Factors Influencing Geotourism in LBNR

Based on the findings on objective four, this study made the following conclusion; The tourists highly valued geysers and hot springs, with over 90% rating their intrinsic value and over 83% rating their extrinsic value as high, indicating strong geotourism potential. The composite value scores further reinforced their recognition as geosites of universal significance, suitable for diversifying the local tourism product portfolio. An independent samples t-test revealed significant differences in perceived destination image and motivation between domestic and foreign tourists, with p-values of 0.038 and 0.008 respectively, both below the 0.05 threshold. These differences were attributed to varying levels of familiarity and prior exposure to the area's geodiversity between the two tourist groups. This means that tourists' perceptions of destination attributes differed because foreign and domestic visitors had different degrees of knowledge and experience with the area's geodiversity.

5.4 Recommendations

This study has made some contributions on stakeholders' knowledge of geotourism potential as a means of diversifying the tourism products in the study area and based on the findings and conclusions, this study makes recommendations for policy and future research, as follows:

5.4.1 Policy Recommendations

Based on the findings and conclusions of this study, there is need to examine the following areas for deeper insight on policy issues;

- i. There is need for the County government of Baringo together with Ministry of Tourism and Wildlife to develop a geotourism policy framework to address community participation, capacity-building, establishing Global Geopark, and problems hindering the growth of geotourism in the study area.
- ii. UNESCO Global Geoparks and Baringo County government ought to recognize geysers and hot springs as universal geosites for establishing UNESCO Global Geoparks and promoting geotourism as a means of diversifying the tourism products portfolio in the study area.
- iii. Whereas UNESCO Global Geopark is a conservation, marketing concept and an avenue to growing geotourism for the benefit of rural communities- the target beneficiaries of geotourism is the local community. This study focused on the role and function of Baringo County government and other stakeholders in promoting geotourism. There is need to analyze whether local communities are the beneficiaries of geotourism development in a Global Geopark.
- iv. Both the National and County governments to implement targeted geotourism destination marketing and awareness for both domestic and international tourists, aimed at enhancing knowledge of the destination's geodiversity and thus creating a more balanced and informed perceptions of its geotourism value.

5.4.2 Recommendations for Future Research

Based on the findings and conclusions for each study objective, this study has made some contributions on stakeholders' knowledge of geotourism potential as a means of diversifying tourism products. This area of geotourism is relatively new and can benefit from future research on the following areas for deeper insight:

- i. The effectiveness of community-based geotourism awareness and capacity-building programs in enhancing local knowledge and participation in geotourism development, particularly in regions with identified geosites but limited tourism infrastructure and policy support.
- ii. Whereas this study focused on local community's knowledge of geodiversity and geotourism potential in the unprotected areas, UNESCO Check List 101, (2019) part (iiB); emphasizes on the need for the empowerment of indigenous people in promoting geotourism. Future research should focus on the impact of geotourism on Indigenous communities and their livelihoods in the unprotected areas of Baringo County.
- iii. To examine how targeted geotourism marketing strategies influence the perceptions, satisfaction, and engagement of domestic and international tourists at geosites like geysers and hot springs, solely to enhance visitor experience and promote geotourism development.
- iv. Future research should focus on whether the benefits that local communities receive from community conservancies and Benefit Sharing Act, 2020 is sufficient to encourage local communities to engage in geoconservation and geotourism in the study area.
- v. To assess the role of geotourism interpretation and information dissemination in bridging the knowledge gap between domestic and international tourists, and its impact on destination image, motivation, and visitor satisfaction in geosite destinations.

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APPENDICES

Appendix I: Letter of Introduction

My name is **Mr. Rerimoi, J. Mengich**, a PhD student at the Department of Geography, Egerton University, Kenya.

This study is about *Stakeholders' Assessment of the Potential of Geotourism in Baringo County Kenya*. By completing this survey, your participation is voluntary; and you do not have to answer questions which you do not feel comfortable with and can choose at any time not to complete the survey once started and that you will be kept anonymous. All information given will be treated with utmost confidentiality. The data to be collected will be used only for academic purposes, which to assess geotourism as a means of diversifying tourism products in Baringo County, Kenya.

Your contribution in completing this questionnaire is appreciated.

Appendix II: Letter of Consent to Participate in the Research

Dear Respondent

Identification of Researcher and Purpose of Study

You are invited to participate in PhD research entitled: *Stakeholders' Assessment of the Potential of Geotourism in Baringo County, Kenya*. This study is conducted by **Mr. Rerimoi, J. Mengich** a PhD student, Department of Geography, Egerton University, Kenya. The survey will evaluate the contributions of geodiversity resources to the diversification of tourism products and will take approximately 20 min of your time. Your participation will contribute to better understanding of geodiversity in development of tourism products.

Risks/Benefits/Confidentiality of Data

The researcher is not anticipating any known harm or risks resulting from your participation. There will be no costs for or benefits from participating. If necessary, your name and contacts will only be kept during the data collection phase for tracking purposes only. Only the researcher will have access to the data provided. The information provided will only be used for the purpose of this study.

Voluntary Participation or Withdrawal

Your participation in this study is voluntary. You may decline to answer any question and you have the right to withdraw from participation at any time, if you feel uncomfortable. Withdrawal will not affect your relationship with the researcher and/or Egerton University in anyway.

Contacts for Intervention or Advocacy

If you have any questions about the study, feel free to contact the researcher at and/or rerimoimengich@gmail.com/jackson.rerimoi@egerton.ac.ke or supervisors; Prof. Francis N. Wegulo at mununi1993@gmail.com or Prof. Stanley Makindi at mankindsm@gmail.com

Your rights as a research participant

For questions about your rights or any dissatisfaction with any part of this study, you can anonymously, if you wish, contact Egerton University.

Your contribution in completing this questionnaire is appreciated.

Yours sincerely,

Researcher: Signature: _____ Date: _____

Participant: Signature: _____ Date: _____

Appendix III: Focused Group Discussions Guide

This questionnaire sought to *evaluate local community knowledge of geodiversity and geotourism potential in the unprotected areas in Baringo County* Your correct information is important in attaining this goal.

Part A: Identification of geodiversity sites;

1. Besides wildlife and culture, what attracts tourists to this county? _____
2. Are you aware of any landforms that attractions tourist? Yes No
3. Identify non-classified geodiversity that attract tourists _____
4. Identify landforms that have potential to attract tourists to this county _____
5. For each landforms identified above, specify its geographic location (place) _____
6. State the ownership status of identified landforms; Public Private community

Part B: Assessing potential value of geodiversity sites;

1. For each named landform, identify exceptional qualities which justify its touristic importance?

Name of landform	Exceptional qualities (To include both natural and human values)

2. Do you have any knowledge of geotourism activities in this county? Yes No
3. Indicate the (possible) geotourism activities (things to do) at the identified sites _____
4. Describe accessibility of geodiversity sites _____
5. Describe fragility and vulnerability of the landforms identified _____
6. What are the use limitations of identified landforms? _____

Part C: Assessment of geotourism potential

1. What is your view on sustainability of geotourism? _____
2. Is geotourism likely to attract more tourists to this county? _____
3. Who should take the lead in developing geotourism? _____
4. Should the local community participate in developing geotourism? _____
5. Are you aware of any geopark in Kenya? _____
6. Are you aware of UNESCO Global Geoparks Network? _____

Thank you very much for your time and answers

Appendix IV: Questionnaire for Tourists

Information to Respondent: This questionnaire sought to *analyze the tourists' perceived value of landform that constitute tourism products in Lake Bogoria National Reserve in Baringo County*. Your correct information is important in attaining this goal. **Please tick the most appropriate answer.**

Part A: General Information;

- 1) Gender: Male Female
- 2) Employment/career _____
- 3) Country of usual residence _____
- 4) Purpose of visit: Educational Recreation Both educational & recreation
- 5) type of travel: Individual Group
- 6) Indicate your mode of access to this destination: by road by air on foot

Part B: The Values of Landforms/ Geodiversity

Provided below is a criterion for determining the values of landforms that constitute tourist attractions. Use it to rate your preference for this destination (where, 5 is highest & 1 is the least).

B.1: Intrinsic Value of Landforms/geodiversity

a. General Classification Value (Parameter)

**Score once*

Landform	L. Bogoria Geysers (Why we attach value to landforms?)	Rating How much?	Geosite Value Score
Intrinsic value	Suitable for recognition globally/internationally as a geosite	5	
	Suitable for recognition regionally as a geosite	4	
	Suitable for recognition nationally as a geosite	3	
	Locally important for recognition as geosite	2	
	Others	1	
	Total Score		

b. Uniqueness/ landform character or rarity value

Landform	L. Bogoria Geysers	Rating	Geosite Value Score
Intrinsic value	Unique world wide	5	
	Unique within continent of Africa	4	
	Unique at national level	3	
	Unique at county level	2	
	Typical for locality	1	
	Total Score		

c. Degree of preservation value/landform condition: intactness of the site

Landform	L. Bogoria Geysers	Rating	Geosite Value Score
Intrinsic value	No destruction	5	
	Mostly preserved, some details destructed	4	
	General features preserved, partial destruction	3	
	Mostly destructed	2	
	Totally destructed	1	
	Total Score		

d. Tourists' observations value; rate your observation about this attraction

Landform	L. Bogoria Geysers	Rating	Geosite Value Score
Intrinsic value	Excellent	5	
	Normal	4	
	Difficult	3	
	Unsuitable	1	
	Total Score		

e. Availability of information for this site from; brochures, internet, geological maps value

Landform	L. Bogoria Geysers	Rating	Geosite Value Score
	High quality information is available	5	

Intrinsic value	Moderate information is available	4	
	Little information is available	3	
	Incomplete information	2	
	No information	1	
	Total Score		

B.2: Extrinsic Values of Landforms;

f. Accessibility value; legally accessible or not /by roads-cars, rail, air, on foot

Landform	L. Bogoria Geysers	Rating	Geosite Value Score
Accessibility	Comfortable/optimal access	5	
	Highly accessible for most persons	4	
	Moderately accessible - specialized guide required	3	
	Low access for different reasons	2	
	Inaccessible for different reasons	1	
	Total Score		

g. Security value; safety criteria- any danger related to access? -falls, injury, burns

Landform	L. Bogoria Geysers	Rating	Geosite Value Score
Security criteria	Surroundings of landform is safe	5	
	Surroundings secured by security elements	3	
	Landform terrain is dangerous; No security elements/warnings	1	
	Total Score		

h. Visual value of the site

Landform	L. Bogoria Geysers	Rating	Geosite Value Score
----------	--------------------	--------	---------------------

Visual value	Object in mountainous landscape; has great distance & depth view	5	
	Object in plain landscape with great view	4	
	Object in landscape with no view on its surrounding landscape	3	
	Man-made works negatively affecting one's perception of object	1	
	Total Score		

i. Value of provided services at the site

Landform	L. Bogoria Geysers	Rating	Geosite Value Score
Value of provided services	Study room with library & labs for research purposes at the site	5	
	Accommodation and catering offer at the site	4	
	Selling of souvenirs, historical objects & books at the site	3	
	Availability of tour guide at the site	2	
	Object with no provided services	1	
	Total Score		

j. Touristic importance value of landform

Landform	L. Bogoria Geysers	Rating	Geosite Value Score
Touristic importance	Marked on touristic maps; connected to cultural features of the area	5	
	Partially connected to cultural/ historical monuments	4	
	Visited by holiday makers	3	
	Along the road serving other attractions visited by tourists	2	
	No touristic importance	1	
	Total Score		

QUESTIONNAIRE PART C: The Influence of Landforms on the Tourists' Visits to Lake Bogoria National Reserve

This part of the questionnaire seeks to; *examine the influence of destination attributes on tourists' visits to Lake Bogoria National Reserve in Baringo County.* Your correct information is important in attaining this goal. ***Tick once where applicable***

Objective 4

C.1: Destination Image

1. What kind of tourism image compelled you to visit Kenya/ this destination?

Image	Tick appropriately
Wildlife	
Geodiversity	
Cultural Heritage	
Birds	

2. Provided below is a list of types of tourists. *Tick the **one** that describes your visit;*

Type of tourist	Tick appropriately
Wildlife tourism; birds, animals, flamingoes	
Geotourism/geodiversity	
Village tourism	
Cultural tourism	
Sports tourism	
Conference tourism	
Sun-sand-sea tourism	
Ecotourism	
Others specify _____	

3. On a preference /Image scale of 1 – 5 (where 1 = least & 5 = highest) *rate these attractions;*

Type of attraction	Least highest				
	1	2	3	4	5
The “Big Five-wildlife					
Cultural attractions					
Geodiversity					
Sandy beaches					
Birds					

4. What pleases you most about geodiversity? *Tick once in the appropriate box:*

Educational value	
Natural sightseeing	
Scientific research	
Exploration	

C.2: Source of Information

1. Did you source for any information before visiting this destination? Yes No

2. If yes, which source did you use? *Tick more than once*

Source	Tick appropriately
Internet	
Brochures	
Guide book	
Magazines	
Newspapers	
Travel Agents	
Friends	
If NO: Personal experience	

C.3: Tourist Motivation

1. On a motivation scale of 1 – 5 (where 1 = least & 5 = highest) rate the reasons for your travel to this destination.

Reason for visiting	Least highest				
	1	2	3	4	5
Gain knowledge/education/learn					
Relax/ rest/ refresh					
Enjoy your self					
Experience of sense of wonder; new place /exotic place					
Escape work place boredom					
Make friends/ meet people					
For prestige					
Others <input type="checkbox"/> specify:					

2. What is outstanding (unique) about this destination? *Tick appropriately*

Destination	Size	Scientific	Geotourism	Education	Historical	Cultural	wildlife
L. Bogoria Geyser							

3. Use the scale provided below to rate this attraction. *Tick appropriately (destination experience)*

Destination	Ordinary 0	Unexpected 0.25	Authentic 0.5	Fascinating 0.75	Iconic 1
L. Bogoria Geysers					

C.4: Tourist Satisfaction

- Has your travel to this attraction met your expectation? Completely for the greater part partly not really absolutely not
- If your answer is “absolutely not” state why _____
- What do you consider as the strength/magic of this attraction _____
- What do you consider as the weakness of this attraction? _____

C.5: Frequency of Visits

- Have you visited this destination prior to this trip? Yes No
- If yes, how often do you visit? Never Rarely Less often , Often , Most often
- Would you recommend the destination to someone? Yes No
- Which destination are you coming from? _____
- Where are you going next from this destination? _____

C.6: Geotourism activities

- While at this destination, what activities do you engage in?
 - _____
 - _____
 - _____
- Are you satisfied with the range of activities in this destination? Yes No
- If No, what is your recommendation? _____

C.7: Geoconservation

- Are you aware of geoparks? Yes No
- If yes, have you ever visited any? Yes No
- If Yes, which one (s)? _____
- Do you know of any Geoparks in Kenya? Yes No

Thank you very much for your time and answers

Appendix V: Stakeholder Analysis

Dear Respondent

Introduction:

My name is Mr. Rerimoi, J. Mengich, a PhD student at Egerton University and I am conducting a study to *assess the role and function of Baringo County government and stakeholders in promoting geotourism products*. As an important stakeholder in promotion of geotourism, it is important for this study to obtain your opinion, insight, experience, and contributions and that of your organization to improve the growth of geotourism and diversify tourism in Baringo County. The information obtained through this engagement will be used in this study; writing the thesis and publishing and will be submitted to graduate school without identifying individual persons whose opinions will be obtained. I would now like to ask you a few specific questions about your opinion, insight, experience and contributions and that of your organization regarding promotion of geotourism as a means of diversifying tourism products in Baringo County.

Part A: General Information;

- 1) Date: ____ / ____ / ____ Town _____ Signature _____
- 2) Gender: Male Female
- 3) Organization /stakeholder group _____
- 4) Position in your organization _____

Part B: Stakeholders Power

In this study stakeholder power include; mandate, engagement, and cause-effect upon stakeholder in promoting geotourism. Provided below is a knowledge tool for determining stakeholder's role in promotion of geotourism. For each stakeholder provide qualitative description of its role in promoting geotourism.

S/No	Identified Stakeholder (s)	Source of mandate/ Legitimacy	Engagement in geotourism	Cause-effect upon stakeholder
1				
2				
3				
4				
5				

Part C: Interest of Stakeholders in Promoting Geotourism

For each of the stakeholder state its interest, (involvement, potential benefits, claim, rights, share, and stake) linked with promoting geotourism in the study area.

Part D: Interest and influence of Stakeholders.

Using a Likert scale; 1-5 to rate the interest and influence of each stakeholder; as provided below;

Stakeholder (s)	Potential interests linked with promoting geotourism

S/No	Stakeholder (s)	Interest(s) Likert scale; 1-5 1=Little/No interest 2=Some Interest 3=Moderate Interest 4=Very Interested 5=Critical stakeholder	Influence Likert scale; 1-5 1= <i>affect one stakeholder</i> 2= <i>affect 1 or 2 stakeholders</i> 3= <i>affect 2 or 3 stakeholders</i> 4= <i>affect 3 or all stakeholders</i> 5= <i>affect all stakeholder</i>
1	County government		
2	Community Conservancy		
3	BCCA		
4	KWS		
5	Ministry of Tourism and Wildlife		
6	KNATCOM/ UNESCO		

Part E: Types of Stakeholders

For each of the following statements, identify from the following list the most suitable stakeholder in promoting geotourism; KWS, BCCA, County Government, MoT&W, Community Conservancy and UNESCO

S/No	Statement	stakeholder
1	Who is the "voiceless" for whom special efforts may have to be made?	
2	Who are the representatives of those likely to be affected or voiceless?	
3	Who is responsible for promotion of geotourism?	
4	Who is likely to support or oppose promotion of geotourism?	
5	Who can make promotion of geotourism more effective through their participation?	
6	Who can make promotion of geotourism less effective by their non-participation or opposition?	
7	Who can contribute financial and technical resources?	
8	Who needs to do more for promotion of geotourism to succeed?	

Part E: Support for geotourism:

1. On a scale of 1-5; where 1 is the least and 5 highest, describes your opinion on promoting of geotourism by the stakeholders (*Read answer options and tick answer given once for each for each stakeholder*)

Stakeholder(s)	strongly support it (5)	somewhat support it (4)	do not support nor oppose it (3)	somewhat oppose it (2)	strongly oppose it (1)
KWS					
BCCA					
County government					
MoT&W					
Community Conservancy					
UNESCO					

2. Reasons for supporting or not supporting geotourism;

(a) Under what conditions would a stakeholder choose to support geotourism?

(b) Under what conditions would a stakeholder choose NOT to support geotourism?

Part F: Other Supporters

(a) What other organizations or persons do you think would support geotourism yet not included in this study?

(b) What do you think these stakeholders would do different in promoting geotourism?

Part G: Other opponents

(a) What other organizations or persons do you think would oppose promotion of geotourism?

(b) What do you think could be the reasons for their opposition promotion of geotourism?

Thank you very much for your time and answers!

Appendix VI: Interview Schedule for Key Informants

Information to respondent: This questionnaire seeks to assess stakeholders' assessment of the Potential of Geotourism tourism products in Baringo County, Kenya. Your correct information is important in attaining the objective of this study.

Part 1: General information

1. Besides wildlife and culture, what attracts tourists to Baringo County?
2. Are you aware of geotourism?
3. Identify non-classified geodiversity sites that attract tourists
4. Identify potential geodiversity sites which might attract tourists to this county

Part 2: Assessment of geotourism potential

1. Indicate the (possible) geotourism activities (things to do) at the identified sites
2. Are you satisfied with the range of tourist activities in this County?
3. Is geotourism likely to attract more tourists to this county?
4. Are you aware of any geopark in Kenya?
5. Are you aware of UNESCO/GGN role in creating Geoparks?
6. Are there any licensed operators on geotourism
7. What strategies are put in place to encourage more tourists to engage in geotourism
8. Use the scale provide below (1= least & 5=highest) to rate the values of landforms that influence choice of destinations by tourists in this county.

	Value	Least					Highest
		1	2	3	4	5	
Landform	Uniqueness/rarity						
	Degree of preservation/intactness						
	Observation condition						
	Availability of information						
	Accessibility						
	Security						
	Visual value						
	Value of provided services						

Part 3: Sources of Tourism Information

1. Sources of obtaining tourism information. Which ones apply to tourists visiting Baringo county?

Means of providing information	Tick appropriately
Through County website/ internet	
Through print media/ Television	
Through brochures	
On Kenya Tourism Board website	
Through tour operator or travel agent	
Through fairs, exhibitions or road shows	
Others, specify	

Part 4: Tourist Motivation

1. What kind of tourism image compels tourists to visit Kenya/ or tourist destination?
2. On a scale of 1 - 5 (where 1 = least & 5 = highest) rate reasons, which motivate tourist to visit Baringo County

Reason for visiting;	Least highest				
	1	2	3	4	5
Gain knowledge/education/learn					
Relax/ rest/ refresh					
Enjoy your self					
Experience of sense of wonder; new place /exotic place					
Escape work place boredom					
Make friends/ meet people					
For prestige					
Others <input type="checkbox"/> specify:					

Part 5: Tourist Satisfaction

1. Do you think that attractions in the county meet tourist expectation?
2. What are the strengths/magic and weaknesses of this County?

Part 6: Tourism resources and products

1. Is there a geotourism plan for this county and who are responsible for developing it?
2. On a scale of 1 - 5 (1= least & 5= highest) rank the main tourism resources in this county

Tourism resource	Rank				
	1	2	3	4	5
Biodiversity/ wildlife					
Geodiversity/Landforms					
Cultural heritage					

Others; specify					
-----------------	--	--	--	--	--

3. Below are types of protected areas for conservation of nature and heritage. Tick the ones that exist in this county

Types of protected areas	Tick appropriately
National parks	
National reserves	
National monuments	
Biosphere	
World heritage site	
Ramsar site	
Global geoparks/ geoparks	

4. On a scale of 1 – 5 (1 = least & 5= highest) rank the main tourism products in this county

Tourism product	Rank				
	1	2	3	4	5
Wildlife-based tourism					
Geodiversity/Landforms					
Cultural heritage					
Others; specify					

5. Are you satisfied with variety of tourism products in this county?
 6. Is there a policy on tourism product diversification?
 7. What additional products have been introduced to diversify tourism in this county?

Part 7: Tourism Marketing

1. Is there a tourism marketing strategy in this county?
 2. Use the table below to indicate the kind of tourism image portrayed about this county?

Tourism image	Tick once
Geodiversity destination	
Wildlife/ Big Five destination	
Cultural	
Ecotourism	

3. Are you satisfied with the total number of tourists to this county?
 4. What measures have been put in place to increase the total number of tourists?

Part 8: Availability of information on geotourism destination (geosites)

1. Do you agree with the following statements on the status of information on print or electronic

media about attractions in this county?

- i) Available and quality information on the internet/website Yes No
- ii) Information is available but incomplete Yes No
- iii) Information is missing on some attractions Yes No
- iv) Information on direction of attraction is available Yes No
- v) Signage information is available Yes No

Part 9: Value of provided services to tourists at destinations (geosites)

1. Do you agree with the following statements about the value of provided services?

- i) Study room with library and laboratories for research purposes is available Yes No
- ii) Accommodation and catering offer available at the site Yes No
- iii) Stalls selling souvenirs, books and advertising objects available at the site Yes No
- iv) Sanitation facilities available at the site Yes No
- v) Geoguides are available to provide information at the site Yes No
- vi) No provided services at destination Yes No

Thank you very much for your time and answers!

Appendix VII: Field Observation Schedule

This observation schedule shall be used during data collection in the field to assess stakeholders' knowledge of geotourism potential as a pathway to diversifying tourism products in Baringo County, Kenya.

1. Identify the type of tourism product: wildlife geodiversity cultural
2. Identify mode of travel: Group Individual
3. Identify the type of geodiversity _____
4. Identify the type of geotourism activities undertaken by tourists _____
5. Identify any information on geotourism _____
6. Identify any safety standards for tourists _____
7. Identify intrinsic values of landforms _____
8. Identify infrastructure to develop geotourism _____
9. Identify type of conservation area;
 - i) Protected area; National park National reserve Geopark others: specify _____
 - ii) Unprotected area
 - iii) Type of protection: Public Private Community
10. Identify provided services;
 - i) Study room with library and laboratories for research purposes Yes No
 - ii) Accommodation and catering at the site Yes No
 - iii) Books and advertising at the site Yes No
 - iv) Sanitation facilities available at the site Yes No
 - v) Geoguides are available to provide information Yes No
 - vi) No provided services at destination Yes No

Appendix VIII: Egerton University Research and Ethics Committee

EGERTON

TEL: 051-2217808
Fax: 051-2217942
e-mail: dvcre@egerton.ac.ke
website: www.egerton.ac.ke



UNIVERSITY

P. O. BOX 536-20115
EGERTON

RESEARCH ETHICS REVIEW COMMITTEE

EU/RE/DVC/009
Approval No. EUREC/APP/075/2018

11th January, 2019

Mr. Rerimoi J. Mengich,
Egerton University,
P. O. Box 536-20115,
EGERTON

Dear Mr. Mengich,

RE: Initial Submission - Ethical Clearance Approval of Assessment of Geotourism as a Strategy for Diversifying Tourism Products in the Western Tourist Circuit, Kenya

Reference is made to your application for Ethical Clearance of your Research Project entitled: **“An Assessment of Geotourism as a Strategy for Diversifying Tourism Products in the Western Tourist Circuit, Kenya”**

It was observed that you addressed all the ethical issues that were raised in a Committee Meeting held on **29th November, 2018** through your response dated **17th December, 2018**. On the basis of this, your application is therefore granted ethical **Approval No.EUREC/APP/075/2018** for implementation effective for one year from **8th January, 2019** upon which you are expected to apply for renewal if the study will not have ended by time of expiry of this approval. Please further note that the Standard Operating Procedures (SOPs) requires that you submit progress reports twice in a year and a final report at the end of your study to the Committee.

Any unanticipated problems resulting from the implementation of this protocol should be brought to the attention of the Committee notifying them of any proposal change(s) or amendment(s), serious or unexpected outcomes or study termination for any reason. You are also required to inform the Committee when the study is completed or discontinued.

Your proposal has therefore been given ethical approval. You are required to obtain a Research License from NACOSTI by checking <https://oris.nacosti.go.ke/guidelines.php> and ensure that you comply with other regulations/ requirements e.g. MTA, Data transfer, access permit, export license etc. as and when applicable before commencement of your study.

Yours faithfully,

Prof. J. K. Kipkemboi
CHAIRMAN – RESEARCH ETHICS COMMITTEE

JKK/SK/sam


cc. DVC (R&E) - To note the file copy

Appendix IX: NACOSTI Research Permit


THIS IS TO CERTIFY THAT:
MR. JACKSON MENGICH RERIMO
of EGERTON UNIVERSITY, 0-20115
 Egerton, has been permitted to conduct
research in Baringo , Elgeyo-Marakwet
, Kakamega , Transzoia Counties


on the topic: AN ASSESSMENT OF
GEOTOURISM AS A STRATEGY FOR
DIVERSIFYING TOURISM PRODUCTS IN
THE WESTERN TOURIST CIRCUIT, KENYA

for the period ending:
1st February,2020


Applicant's
Signature

Permit No : NACOSTI/P/19/58910/27843
Date Of Issue : 1st February,2019
Fee Received :Ksh 2000




Director General
National Commission for Science,
Technology & Innovation


THE SCIENCE, TECHNOLOGY AND
INNOVATION ACT, 2013


The Grant of Research Licenses is guided by the Science,
Technology and Innovation (Research Licensing) Regulations, 2014.

CONDITIONS

- 1. The License is valid for the proposed research, location and specified period.**
- 2. The License and any rights thereunder are non-transferable.**
- 3. The Licensee shall inform the County Governor before commencement of the research.**
- 4. Excavation, filming and collection of specimens are subject to further necessary clearance from relevant Government Agencies.**
- 5. The License does not give authority to transfer research materials.**
- 6. NACOSTI may monitor and evaluate the licensed research project.**
- 7. The Licensee shall submit one hard copy and upload a soft copy of their final report within one year of completion of the research.**
- 8. NACOSTI reserves the right to modify the conditions of the License including cancellation without prior notice.**

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RESEARCH LICENSE


Serial No.A 22979
CONDITIONS: see back page

Appendix X: List of Publications

Rerimoi, J. M., Wegulo, F. N. & Makindi, S. M. (2025). Tourists' Perceived Value of Geotourism Potential in Baringo County, Kenya. *African Journal of History and Geography*, 4(1), 106-122. <https://doi.org/10.37284/ajhg.4.1.2825>.

African Journal of History and Geography, Volume 4, Issue 1, 2025
Article DOI: <https://doi.org/10.37284/ajhg.4.1.2825>

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ajhg.sanso.org
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 **EANSO**
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ORGANIZATION

Original Article

Tourists' Perceived Value of Geotourism Potential in Baringo County, Kenya

Jackson Mengich Rerimoi^{1*}, Prof. Francis Nyongesa Wegulo, PhD¹ & Prof. Stanley Maingi Makindi, PhD²

¹ Egerton University, P. O. Box 536-20115, Egerton, Kenya.
² Machakos University, P. O. Box 136-90100, Machakos, Kenya.
* Author's ORCID ID: <https://orcid.org/0000-0002-2610-1482>; Email: jackson.rerimoi@egerton.ac.ke

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Keywords: Geotourism, Diversification, Geosite, Perceived Value, Geodiversity.

Tourism is a key driver of socio-economic development whose continued expansion and growth are key for the economy of many countries. The growth and expansion of this sector will however depend upon exploiting other niche areas such as geotourism, as is the case in Europe and Asia. This is unlike in most African countries including Kenya which are yet to embrace this sub-sector despite its rich geodiversity. In Baringo County, little is known concerning the perceived value of geotourism's potential to contribute towards diversifying tourism. This study therefore sought to assess tourists' perceived value of geysers and hot springs in Lake Bogoria. This study adopted the Self-Determination theory and survey research method. All the tourists that visited Lake Bogoria during the study period provided the required data. A sample of 385 tourists was purposively selected for interview using a self-administered questionnaire. SPSS was used for the analysis of quantitative data while a modified Strba and Rybar scale was used for interpreting results. The results showed that the geysers and hot springs had high geotouristic value scores, indicating universal suitability for geotourism. They also had iconic value, suitable for recognition as a geosite. These geysers and hot springs offered opportunities for growing geotourism and diversifying tourism. The study concludes that UNESCO Global Geoparks should recognize geysers and hot springs as universal geosites. This study highlights the importance of embracing and promoting geotourism in the study area.

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Original Article

Local Community Engagement with Geodiversity and Geotourism in Unprotected Areas: Insights from Baringo County, Kenya

Jackson Mengich Rerimoi¹, Prof. Francis Nyongesa Wegulo, PhD² & Prof. Stanley Masingi Makindi, PhD³

¹ Egerton University, P. O. Box 586-20115, Egerton, Kenya.

² Machakos University, P. O. Box 136- 90100, Machakos, Kenya.

³ Author for Correspondence ORCID ID: <https://orcid.org/0000-0002-2610-1462>; Email: jackson.rerimoi@egerton.ac.ke

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Keywords:

Community Knowledge, Geodiversity, Geotourism, Unprotected Areas, Local Community.

Kenya's tourism has long centred on wildlife, overlooking the potential of geodiversity-rich landscapes. Despite geotourism's global rise as a niche market, Baringo's unprotected areas, with iconic geological features, remain underutilised. Moreover, little is known about local community understanding of the geodiversity and the potential of geotourism in the study area. This study, therefore, assessed local community's knowledge of geodiversity and geotourism potential in Baringo County. Anchored on Kirkpatrick's perception model, this study used a mixed methods research design. This study adopted purposive sampling, and primary data was collected from eight local community participants through focused group discussion and 385 tourists. Data were analysed using the Kirkpatrick perception model and validated using Student's t-test. Findings revealed three knowledge topologies and that the local community knowledge significantly influenced geotourism perception ($p < .05$). The study concludes that varying community knowledge significantly influenced perceptions of geotourism potential, underscoring the importance of knowledge topologies in shaping community engagement. This study recommends strengthening community-based geotourism awareness and fostering stakeholders' collaboration to promote geotourism, including the potential establishment of a UNESCO Global Geopark in Baringo County, Kenya.

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